

# Value Creation in Leveraged Buyouts

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and

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St. Gallen, April 19, 2005

The President:

Prof. Ernst Mohr, PhD



*To my Mother Beatrice –  
For her Love, unrelenting Dedication  
And Support towards my Education.*



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## List of Abbreviations

A	Assets
Acq.	Acquisition
AIM	Alternative Investment Management
ARD	American Research and Development Corporation
Avg	Average
BO	Buyout
bn	Billion
CAGR	Compounded Annual Growth Rate
CalPERS	The California Public Employees' Retirement System
CAPM	Capital Asset Pricing Model
CD&R	Clayton, Dubilier & Rice, Inc.
CEO	Chief Executive Officer
CFA	Certified Financial Analyst
CFO	Chief Financial Officer
CH	Switzerland
CPA	Certified Public Accountant
DB	Deutsche Bank
Df	(Statistical) Degree of Freedom
E	Equity
EBITDA	Earnings before Interest, Depreciation, Amortization and Taxes
Ec.	Economics
e.g.	Exempli gratia (Latin), for example
EM	Equity Multiplier
ESOP	Employee Stock Ownership Plan
et al.	Et alii, et aliae, et alia (Latin), and others
etc.	Et cetera (Latin), and other things, and so forth
EU	European Union, Europe
EV	Enterprise Value
EVCA	European Private Equity and Venture Capital Association
Exp.	Experience
FV	Future Value
GDP	Gross Domestic Product
GH	General Hypothesis
GP	General Partner
H	Hypothesis
HBS	Harvard Business School
HEC	Haute Etudes Commerciales School of Management

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Herf. D.	Herfindahl Degree (Index)
Hold Per	Holding Period (of Investment)
i.e.	Id est (Latin), that is
Ind.	Industry
Inv Cap	Invested Capital
IPO	Initial Public Offering
IRR	Internal Rate of Return
IT	Information Technology
JD	Juris Doctor, Doctor of Law
KKR	Kohlberg Kravis Roberts & Co.
LBO	Leveraged Buy-Out
ln	Natural Logarithm
LP	Limited Partner
M&A	Mergers & Acquisitions
M.B.A.	Master of Business Administration
Mgmt	Management
mm	Million
MBI	Management Buy-In
MBO	Management Buy-Out
MIT	Massachusetts Institute of Technology
MSCI	Morgan Stanley Capital International, Inc. (Capital Market Indices Provider)
MSDW	Morgan Stanley Dean Witter
N/A	Not announced, not applicable
NAV	Net Asset Value
N, n	Statistical Frequency, Case Number
ND	Net Debt
NI	Net Income
NVCA	American National Venture Capital Association
NYU	New York University
p	(Statistical) Probability Value
PC	Portfolio Company
PE	Private Equity
PEIGG	Private Equity Industry Guidelines Group
PhD	Philosophi Doctor (Latin), Doctor of Philosophy
PPM	Private Purchase Memorandum
P-to-P	Public to Private
R&D	Research and Development
Rev	Revenues
ROE	Return on Equity
S&P	Standard and Poors
SBA	Small Business Administration

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SBIC	Small Business Investment Companies
SFA	Securities and Futures Authority
Sig.	Significance
StDev	Standard Deviation
TMT	Technology, Media and Telecom; Top Management Team
UCLA	University of California Los Angeles
U.K.	United Kingdom
Uni	University
U.S.	United States of America
USA	United States of America
US\$	U.S. Dollar
USD	U.S. Dollar
VC	Venture Capital
VE	(Thomson Financial) Venture Economics
VIF	Variance Inflation Factor
WACC	Weighted Average Cost of Capital
yrs	Years

## Abstract

This study addresses sources of value creation in leveraged buyouts. Prior studies in the field of Private Equity – and especially buyout – research broadly suffered from a lack of accessibility to the highly confidential buyout deal and fund performance data of Private Equity firms. Following the establishment of a few selective, successful research collaborations with leading Private Equity Fund investors (Limited Partners) and subsequent access to their vast archives of collected information, including obtained performance data, this study sheds light on the performance dynamics of a sample of more than 3,000 realized and unrealized leveraged buyout transactions, undertaken by 84 of the major buyout-focused U.S. and European Private Equity firms, drawn from 252 of these firms' funds between 1973 and 2003, with the majority of recorded transactions taking place during the 1990s. The study addresses value creation drivers according to three dimensions: (i) exogenous, i.e. capital market-, industry-, financial- and acquisition-related value drivers, (ii) endogenous, i.e. buyout investment manager and buyout firm profile as well as experience related drivers, and (iii) buyout acquisition strategy related value drivers.

The theoretical part reviews two competing explanations for the phenomenon of apparently significantly higher value generation and return out-performance of leveraged buyouts undertaken by financial buyers, when weighed against comparable companies on the one side, as well as compared to common merger and acquisition activity of strategic buyers on the other side. The agency theoretical explanation is established around the far-reaching changes in corporate governance regimes at buyout targets post acquisition: the frequent use of managerial incentives act as stimuli for closer management supervision and control on the one side, and as a mean to initiate more radical strategic change on the other side. By contrast, the strategic management view is centred around the fact that in the event of a complete absence of synergies that would drive acquisition rationales of strategic buyers, the interaction and knowledge transfer between the LBO firm and its portfolio companies as well as the development of an acquisition competence on part of the LBO organization must be seen as most important available source for the observed degree of value generation. Subsequently, the theoretical part continues by providing an in-depth overview of possible direct and indirect drivers of value creation or value destruction in leveraged buyouts, based on the universe of available buyout literature. The theoretical section also offers a framework to analyse leveraged buyout transactions and introduces the “leveraged buyout value attribution formula”, a deduction from the Dupont formula that makes explicit the relative sources of value generation in a particular buyout.

The empirical part is structured into three main chapters alongside the above identified three dimensions of potential sources of value creation. The first empirical chapter starts with an overview of the universe of leveraged buyout transactions, assembled by Private Equity information provider Thomson Financial Venture Economics, with respect to Private Equity fundraising and fund performance history. Subsequently, based on the primary transaction dataset

collected from Limited Partners, the study finds evidence that several of the herein examined exogenous factors such as entry and exit years, entry and exit types and modes, industry, country/origin, amount of invested capital, percentage of ownership, holding period, acquiring GP firm, industry and equity market performance, as well as industry financial development, have demonstrated to be (statistically) significant value/performance drivers in the leveraged buyout value creation process, as measured by the dependent variable gross deal performance's internal rate of return (IRR).

The second empirical chapter introduces endogenous factors of value creation, focusing on the LBO organization and its members. The Private Equity firms examined in this study were screened with a view on their investment managers' level and type of education, professional experience as well as the buyout firm's hierarchical homogeneity/diversity and organizational deal-making experience profile. The study finds evidence that the professional experience, and to a lesser degree the investment managers' education, has a significant impact on expected returns. In addition, the LBO firm's organizational structure, team composition and diversity vs. homogeneity configuration are found to play an important role from a return perspective. Detailed, previously unpublished descriptive results with respect to profiling characteristics of investment manager backgrounds and LBO firm organizations are presented. Moreover, in contrast to earlier findings from the M&A literature field, this study uncovers evidence for the existence of a learning effect in executing buyout transactions. While a long transaction experience track record (often associated with more established funds) and geographic investment focus proves to be positively correlated to performance, a focus limited to one or few industries does not. These findings collectively underline the existence of a "GP effect" in leveraged buyouts.

The third and final chapter of the empirical part presents descriptive and statistical results published for the first time in this form of an analysis of leveraged buyouts' strategic value drivers, i.e. what observable strategies do buyout firms follow and which buyout target characteristics and strategic deal decisions may lead to higher value creation. Despite being partially restricted by lower subsample sizes for a few of the analyzed independent variables (and hence accompanied by lower statistical significance levels), the exploratory micro-level analysis in this study offers several surprising results regarding buyout target characteristics, affirming both prior agency theoretical and to a lesser extent strategic management theory oriented M&A literature. The analysis of strategic measures in the critical post-acquisition management phase demonstrates that an exchange of top management teams as well as growth oriented (also through add-on acquisitions) rather than cost cutting strategies will benefit buyout transaction returns. Overall, the agency theoretical explanation of superior returns in leveraged buyout finds stronger evidence.

In summary, the presented study's research approach has been of exploratory nature and its main contributions to theory and practice can be seen in the developed three-pillared conceptual framework, an unparalleled sample size compared to any study in Private Equity research (as known by the author at this time) as well as the magnitude of previously unpublished descriptive

and statistical findings regarding performance of leveraged buyout transactions. The consistently high levels of statistical significance further support the chosen research design. Each of the three chapters of the empirical results part is thereby seen as major ground to further deepen the understanding of academia and practitioners in the future. Moreover, this study has also intentionally omitted one area of potential future research: the acquisition-related dynamics and interactions initialized through the buyout firm on the portfolio company management level.

“Once you buy a company, you are married. You are married to that company. It’s a lot harder to sell a company than it is to buy a company. People always call and congratulate us when we buy a company. I say, ‘Look, don’t congratulate us when we buy a company, congratulate us when we sell it. Because any fool can overpay and buy a company, as long as money will last to buy it.’ Our job really begins the day we buy the company, and we start working with the management, we start working with where this company is headed.”

*Henry R. Kravis*  
*Financier and Investor*



# 1. Introduction

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## 1.1. Background of Research

Leveraged Buyouts (LBOs) came to fame during the 1980s in the United States when they contributed as a major ingredient to the hostile takeover boom at that time. The American corporate sector had experienced a dramatic increase in leveraged buyout activity between 1979 and 1989 with over 2,000 leveraged buyouts valued in excess of \$250 billion (Opler and Titman 1993). The new phenomenon found a climax in 1989, when Private Equity firm Kohlberg, Kravis & Roberts (KKR) acquired RJR-Nabisco for \$25 billion in a leveraged buyout takeover, a transaction almost double the size of the largest previous acquisition to that date, the \$13.2 billion Chevron purchase of Gulf Oil in 1985 (Jensen 1989a). The extraordinary returns on early LBO investments had led to an inflow of large amounts of capital from investors into LBO funds (Kaplan and Stein 1993). Both the number of transactions and the average size of the deals had increased significantly during the decade. However, capital market turbulence in the late 1980s, especially following “Black Monday” on October 19<sup>th</sup>, 1987 as well as changes in the financial market environment and defaults of a range of highly levered target companies led to a rapid decline of leveraged buyout activity as well as a breakdown of the associated high yield (or junk) bond market until 1990-91 (Kester and Luehrman 1995; Allen 1996).

More recently, the Private Equity industry has seen considerable growth again, especially in the formerly rather immature European market. On a per capita basis, European buyout activity is still approximately half the level of the U.S., whereas venture investment stands at one-sixth of U.S. levels. The European market has grown in value from €500 million in 1984 to €24.3 billion in 2001 (Gompers and Lerner 2002). Several specific drivers can be identified, which contributed to this growth: European governments have broadly lifted prohibitions on Private Equity investment and introduced fiscal reforms to boost this attractive alternative investment asset class, most notably in Germany, which has become the most active buyout market in Europe (Bance 2002). General changes in employment policies, increased government funding and taxation reforms have further benefited the investment environment. Many countries in Europe have been re-examining their bankruptcy rules to ease restrictions on debtors. Along with that, the emergence of more dynamic financial markets has aided high yield debt issuance in particular – a key factor in the earlier development of Private Equity in the United States (Gompers and Lerner 2002). Growth in buyout activity was also amplified by the general dramatic drop in asset prices as part of the global economic downturn that entailed the stock market decline after March 2000. In these environments of uncertainty since then, merger and acquisition activity has since then to a great extent been driven by buyout firms, as large corporations have been more focused on aggressively restructuring their business portfolios in order to strengthen their balance sheets and improve profitability.

The rise of leveraged buyouts during the 1980s has led to a highly controversial public discussion. One popular hypothesis offered for buyout activity is that Wall Street (i.e. Private Equity firms supported by a staff of Investment Banking and legal advisors) is engineering transactions to buy and sell well-established firms out of “pure greed”. The general notion was that these transactions reduce productivity and destroy shareholder value, while generating high fees for investment bankers and lawyers (Jensen 1989a). However, academic research has addressed and alleviated many of these allegations, particularly stressing some of the benefits of buyout transactions for companies and their stakeholders. Jensen (1989a) put forward the idea of the LBO association as a new organizational form due to its distinctive characteristics as an “active investor”<sup>1</sup>, while KKR (1989) played down this argument by countering that leveraged buyouts are “rather a financing technique than a new type of business”. In addition, research has shown that there are clear indications of value creation in leveraged buyouts through various value capturing and value creating levers. These levers include financial engineering, an increase of operational effectiveness and an increase of strategic distinctiveness. In addition, buyouts seem to considerably reduce agency costs through the radical changes in the acquired companies’ ownership structure. Moreover, a renewed spirit of entrepreneurship and innovation can frequently be found in firms after buyout transactions. As a consequence, important value contributors are therefore seen in the strong rise in management incentives and the significant improvement of corporate governance structures (Singh 1990; Thompson and Wright 1991)<sup>2</sup>.

## 1.2. Problem Statement

The background to the proposed dissertation topic is the struggle of current academic literature to explain the abnormal returns created in buyouts compared to M&A activity by strategic investors. It is also intended to challenge the current thinking in strategic management theory<sup>3</sup>: The most widely discussed theoretical schools in strategic management – the resource-based view of the firm on the one side (Penrose 1959; Rumelt 1984; Wernerfelt 1984; Barney 1986; Dierickx and Cool 1989), and the capability-based view of the firm on the other side (Nelson and Winter 1982; Kogut and Zander 1992; Grant 1996; Teece and Pisano 1997) – see the sources for sustainable competitive advantage in the ability to share and redeploy resources within and across organizational domains. Assuming that this is true, then it should follow that firms involved in horizontal and related acquisitions, where the potential for the redeployment and sharing of resources is maximized, should create consistently more value than firms involved in acquisitions where potential for value creation through resource sharing and redeployment does not exist (i.e. in

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<sup>1</sup> Expression formed by Michael C. Jensen, Edsel Bryant Ford Professor of Business Administration at Harvard Business School, during a statement he was asked to make before the U.S. House Ways and Means Committee, on February 1<sup>st</sup>, 1989, to provide the concerned committee with his assessment of the ongoing leveraged buyout activity in the United States.

<sup>2</sup> This is discussed in further detail in section 2.5.2.

<sup>3</sup> For an in-depth discussion of the challenges put forward by LBO’s superior performance to the resource- and capability-based views, see Gottschalg (2002).

buyout transactions). While this has been found to be at least partially supported (Chatterjee 1986; Lubatkin 1987; Lubatkin and O'Neill 1987; Singh and Montgomery 1987; Seth 1990; Healy, Palepu et al. 1992) in comparing related and unrelated acquisitions by so-called “strategic” buyers (i.e. firms engaged in manufacturing or service activities), the empirical evidence seems to show that the opposite is true when the performance of these acquirers is juxtaposed to the performance of “financial” acquirers (i.e. LBO firms engaged in the acquisition and divestiture of companies as their principal activity), which, by definition, cannot leverage any type of traditional resource-based advantage with the acquired firms (Gottschalg 2002).

This contrast is particularly striking when the average returns to shareholders of “strategic” acquirers are compared with similar returns provided by “financial” acquirers specialized in leveraged buyouts (LBOs) to the investors in the closed-end funds that they manage in order to carry out their acquisitions. Whereas in the former case, literature shows that the average abnormal return to acquirers’ shareholders is zero (Jensen and Ruback 1983; Franks, Harris et al. 1991) and in some studies is even found to be significantly negative (Agrawal, Jaffe et al. 1992), the average returns to investors in buyout funds are consistently and abundantly superior, ranging historically well above 30% average compound annual return (Kaplan 1989b) and maintaining superior, albeit lower, levels even in recent years (Venture-Economics 1999; Butler 2001; CalPERS 2002; Reyes and Mendell 2004; Venture-Economics 2004). The superiority of returns from buyout investments remains even after an adjustment for differences in financial leverage and operational risk between buyout transactions and the average “strategic” acquisition (Kaplan 1989b).

As a result of this apparent phenomenon of consistently higher returns found among leveraged buyout compared to strategic buyer transactions, this study shall (i) theoretically explore an appropriate framework to study this research topic, (ii) provide (descriptive and statistical) evidence about the seemingly superior value creation dynamics in leveraged buyouts, and (iii) make explicit the underlying value drivers and success factors that contribute to this (out)performance. In an unprecedented analysis of both primary and secondary Private Equity fund and deal data collected within research partnership agreements with Venture Economics and renowned Private Equity Fund of Fund investors, the author seeks to lift part of the mystery surrounding buyout performance and to re-introduce an under-researched topic to the academic world.

### **1.3. Need for Study**

The present study is motivated by the overall relatively sparse amount of research in the fields of finance and strategic management on leveraged buyouts, especially with regard to performance and its value drivers. One of the key reasons for the lack of studies in this field has been the traditional

difficulty in accessing data.<sup>4</sup> Unlike in the public market domain, where both stock performance data and accounting information are easily accessible, the Private Equity industry in particular has sealed disclosure of both fund and deal performance. Most of the influential literature on the topic was published during the late 1980s and early 1990s, when the buyout phenomenon became a matter of public and academic interest, with a lower number of major contributions during the late 1990s. The recent steep increase in leveraged buyout activity has now also revived research efforts. Among the most recent, the finance field has contributed with several working papers on Private Equity fund performance, based on Venture Economics data (Kaplan and Schoar 2003; Ljungqvist and Richardson 2003). However, no single study has been introduced yet, which endeavored to take a holistic view on the topic of performance of buyouts and its drivers. The author saw the clear potential to gain access to (i) a meaningful set (i.e. significantly larger than for prior studies) of individual buyout transaction data, and (ii) Private Equity industry experts, in order to design a research model that takes into account the key drivers of buyout performance, thereby making a contribution to this field of research that goes beyond a pure financial evaluation of buyout fund performance (i.e. analysis of the Private Equity investment asset class).

## 1.4. Purpose of Study

The study is aimed at two audiences – Academia as well as Private Equity practitioners. The goal of applied corporate finance research is to identify a research gap, which makes a contribution to finance theory-building and equally provides answers to current real-world issues. The former point has been challenged above such that the author seeks to fill an evident research gap through a holistic methodology towards sources of value creation in buyouts. Concerning the latter point, the Private Equity industry is undergoing radical changes: the increased investor pressure for more explicit disclosure in the Private Equity industry, the need for institutional investors such as Private Equity Fund of Funds to identify top quartile performing LBO funds for their large scale investment decisions as well as an expected consolidation in a currently overcrowded and to a large extent still underinvested Private Equity industry form a fascinating basis for this study.

Accordingly, this study could and should therefore be read both with an academic and practitioner's eye: On the one hand, the academic reader may want to focus on the literature review, the research model and applied methodology, the dataset, variable hypothesis discussion as well as test and interpretation of statistical results. The academic reader may pay less attention to the descriptive sections, which graphically present and review extensive new insights on performance distributions and determinants of value creation, however, not all of which can be

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<sup>4</sup> Important more recent LBO (operating financial) performance studies with respect to sample size include Long, W. F. and D. F. Ravenscraft (1993a), using a sample of 209 leveraged buyouts (LBOs) and 48 going private transactions occurring between 1978 and 1989, or Opler, T. and S. Titman (1993), using a sample of 180 LBOs between 1980 and 1990.

verified through statistical significance.<sup>5</sup> On the other hand, the (LBO fund investor/analyst or Limited Partner) practitioner may especially focus on the descriptive results with a view on how to improve his/her institution's fund due diligence processes in order to make better (top quartile) LBO fund investment decisions. Of particular importance could be the deduction and application of the value attribution formula (see section 3.5.4.), the evaluation of buyout performance versus industry (index) performance and the analysis of buyout firm and investment managers in the second chapter of empirical results. Finally, from a General Partner view, the study should provide recommendations to questions such as which industry sectors have historically performed exceptionally well, which entry and exit characteristics and market conditions surrounding buyout targets are advantageous as well as which strategic actions on average as well as on a relative basis should receive the highest investment-managerial attention. The following figure 1 summarizes the author's suggested approach to reading this study, according to audience:

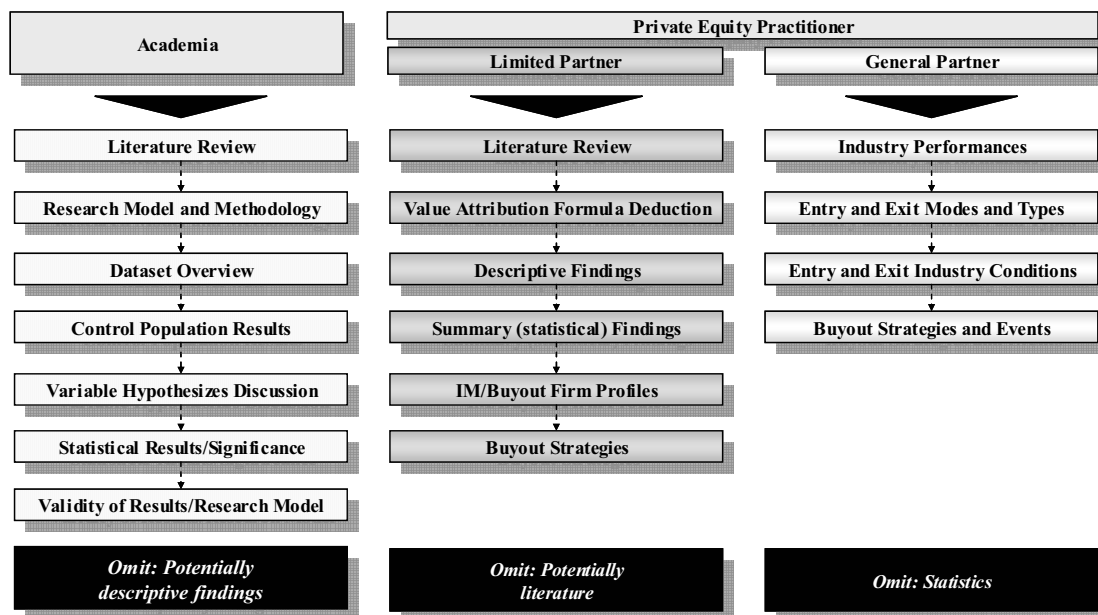


Figure 1: Purpose of Study – Suggested Approach to Reading according to Audience

## 1.5. Scope and Limitations

The scope of this study is intended to provide a broad and holistic overview of potential sources of value creation in leveraged buyouts. The chosen research design is built upon three main pillars of value drivers, which are given near equal attention through three empirical chapters; each area of value drivers is considered distinct and hence requires a separate empirical analysis and approach. The study is of a highly exploratory nature and intends to make explicit trends in an un-researched

<sup>5</sup> Also compare section 3.7.2., which further provides a useful overview of the approach to data analysis in this study.

field, i.e. offers at length a new approach to evaluating buyout performances. It is also based on an unprecedented dataset, i.e. with regard to breadth of buyout transactions, i.e. total number, and depth of buyout transactions, i.e. extent of codified and extracted data/information as well as number of calculated variables. The study therefore promotes an extensive graphical and descriptive presentation and discussion of results. Due to the complexity of tested variables, statistical analysis cannot be computed on all variables at once, but is tested group-wise on various sub-samples of the total primary dataset, however, clearly divided within the empirical chapters. Results from the statistical analysis crucially need to be put adjacent to the descriptive findings, as the latter's recommendations and trends cannot broadly be validated without appropriate statistical significance levels.

Consequently, the limitations of this study's approach are considered twofold. First, due to the chosen holistic approach to the study's research design, and hence created complexity resulting from a breadth of variables tested throughout the three empirical chapters, the overall research model, as outlined in section 3.3., may lose some degree of its transparency at times. In fact, the author considers each empirical chapter in itself as highly fertile ground for further research which eventually must be extended through further literature field interpretation and further developed tests. Secondly, this study does not propose explaining or even giving an educated indication of levels of net return (to investors) in the Private Equity or Buyout Fund investment asset class, as this analysis would need to be based on an exact, time-sensitive evaluation of cash flows, adjusted for market and risk factors. Instead, this study is solely concerned with *the illumination of actual observed levels of gross buyout performance*, e.g. comparisons with public market investment, the relative attractiveness of the alternative investment options the buyout firm encounters at any given time, as well as distinct value drivers from three major sources – market and financial drivers, buyout manager and buyout firm drivers, and strategic drivers.<sup>6</sup>

## 1.6. Organization of Research

Following the introductory section to the dissertation topic, the subsequent 2<sup>nd</sup> chapter will provide a literature overview on leveraged buyouts, focusing (i) on the major views based on agency theory (finance) and the resource-based view (strategic management), and (ii) existing theory with regard to identified sources of value creation. Next, the 3<sup>rd</sup> theoretical chapter provides an extensive overview of this study's complex research model, research goals and objectives, general hypotheses, chosen methodology and empirical approach as well as data overview. In addition, it includes a mathematical deduction of the performance evaluation metric, i.e. the dependent variable internal rate of return (IRR), and the buyout value attribution formula.

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Chapters four, five and six represent the three sub-divided chapters of empirical results in this study. For clarity of presentation, each chapter comprises an introduction to the problem, data overview and discussion of several testable “variable hypotheses” (“H”), which are independent from the study’s main general hypotheses (“GH”) and intended to impart return expectations. The large 4<sup>th</sup> chapter first introduces the control population based on Private Equity fund return data provided by Venture Economics. Broad trends based on this data are presented. The chapter then introduces the study’s primary sample, for which initially a range of entry- and exit-related variables of individual buyout performance are shown, a closer comparison with public market and industry index performance is offered, and finally buyout company financial performance is juxtaposed against industry peers. The 5<sup>th</sup> chapter of empirical results shifts the attention to the “GP effect” in leveraged buyouts by familiarizing the reader with investment manager profiles and buyout firm characteristics, its team dynamics and performance thereof. It also evaluates the experience effect achieved by buyout firms through regularly executing this specific type of transaction. The 6<sup>th</sup> chapter of empirical results appraises strategic aspects of buyouts: the effects of differing buyout target characteristics and business strategies, specific acquisition-related deal decisions as well as strategic actions taken in the post-acquisition management phase are put into perspective with acquisition performance. The 7<sup>th</sup> chapter summarizes and concludes this study.

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<sup>6</sup> The actual levels of gross returns presented in this study are in various cases exceptionally high, since frequently based on (successful) realized transactions only, and therefore should not be compared with overall levels of fund returns to Private Equity investors.

## 2. Literature Review

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The emergence of the LBO phenomenon during the takeover boom of the 1980s has stimulated a broad stream of academic research that analyses the effects of LBO transactions. This research in the areas of both corporate finance and strategic management can be categorized according to the focal impact of the LBO transaction into studies primarily concerned with the effect on target valuation, operational changes, impact on corporate governance and strategy, changes in the resource and capability base and profitability. The following sections are intended to give an overview of the relevant LBO literature, with special attention to value creation drivers in buyout transactions.

### 2.1. Definitions and the Buyout Process

#### 2.1.1. The Private Equity Investment Asset Class

Leveraged buyouts are part of the Private Equity investment asset class, which besides buyouts also includes Venture Capital (seed, start-up, expansion and replacement capital) as well as mezzanine capital. Private Equity itself is part of the wider alternative investment universe, which comprises asset classes such as hedge funds, real estate, physical commodities, currencies and interest rates (Bance 2002). Private Equity investing may broadly be defined as “investing in securities through a negotiated process”, as the majority of Private Equity investments are in unquoted companies. Private Equity investment is typically a transformational, value-added, active investment strategy and it calls for highly specialized skills by the investment manager, which among other areas is a key due diligence area for investors’ assessment of a fund management team. The processes of buyout and venture investing call for different applications of these skills as they focus on different stages of the life cycle of a company. Private Equity investing is often divided into five broad categories, as outlined below:

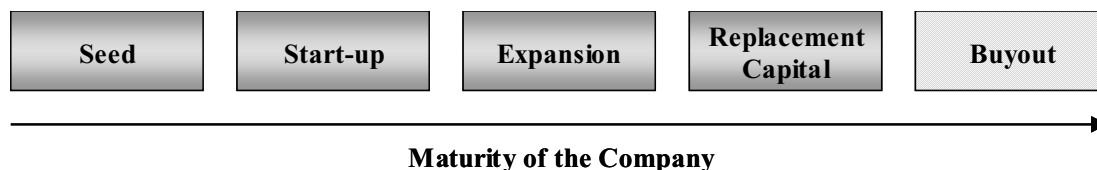


Figure 2: Areas of Private Equity Investment



#### 2.1.1.1. History of Private Equity

The history of Private Equity is best described by analyzing the developments in the United States during the second half of the 20<sup>th</sup> century. The first professionally managed Private Equity investments in the U.S. date back to the formation of the American Research and Development Corporation (ARD), a publicly traded, closed-end Company, in 1946. As the wealth distribution in the U.S. was becoming concentrated in the hands of financial institutions rather than individuals, the ARD founders hoped to (i) create a private institution that attracted institutional investors and (ii) provide capital and managerial expertise to acquired businesses. At the same time, the development of the ARD paralleled the postwar creation of similar professional organizations managing Venture Capital investments of wealthy families. Other Private Equity investments were funded on a deal-by-deal basis by syndicates of wealthy individuals, corporations, and institutional investors organized by investment managers (Fenn, Liang et al. 1996).

As a direct response to the short supply of Private Equity capital throughout the 1950's, the U.S. Congress undertook several initiatives to remedy this situation. Most importantly, it passed new legislation with the Small Business Investment Act of 1958, which paved the way for the establishment of Small Business Investment Companies (SBICc). These SBICs were private corporations licensed by the Small Business Administration (SBA) to provide professionally managed capital to risky companies. The SBICs were allowed to supplement private capital with SBA loans and were eligible for certain tax benefits. In return, however, they were subject to certain restrictions, e.g. limitations on the size of the companies in which they invested as well as restrictions on their ability to take controlling interests in acquired companies. As a consequence, the SBICs attracted more risk-averse individuals rather than institutional investors.

Throughout the 1960s, Private Equity managers had gained valuable experience, but seen only modest personal reward. This provided the impetus for the formation of a significant number of Venture Capital Limited Partnerships as a way of addressing the compensation issue. Under the act of 1940, managers of publicly traded Venture Capital firms could not receive stock options or other forms of performance-based compensation (Liles 1977). The Limited Partnership thus not only resolved the inadequate compensation problem, it was also appealing in order to avoid the SBIC-type investment restrictions. Moreover, Limited Partnerships attracted new and more sophisticated investors compared to the publicly traded SBICs, which was backed mainly by small retail investors. In the early 1970s, organized Venture Capital financing through Limited Partnership started to be recognized as an industry, and in 1973 the influential U.S. National Venture Capital Association (NVCA) was formed.

The formation of the new type of Private Equity partnerships was nevertheless further inhibited by several factors that converged to slow investments for nearly a decade. The most significant was the weak state of the IPO market in the mid-1970s. During 1973-1975, only 83 IPOs raised US\$ 5 million or less, while in 1969 alone, 548 IPOs had raised US\$ 5 million or less (Ibbotson, Sindelar et al. 1988). At the same time, the prevailing recession and weak stock markets slowed investment

and acquisition activities of corporations. The poor exit opportunities led to a shift of Private Equity professionals' focus to their unrealized portfolio companies, leaving fewer resources working on new investments while firms became reluctant to finance new deals. In addition, capital gains tax rates had increased sharply in 1969 and the tax treatment of employee stock options was changed unfavorably, making stock-based compensation less attractive (SBA 1977). Another perceived problem was the general shortage of qualified and entrepreneurial managers that were able to successfully restructure and run the acquired businesses. Despite the low level of startup financing activity during the 1970s, yields were constantly rising, paving the way for the industry's explosive growth in the 1980s. However, the adverse conditions of the 1970s had not only discouraged direct investment in Venture Capital, but also forced fund managers to develop strategies for non-venture Private Equity capital allocation. Consequently, large proportions of Private Equity capital were redirected to acquisitions of more established companies – the *Leveraged Buyout* was born. In addition, several recommendations lobbied through the Private Equity asset management industry were implemented during 1978-1980, such as changes in the employee retirement income security act regulations as well as tax and securities laws, stimulating the explosive industry growth that was to follow. However, the most significant change was the U.S. Department of Labor's decision to change the interpretation of the "prudent man" provision governing pension fund investing.<sup>7</sup> The U.S. Labor Department ruled that investments in Private Equity/Venture Capital partnerships would be permitted, which led to an influx of capital (Fenn, Liang et al. 1996).

The boom of Private Equity during the 1980s was supported by further regulatory changes. The Private Equity industry took advantage of the U.S. Congress decision concerning registration as investment advisers: registration under the Investment Advisors Act was not necessary when advisors have fourteen or less clients: hence, many partnerships restricted the number of Limited Partners to less than fourteen. Soon after, the small Business Investment Incentive Act of 1980 rendered this limitation unnecessary by redefining Private Equity partnership as business development companies, thus exempting them from the Investment Advisor Act. Moreover, the capital gains tax was reduced and the passage of the Incentive Stock Option Law in 1981 initiated the resumption of broader usage of stock options as compensation alternative by deferring the incurred tax liability to the time when the stocks were sold. These regulatory changes were crucial to increase the Private Equity industry's access to capital.

In Europe, however, the development of the Private Equity industry traditionally lagged far behind the U.S. and only genuinely started making serious progress during the 1990s. Recent structural and legal changes throughout Europe, especially with respect to pension fund and insurance company regulations, have allowed for a liberalization of investment choices available to

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<sup>7</sup> This provision had previously been interpreted as prohibiting pension fund investment in securities issued by small and new companies and Venture Capital funds. Pension funds managers had regarded Private Equity investments as a potential violation of their fiduciary responsibilities and discouraged investments in Venture Capital funds.

institutional investors. The movement of assets from fixed income investments into equities and other products was accelerated in the late of 1990s by the low inflation environment, with the creation of the Euro assuring free movement of capital. In addition, new capital gains tax legislation in European countries has been a recent catalyst for Private Equity investment in Europe.

### 2.1.2. Buyout Classification, Organizational Form and Corporate Governance

A Leveraged Buy-Out (LBO) can be defined as *a transaction in which a group of private investors, typically including management, purchases a significant and controlling equity stake in a public or non-public corporation or a corporate division, using significant debt financing, which it raises by borrowing against the assets and/or cash flows of the target firm taken private.* Since the evolution of the LBO as a common form of takeover of public or private enterprises in the 1980s, several specialized companies, hereafter referred to as “LBO firms” (or: leveraged buyout firms/funds, Private Equity firms/funds, financial sponsors or General Partners (GPs), GP firm, LBO association), focused on making this type of investment with capital, which they raise in the Private Equity market. However, the group of private investors can consist of any combination of a leveraged buyout firm, management or another corporation. Accordingly, leveraged buyouts can be further classified into Management Buy-outs (MBO), in which the current management seeks support from outside providers of both debt and equity capital to take control of the equity of the company from its previous owners, and the Management Buy-In (MBI), in which an external management team funded by outside investors takes over control of a given target company. In both cases, the investor typically targets the acquisition of a significant portion or majority control in the target firm, which entails a change of ownership.

Investment styles of buyout firms can vary widely, ranging from “growth” to “value” and “early” to “late stage” strategies. Financing expansion through multiple acquisitions is often referred to as a “buy and build” strategy. Furthermore, buyout funds may take either an active or a passive management role. As an important characteristic, buyout investors ordinarily tend to invest in more mature companies with established business plans to finance expansions, consolidations, turnarounds and sales, or spinouts of divisions or subsidiaries. The ideal LBO candidate is characterized by strong, non-cyclical and stable cash flows with significant unused borrowing capacity. The firm’s service or product is preferably well established, with minimal requirements for capital expenditure, research and development, or an aggressive marketing campaign. Hence, firms experiencing high growth and/or rapid technological change are not attractive LBO candidates, because of the operating demands on cash and uncertain revenues. Labor relations of the ideal LBO candidate are favorable and the regulatory environment is stable to assure consistent cash flows. Finally, some subset of assets of the ideal LBO candidate could be easily divisible and is hence highly attractive to outside bidders as an additional potential source of cash (KKR 1989;

Smith 1990b). Evidence available for LBOs in the 1980s is largely consistent with this profile of the ideal LBO candidate, i.e. mature, low-growth firms with strong, consistent, recession-resistant cash flows in “low-tech” industries (Waite and Fridson 1989; Hall 1990; Lehn and Poulsen 1990). The following table summarizes key characteristics of an ideal LBO candidate:

	<b>Financial</b>	<b>Business</b>
<b>Criteria</b>	<ul style="list-style-type: none"> <li>▪ A history of demonstrated profitability and the ability to maintain above average profit margins</li> <li>▪ Strong, predictable cash flows to service the financing costs related to the acquisition</li> <li>▪ Readily separable assets or businesses which could be available for sale, if necessary</li> </ul>	<ul style="list-style-type: none"> <li>▪ A strong management team</li> <li>▪ Products with well known brand names and strong market position</li> <li>▪ Status as a low cost producer within an industry, thereby creating the competitive advantage</li> <li>▪ Potential for real growth in the future</li> <li>▪ Not subject to prolonged cyclical swings in profitability</li> <li>▪ Products which are not subject to rapid technological change</li> </ul>

**Table 1: Characteristics of the Ideal LBO Candidate**

Source: KKR, 1989

Jensen (1989a) has developed the idea that LBO firms in their function as “active investors” must be seen as a new organizational form. Interestingly, due to their various similar characteristics he compares them to diversified conglomerates and Japanese groups of firms known as “keretsu”. LBO firms have essentially become direct competitors of the corporate headquarters office of the typical conglomerate. Moreover, he argues that the evidence of relative success of active investors (LBO firms) versus the public director organizational form indicates that CEOs of large conglomerates may find themselves eliminated in favor of operating level jobs by competition in the organizational dimension. The LBO firm, acting as the headquarters of the “LBO-Organization”, is organized as a professional partnership with typically flat hierarchy and little support staff, instead of the bloated headquarters office found in the typical large conglomerate. These partnerships perform the monitoring and peak coordination functions with a staff numbering in the tens, compared to corporate headquarters staff in the thousands (Jensen 1989a). Baker and Montgomery (1994) argue that the LBO-Organization does not require a sophisticated controlling staff at the corporate level thanks to the sophisticated financial structure of the transaction, which includes provisions regarding debt service requirements and financial covenants. This financial structure can be understood as an “outsourced controlling system” which the LBO-Firm designs at the time of the deal structuring to institutionalize control over the managers (Baker and Montgomery 1994).

A leveraged buyout has significant impact on the governance structure of the acquired company, as the LBO firm controls large parts of the equity and can exert closer control of the company’s management (Smith 1990b). While traditional conglomerates are typically public corporations with a professional management, LBO firms are organized as private partnerships, which also has important implications for the governance structure of the leveraged buyout organization: LBO

firms act as intermediaries between shareholders (essentially the investors in the LBO fund) and the professional management teams of the LBO fund's individual portfolio companies. From a corporate governance point of view, the professionals of the LBO firm must be seen as a hybrid between managers (or "agents") and owners (or "principals"). The incentive structure for the LBO fund managers is such that there is an almost complete incentive alignment between them and the owners (Baker and Montgomery 1994)<sup>8</sup>. With respect to the managers of the LBO fund's portfolio companies, the LBO firm partners or associates act as both additional professional managers by adjusting strategic and operational objectives as well as legal representatives of the shareholders. They are in effect in a position to closely monitor the management of the portfolio company, supported by the carefully tailored financial structure for their controlling.

### 2.1.3. The Buyout Process

The buyout process begins with a "target selection" phase, in which the LBO firm screens the market for potential investment opportunities meeting the rigid criteria for a successful LBO candidate as outlined above as well as offering scope for value creation to meet the high levels of internal rate of return (IRR) LBO fund investors demand<sup>9</sup>. As the majority of the transactions are "privately negotiated", deals generally need to be treated highly confidentially – at least in the initial phases – in order to avoid the attention of competing buyers. As a consequence, LBO firms rely on superior contacts and industry knowledge to identify potential investment opportunities early. LBO fund investors pay close attention to whether fund managers are able to generate "proprietary deal flow", as returns on these directly initiated investments generally tend to be higher. As a result, a range of buyouts today, often in the context of a sale of a business or division out of a corporate portfolio, are being sold through a competitive auction process involving several financial and strategic buyers. However, although these auctions have been driving up realized gains for the seller, they at the same time have been reducing the value capturing potential for the acquiring (LBO) firm.

It is important to note that unlike strategic acquirers LBO firms typically do not put much emphasis on aspects like resource relatedness or strategic fit between existing portfolio companies and potential takeover candidates (Baker and Montgomery 1994). In their acquisition rationale, they primarily rely on a set of generic criteria regarding industry-level dynamics and financial benchmarks. While many LBO firms are similar in their basic criteria for takeover candidates (mature industries, stable cash flows, low operational risk), some of them have successfully differentiated themselves from industry peers through a specialization strategy. Such

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<sup>8</sup> The design of the compensation structure for professionals from LBO firms actually guarantees that these managers are in a risk-return position that is almost identical with that of the owners.

<sup>9</sup> In general, between 20-30% IRR represents the expected return from investors, but LBO firms generally manage expectations and promise much less. On the other side, LBO firms generally target a 25-35% IRR in buyout executions in order to have some cushion for "downside risk" of certain riskier investments.

specializations can be observed with respect to company size (e.g. small- or mid-caps), geography, industry and level of acceptable technological risk. Another LBO firm investment strategy, which does make synergies an important factor, is a “buy-and-build” buyout acquisition strategy. The rationale for this risky strategy is that by combining a set of related businesses, the new entity can not only generate value by exploiting synergies and cutting costs, but it also gains critical mass to be either attractive for a trade buyer or to be floated through an initial public offering (IPO).

Once a suitable target company has been identified, the LBO firm enters into the potentially lengthy process of “Due Diligence and Deal Structuring”, during which a detailed business plan for the proposed investment, generally presented by the target company’s management team, is being developed and the financial details of the transaction are negotiated with the current owner. As mentioned above, as more and more LBO-Firms have entered the market, competing for a limited number of potential takeover targets, the typical acquisition-mode today is often similar to a (limited) auction, during which several LBO firms submit their bids for a given takeover candidate. These bids do not only contain the proposed acquisition price, but also a detailed “financial package”, which outlines level and conditions of the debt financing, details about debt service requirements and financial covenants as well as provisions regarding management co-ownership and incentive plans. It has been argued that the upfront agreed financial structure of a buyout investment determines a considerable part of the potential value creation by the LBO firm (Baker and Montgomery 1994).

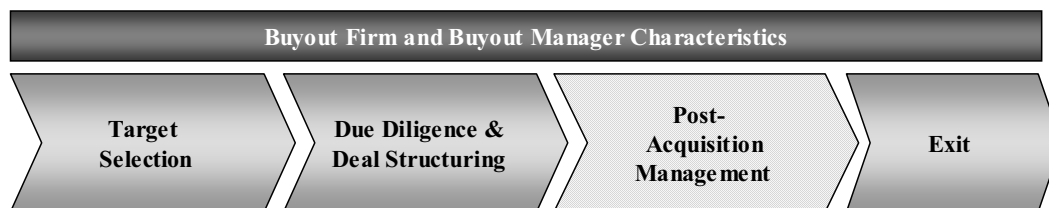


Figure 3: Overview of the Buyout Process

After the future owner(s) of the target company have been determined, this company becomes one of the LBO firm’s “portfolio companies”. The ensuing phase is the “Post-acquisition Management Phase”, in which the LBO firm swiftly exercises its newly gained influence on managerial decisions of the buyout target. Therefore, this phase represents the key focus of the proposed dissertation as most of the value creation is expected to be realized during this phase<sup>10</sup>.

Most commonly, LBO firms play an important role in the post-buyout phase in determining the financial management of the portfolio company going forward: they introduce cost savings and active management of both sides of the balance sheet, shift the financial focus from earnings to

<sup>10</sup> This assumption is based on efficient market theory. Given the increased competition for suitable buyout targets and the increase of competitive auctions the “lucky buy/buy-cheap” opportunities should become

cash flows and support the portfolio company's management in their negotiations with its lenders (Bull 1989; Kaplan 1989b; Smith 1990b). Despite their managerial role and clear guidance, LBO firms have traditionally sought to limit their influence on the operational management of their portfolio companies. Consequently, they still widely rely on the portfolio company's top management team to implement the jointly defined value creation strategies. Therefore, the LBO firm puts in control a top management team of its choice at the time of the acquisition, hiring dedicated professionals if necessary. In case of management failure, it generally acts swiftly to make the required replacements later on in the process. However, some LBO firms have also developed a capability of successfully getting involved in the strategic or operational management of their portfolio companies (Kester and Luehrman 1995). In this case, professionals from the LBO firm work together with the portfolio company's management on issues like marketing, production, or the forging of strategic alliances.

The typical LBO is planned as an investment with a limited time horizon of three to five years. A study of 200 public-to-private chemical buyouts by Butler (2001) shows that less than one third of the purchasers exited within five years, with an average exit time of 4.4 years between 1980 and 2000. The "exit" of the LBO firm from its stake in the portfolio company takes place either in the form of an Initial Public Offering (IPO), a trade sale of the portfolio company to a strategic buyer or as a "re-leverage" and secondary buyout by another financial investor. In case of an unsuccessful investment, bankruptcy procedures may take the place of the exit. However, the nature of the buyout as a privately negotiated transaction allows for significant room for re-negotiation between lenders and shareholders about debt repayment terms and covenant levels. Bankruptcy can therefore be avoided in most cases (Jensen 1989a).

## **2.2. The Buyout Controversy – Alleviating Common Beliefs**

One of the main challenges surrounding the leveraged buyout phenomenon in the 1980s was for research to prove wrong the negative – and in most aspects unjustified – public opinion towards buyouts. At the same time, it was academia's goal not only to explain this new phenomenon "buyouts", mainly to corporate America, but also to highlight the apparently beneficial stimuli on corporate governance and performance of buyout target companies. An initial claim was that the explosive buyout activity was solely attributed to incentives provided by the tax code in the U.S. (Scholes and Wolfson 1989). The tax deductibility of the large amount of interest payments in a buyout company effectively reduces the tax liability to zero for several years into the buyout. However, several authors were able to show that when considering the total net tax effect caused by the LBO, the tax authorities actually collect up to 60% more taxes than without the event of the buyout. This is attributed to the fact that (i) there is a substantial amount of additional taxes paid in

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less frequent in an efficient market. Value creation can therefore only be realized through clearly defined buyout strategies during the post-acquisition phase.

the year of the buyout as a result of capital gains realized by the selling shareholders, (ii) the same interest payments that give rise to tax deductions by the interest payer are taxable to most recipients, and (iii) taxes are paid on any gains from asset dispositions following the buyout as well as (iv) upon the eventual exit from the buyout investment (KKR 1989; Jensen 1989a; Smith 1990b; Butler 2001).

Another allegation is that buyouts represent a simple wealth transfer from other stakeholders in the company prior to the buyout. Shleifer and Summers (1988) argue that hostile takeovers and other control transactions can transfer value to shareholders from employees by breaking implicit contracts, i.e. by firing workers and/or reducing their wages, with those employers. However, Kaplan (1989b) showed that the median change in employment after buyouts is only 0.9%, and for a sub-sample of buyouts that do not make any divestitures, employment actually increases 4.9%. Similarly, employment growth in the KKR portfolio of companies has increased from 2.3% per annum prior to the buyout to 4.2% after the buyout (KKR 1989). This evidence shows that investor wealth gains from LBOs may not be attributed to significant employee layoffs or wage reductions.

Another important stakeholder group in pre-buyout companies, which is subject to potential wealth transfers post-buyout, are the target's bondholders. The potential wealth loss experienced by the original bondholders is argued to be a direct result of the increase in default risk caused by the incremental LBO debt financing. Marais, Schipper et al. (1989) examined returns to pre-buyout bondholders and found them to be insignificant. Asquith and Wizman (1990) demonstrate that pre-buyout shareholders' gains are not attributable to pre-buyout bondholder's losses from an unexpected increase in the financial leverage. Their evidence indicates that wealth losses accrue only to bonds that do not have protective covenants against unexpected leverage increases. This fact should presumably be priced into the bonds ex ante so as to compensate investors for the extra risk implied by lack of protection (Palepu 1990). Bonds that have strong protective covenants against unexpected leverage increases actually experience a gain at the announcement of the buyout. In practice, most bondholders have sought protection against an issuer incurring increased indebtedness, hence forcing LBO firms to obtain bondholders consent or to repurchase their bonds at a significant premium (KKR 1989).

Critics of management buyouts, a form of leveraged buyout where the current (MBO) rather than outside (MBI) management team takes control of the company, argue that these transactions allow managers to exploit their asymmetric, private information on firms' prospects at the expense of outside shareholders. This concern has been mitigated by the fact that managers are often required to share their projections with competing bidders. Secondly, competing bids are evaluated by a committee of outside directors who do not participate in the buyout. Kaplan (1989b) reports that the majority of MBOs in his study were completed by non-management bidders (MBIs) in the end.

Finally, LBO firms are frequently accused of achieving the high post-buyout returns through an underinvestment in the long-term future of the target, necessitated by the immediate demands on



cash to service the LBO debt. Allegations are made that cutbacks in expenditures for maintenance and repairs of existing capacity, replacement and/or expansion of existing facilities, R&D and advertising expenses will weaken the competitive position of these highly leveraged firms in the long run. The evidence does not support these allegations. Smith (1990a) finds no evidence of a decline in expenditures for either advertising or maintenance and repairs as a percentage of sales. R&D data was not publicly available for most firms analyzed by Kaplan (1989b) and Smith (1990a), because the level of R&D for LBO samples is frequently below the disclosure threshold of 1% of sales. This is consistent with the characteristically low R&D intensity found in buyout targets in general (Hall 1990). However, Lichtenberg and Siegel (1990) report that the average R&D intensity of buyout firms increased at a rate comparable to that of non-buyout firms. Finally, although a significant reduction in absolute capital expenditures levels in the post-buyout period is documented in Kaplan (1989b) and Smith (1990b), the low growth in sales and low R&D expenditures prior to LBOs in general (Hall 1990; Lehn and Poulsen 1990) may also imply a lack of attractive investment opportunities (Smith 1990a; Smith 1990b). This suggests that investment decisions in buyout companies are likely to be much more scrutinized for their value creation potential.

### **2.3. Agency Theory of Leveraged Buyouts**

Agency theory argues that there is an inherent conflict within the corporation, arising from diverging goals of the company's owners and their professional managers (Berle and Means 1932; Jensen and Meckling 1976; Fama 1980; Fama and Jensen 1983a; Fama and Jensen 1983b; Jensen 1986). The theory of agency relationships is therefore concerned with the contractual problems that occur, when "one or more persons (principal(s)) engage another person (the agent) to perform some service on their behalf, which involves delegating some decision-making authority to the agent" (Jensen and Meckling 1976). From the assumption that both parties are maximizing their individual utility, agency theory concludes that the agent does not always act in the best interest of the principal. A number of governance mechanisms can limit the agency conflict. These mechanisms include improved monitoring and reduction of the agent's discretionary decision space (board of directors), the market for corporate control, managerial equity ownership and other incentive alignment devices (Fama 1980; Demsetz 1983; Jensen 1988). However, each of these possibilities is costly to the principal. The sum of these cost and the residual loss from divergent behavior has been termed "agency costs" (Jensen and Meckling 1976). These agency costs are not exogenous to the firm, but depend to a large extent on factors, such as governance structure, top management incentives, etc. (Smith 1990a). In the event of a buyout, several of the determinants of agency cost change considerably (Jensen 1986). Consequently, buyouts are expected to have a significant impact on the firm's agency costs (Kaplan 1989b).

The first important change in agency cost caused by the buyout stems from the significant use of debt financing in a typical LBO deal. In general, agency cost of free cash flow arise when cash

flow exists in excess of what is required to fund all of a firm's projects that have positive net present values, when discounted at the relevant cost of capital.<sup>11</sup> Such free cash flows must be paid out to shareholders if the firm is to be efficient and to maximize shareholder value, but managers have few incentives to do so and prefer to retain control (Jensen 1986; Jensen 1989b).<sup>12</sup> The much higher leverage after a buyout increases the requirements of debt and interest service payments, thereby significantly reducing the amount of free cash flow that is at the buyout company managers' discretion (Kaplan 1989b; Smith 1990b). Thus, high leverage means less managerial discretion and therefore reduces the "agency cost of free cash flow" (Jensen 1986). Consequently, increased financial leverage in buyouts is assumed to lead to value creation.

However, increasing leverage of a company to achieve higher performance cannot be a linear relationship, since increased leverage also increases the cost of financial distress. The potential risk of financial distress associated with the LBO debt burden may even call into question the ability for the buyout target to survive (Smith 1990b). However, (Jensen 1989a) put forward the "privatization of bankruptcy" theory, which suggests that the costs to a firm in insolvency – the situation in which a firm cannot meet its contractual obligations to make payments – are likely to be much smaller in the new world of high leverage ratios than prior to the buyout. The reason is that there are higher incentives to preserve value in the leveraged buyout model as a result of a very different set of institutional arrangements and practices that substitute the usual bankruptcy process in courts. The low frequency of buyouts that enter bankruptcy provide support for the fact that parties accomplish reorganization of claims more efficiently outside the courtroom (Jensen 1989a).

The second important determinant of agency cost, which is affected by an LBO, is the oversight and control that the owners have over the management of the company. Professionals from the investing LBO firm are in the position to closely monitor the portfolio company management and to exert direct control over them (Smith 1990b). As representatives of the majority shareholders, they have the legal power to influence managerial decisions both directly and through their right to determine the composition of the top management team. This monitoring and control function of the LBO firm has been seen as one of the principal capabilities of the LBO organization (Baker and Montgomery 1994). One aspect of control over the portfolio company, which is of particular

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<sup>11</sup> Lehn and Poulsen (1989) argued that unsuccessful diversification is a result of free cash flows. Because of low growth prospects firms have few opportunities to reinvest the cash flow profitably in the firms' current lines of business. If the firm's management is specialized in its current lines of business, it may be unprofitable to invest cash flow into diversification.

<sup>12</sup> There are various reasons for managers' reluctance to pay out excess corporate incomes. Mueller (1969) argued that one of managers' goals is the "growth in physical size of their corporation rather than its profits of shareholder welfare". This "intent upon maximizing growth will tend to ignore, or at least heavily discount, investment opportunities outside the firm, since these will not contribute to the internal expansion of the firm". Jensen (1986) explained that managers resist distributing surplus cash resources to keep their opportunity for increased discretionary spending and to be able to invest them into growth-maximizing or empire-building projects that yield low or negative returns and involves excess staff and indulgent perquisites. Managers do this because such investments maximize their own utility (e.g. Jensen and Meckling 1976). Additionally, keeping cash reserves increase the size of the company and management's autonomy vis-à-vis the capital markets (Jensen 1989b).

interest, is the owner's right to determine the composition of the top management team. The question of the performance impact of replacements of the top management team has received much attention both in the theoretical and the empirical literature. One side of this literature supports the hypothesis of the "market for corporate control" (Manne 1965; Jensen and Ruback 1983), according to which different management teams compete for the control over companies. Based on agency theoretical considerations, this view sees corporate takeovers primarily as a mean to exchange inefficient management teams and to improve the company's performance by putting in control a more efficient management team. If this view were true, we could potentially also expect to see a positive performance impact of replacements in the top management team through the composition of an efficient top management team for the buyout company.

As a third and most important factor to reduce agency costs and to generate value, buyout transactions are characterized by their considerable use of top management incentives and management co-ownership in order to align interest between LBO firm (and their investors) and management. Equity holdings of top managers increase the cost of shirking and consuming perquisites (Smith 1990a) to them and increase the degree of common interests between owners and managers. In general, the target company's top management team had no or only a suboptimal incentive system prior to the LBO with the incentives either not being very effective (suboptimal level of co-ownership or stock options etc.), or they were based on performance measures that do not perfectly reflect the owner's interest (e.g. rewards based on short-term earnings/stock performance rather than long-term cash flow or earnings potential and value creation). Leveraged buyouts specifically, with their limited life and foreseeable liquidation of the investment, create a situation in which equity holdings of top managers are better suited to align interests between managers and shareholders and thus to enforce shareholder-wealth-maximizing behavior than otherwise possible (Baker and Montgomery 1994).

## 2.4. Strategic Management View of Leveraged Buyouts

Strategic Management researchers have focused their attention in the acquisition literature on the way resources and knowledge is transferred between acquirer and target. The resource-based view of the firm (Penrose 1959; Rumelt 1984; Wernerfelt 1984; Barney 1986; Dierickx and Cool 1989) sees the ability to share and redeploy resources within and across organizations as the dominant source of sustainable competitive advantage. Consequently, a resource-based look at acquisitions focuses on the potential to create value through a combination of resources between acquirer and target. As a result of their organizational configuration, LBO firms when compared to strategic buyers are purely financial, non-strategic acquirers, which make no attempt to foster synergies among their portfolio companies (Baker and Montgomery 1994).<sup>13</sup> Therefore, buyout transactions

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<sup>13</sup> Exception to this argument would be the frequently observed buy-and-build strategy, in which the LBO firm acquires a platform company and adds further related businesses to "build" a larger industry player.

do not fall in the same domain of expected synergistic value creation, which the resource-based view sees as the driving force behind related acquisitions. What remains from a resource-based perspective, is the analysis of the resource bundle that the portfolio company represents as a standalone business as well as the potential redeployment of resources between the portfolio company and the LBO firm as its “new corporate headquarters” (Gottschalg 2002).

The buyout gives the LBO firm direct access to the resources of its portfolio company. As it chooses not to share any of these resources with other portfolio companies, a large portion of the value creation of the LBO has to come from an increase in profitability of the portfolio company’s resource bundle as a standalone business. Therefore, it is crucial to the success of the LBO to enhance the utilization of these resources. The LBO firm has a range of options to increase the resource efficiency of its portfolio company (e.g. cost cutting, capacity optimization, introduction of new incentive systems, stretched budgets, pressure from financial leverage, etc.). However, one potentially detrimental factor to resource efficiency under the resource-based view of the firm is the disruptive effect of changes in the resource base of the portfolio company. Therefore, a negative impact of changes in the portfolio company’s resource bundle on the performance of the LBO would be expected. In general, the analysis on resource turnover focuses on replacements in the top management team of the portfolio company. The expertise and social capital of the members of the top management team constitutes the most valuable resource to the company (Barney 1986). At the same time, this variable might be considered a good proxy for a more general construct of overall replacements of resources (Zollo and Singh 2000). Consequently, the analysis of buyouts under the resource-based view would expect a negative performance impact of replacements in the top management team. This view receives support from studies relating managerial turnover to performance in a general acquisition context, which found that managerial turnover reduces acquisition performance (Cannella and Hambrick 1993; Krishnan, Miller et al. 1997; Zollo and Singh 2000). However, this proposition is in sharp disagreement with the agency theoretical reasoning of the proponents of the “market for corporate control” hypothesis (Manne 1965; Jensen and Ruback 1983), as outlined above. A better understanding of the dynamics of management teams, their interaction with LBO firm professionals and their contribution to post-buyout performance may therefore be an important aspect in assessing value creation in buyouts.

As a consequence, in the absence of any horizontal synergies through resource sharing among the portfolio companies of an LBO firm, the only possible way to generate rents through resource redeployment is a vertical exchange between the LBO firm and each individual portfolio company. The principal resource of the LBO firm as “corporate headquarters” of the LBO organization is its human capital, more specifically the knowledge and expertise of its professionals. Private Equity firms have not only established substantial competences in financial engineering, but they can also rely on dedicated industry experts developed internally or recruited externally to give advice on

particular transactions.<sup>14</sup> The sharing of these resources with a portfolio company implies a knowledge transfer from the LBO firm to its portfolio company. While such a knowledge transfer is difficult to observe empirically, it can potentially be operationalized by looking at both the scope of strategic redirection and amount of operational interventions by the LBO firm (Gottschalg 2002). If value is created by the LBO firms' interventions and knowledge transfer, a positive performance impact should be observed subsequent to a leveraged buyout.

According to this literature review of LBOs from the viewpoint of two complementary perspectives of management theory, several mechanisms have been identified through which buyouts – in their general characteristic as unrelated acquisitions – could be a source of substantial value creation. Implicitly, these unique approaches to acquiring companies may also contribute to explaining how LBO firms are able to generate substantially higher (abnormal) returns from their buyouts than those achieved by buyers in strategic, “related” acquisitions.

## **2.5. Value Creation in Leveraged Buyouts**

Value Creation in buyouts results from various sources and therefore has to be analyzed on various layers. Firstly, there is a range of drivers that have a direct effect on the operating efficiency or relate to the optimal utilization of assets of the company. These drivers are referred to as direct, intrinsic, operational or “value creating” drivers and have in common that they improve free cash flows of the buyout company. Secondly, there are several drivers, which are non-operational in nature, but do lead to an expansion of value created between acquisition and realization of the investment. These drivers, referred to as indirect, extrinsic, non-operational or “value capturing” drivers, are generally not straightforwardly quantifiable, but do play an important role in the overall value creation process and may be interdependent with the direct value drivers. Research shows that the majority of value creation (about two thirds) is being realized during the holding period of the buyout company (direct value driver effect) and the remainder (about one third) is realized by the actual transaction and its circumstances/configuration (indirect driver effect) (Anslinger and Copeland 1996; Butler 2001). The following section outlines both categories of drivers in detail.<sup>15</sup>

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<sup>14</sup> Private Equity firm Carlyle, well known for its acquisitions in the aerospace, military and defense industry, counts former U.S. president George W. Bush Sr. and former British Prime Minister John Major to its advisors. Private Equity firm Clayton, Dubelier & Rice is being advised by former CEO and Chairman of General Electric, Jack Welch, on its industrial-related transactions.

<sup>15</sup> This section is built upon and benefits from research developed by Berg and Gottschalg (2003) on drivers of value creation and their categorization. The author would like to acknowledge their ground work and intellectual ownership of the adopted categorization.

### 2.5.1. Direct Drivers of Value Creation

Direct drivers are characterized to generally also have a concrete and direct effect on the free cash flow generation of the company, either through increasing revenues, cutting expenses or more efficient use of capital or through sophisticated financial engineering. Direct drivers therefore enhance the financial performance and causes real value creation at the acquired buyout company (Kitching 1989).<sup>16</sup>

#### 2.5.1.1. Achieving Cost Reductions in Buyouts

Jensen (1989a) suggests that the primary source of value creation from buyouts is organizational changes that lead to improvements in firms' operating and investment decisions. According to this view, when companies undergo a buyout, increased management ownership and high financial leverage associated with the buyout provide strong incentives for managers to generate higher cash flows through better operating performance (Palepu 1990). Consequently, operating performance and investment decisions are likely to be superior following the buyout. Leveraged buyouts are also likely to occur in companies that show significant potential to generate higher cash flows and have low alternative investment opportunities (Baker and Wruck 1989; Kaplan 1989b; Lichtenberg and Siegel 1990; Smith 1990b). A substantial literature has developed that shows that buyout transactions have a positive effect on the operational performance of target companies (Baker and Wruck 1989; Bull 1989; Jensen 1989a; Kaplan 1989b; Lichtenberg and Siegel 1990; Muscarella and Vetsuypens 1990; Singh 1990; Smith 1990a; Long and Ravenscraft 1993c; Ofek 1994; Smart and Waldfogel 1994; Phan and Hill 1995; Holthausen and Larcker 1996; Weir and Laing 1998).

Kaplan (1989b) provides early evidence of management buyouts' strong improvements in operating performance, even after adjustments for industry-wide changes. Smith (1990b) proves that the improvements in operating cash flows are correlated with the buyout-induced changes in debt ratio and ownership structure, consistent with Jensen's (1989a) view that organizational changes play an important role in the efficiency gains. With respect to production efficiency, (Lichtenberg and Siegel 1990) analysed post-buyout operating enhancements in total factor productivity in plants of LBO companies, finding significant short-term improvements compared to non-LBO plants. These operating performance improvements often coincide with substantial changes in the way the operations are organized and managed (Muscarella and Vetsuypens 1990; Wright 2001). One view is that the performance improvements are specifically induced by the buyout. A contrasting view suggests that the performance improvements would have occurred with or without a buyout, and that the buyout premiums are merely a result of undervaluation of LBO target firms, induced by different information asymmetry about the future performance of the firm (Baker and Wruck 1989). This view is specifically shared in relation to management buyouts.<sup>17</sup>

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<sup>16</sup> For a theoretical deduction of the impact of improved financial performance on the investment's internal rate of return (IRR), which represents the study's preferred measure of value creation, refer to section 3.5.

<sup>17</sup> Critics of management buyouts argue that MBOs allow managers to exploit their private information on firms' prospects at the expense of outside shareholders. This has been widely mitigated by research findings (Kaplan 1989a, 1989b).

One major area of cost reductions relates to cuts in overhead costs. Singh (1990) argues that buyout targets had accumulated higher levels of slack than non-buyout firms (slack as defined by Cyert and March 1963). LBO organizations are characterized by significantly leaner corporate functions than for instance conglomerates. This disparity is implicitly reflected through the frequent aggressive cutbacks by LBO firms of bloated corporate centers at their portfolio companies. LBO firms increase overhead efficiency by improving the control system, building better mechanisms for coordination and communication flow and by enhancing the speed of decision making. The new processes installed at buyout companies are characterized by markedly less bureaucracy (Esterwood, Seth et al. 1989; Samdani, Butler et al. 2001). While admitting the importance of cost reduction measures, Esterwood, Seth et al. (1989) point out that any organizational changes must be such that they do not negatively affect the company's ability to compete in the market place.

#### 2.5.1.2. Improving Asset Utilization in Buyouts

Another important way to increase cash flow generation is to make more efficient use from corporate assets (Bull 1989). Following the buyout, management swiftly starts to tighten the control on corporate spending (Anders 1992; Holthausen and Larcker 1996). Kaplan (1989b) and Smith (1990b) report significant increases in operating cash flows. Capital productivity is improved through adjustments in the management of working capital, i.e. via an acceleration of the collection of receivables, a reduction in the inventory holding period and in some instances through an extension of the payment period to suppliers (Baker and Wruck 1989; Muscarella and Vetsuypens 1990; Singh 1990; Smith 1990b; Long and Ravenscraft 1993a; Kester and Luehrman 1995; Samdani, Butler et al. 2001). Esterwood, Seth et al. (1989) showed that better working capital management leads to sharply reduced levels of inventory and receivables compared to pre-buyout levels on a company level, while Holthausen and Larcker (1996) found that post-buyout firms have, on average, also significantly smaller amounts of working capital than their industry peers. However, Wright and Robbie (1996) point out that the generally increased focus on efficiency and tighter cost control developed in many corporations during the 1990s has led to lower overall attractiveness to initiate buyouts that are driven by cost cutting plans. Consequently, this trend could affect and limit the overall scope for value creation from restructuring (Wright and Robbie 1996).

In addition to cost cutting efforts and better working capital management, cash flows are further enhanced through reduced capital expenditures, since the redeployment of resources and assets plays an important role in increasing the overall operational efficiency. KKR (1989) argues that the long-run objective of a leveraged buyout should be to create value for the new owners by increasing profitability, while failure to make capital expenditures without good economic cause is short-sighted and counter-productive. However, capital spending is reported to be considerably lower following the buyout (Kaplan 1989b; Smith 1990a), while KKR (1989) proves this only holds for the first year post-buyout (among their portfolio companies). According to the free cash flow theory, the incentive realignment will lead managers to divest low-synergy assets and to cease

spending cash on poor investment decisions (Grossman and Hart 1982; Jensen 1986; Jensen 1989a). Hence, buyout management slashes unsound investment programs and disposes of assets that are unnecessary or underutilized (Phan and Hill 1995).

### 2.5.1.3. Generating Growth in Buyouts

LBO firms not only rely on operational improvements to increase value in buyout investments, but also aggressively seek to boost revenues. Wright (2001) argues that buyouts can no longer be viewed solely as a mean to address corporate inefficiencies. From a capital markets perspective, a strong track record of growth – achieved internally or externally – has important implications to valuation by future investors at the time of the exit from the buyout, i.e. through an initial public offering (IPO) or trade sale (Butler 2001). A study from Singh (1990) confirms that buyouts coming back to the capital market had experienced significantly higher revenue growth.

In addition to the higher pressure to generate cash flows to service debt (Jensen 1989a), LBO firms are known for their tendency to produce ambitious business plans, hence raising the standards for management performance (Baker and Montgomery 1994; Butler 2001). Through the aggressive targets and increased risk of financial distress, LBO firms are forcing portfolio company managers to much more adhere to these grand performance goals and make budgets pay off, thereby widely eliminating some of the perceived managerial inefficiencies (Easterwood, Seth et al. 1989; Smith 1990b; Anders 1992). The performance pressure increases the minimum level of acceptable performance and managers are forced to work harder after the buyout or risk losing their jobs (Baker and Wruck 1989). Buyout associations spend a serious amount of time on selecting the top management team and they generally do not hesitate to replace it if corporate performance should falter (Anders 1992). As a consequence, the new ownership structure of the organization and the change in governance and incentives generally increases managers' willingness to make rather drastic changes in operations and to take rather unpopular actions if required (Singh 1990).

In order to achieve superior performance and value creation, constant improvements in operational effectiveness to achieve superior profitability is necessary, but usually not sufficient (Porter 1996). The LBO firm plays an important role in re-establishing or reinforcing the strategic focus of the buyout target. It often follows an outpacing strategy of combining operational improvements and product cost awareness with higher product value and innovation (Gilbert and Strelbel 1987), instead of a pure cost or product differentiation strategy (Porter 1985). LBO firms work with buyout managers to make decisions that increase the strategic distinctiveness and eventually improves the competitive positioning of the company. They emphasize on restoring strategic focus and an overall reduction of complexity (Seth and Easterwood 1993; Phan and Hill 1995). Decisions are made on which markets to be in and with which products to compete, conducting changes in pricing, product quality, customer service and customer mix as well as on the reorganization of distribution channels if required (Muscarella and Vetsuypens 1990). As a consequence, the total level and scope of diversification of activities gets reduced and inefficient cross-subsidies between



different product lines get cut (Liebeskind and Wiersema 1992; Wiersema and Liebeskind 1995). Inefficient or non-core operations are being sold to a third party (Hoskisson and Turk 1990; Muscarella and Vetsuypens 1990; Singh 1990; Anders 1992; Baker 1992; Seth and Easterwood 1993; Singh 1993).

Alternatively, LBO firms may decide to undertake add-on acquisitions of either new lines of business or to expand business scope in such areas in which distinctive competences and resources are strong compared to competition (Easterwood, Seth et al. 1989; Liebeskind and Wiersema 1992; Seth and Easterwood 1993). Some buyout transactions are intended from the beginning to accomplish a “buy-and-build” strategy, in which LBO firms undertake an initial buyout investment in a fragmented and/or sub-scale market to build a nucleus (Samdani, Butler et al. 2001). The acquired portfolio company is usually provided with pre-determined financing for acquisition purposes from its lenders. Alternatively, the LBO firm buys companies in separate transactions and merges these subsequently. Several LBO firms have focused on buy-and-build strategies, thereby leveraging their industry know-how in successive acquisitions, which may lead to a consolidation in that market segment (Seth and Easterwood 1993; Baker and Montgomery 1994; Allen 1996; Wright 2001).<sup>18</sup> The rationale for buy-and-build strategies involves the fact that through the consolidation, synergies can be realised and companies may achieve critical mass to be floated on the stock market, a goal that would have not been reached on a standalone basis.

Another important driver to increase revenue growth is related to the revived spirit of entrepreneurialism and new product innovations in buyout companies. In both divisional and corporate buyouts the transformation of the organizations’ corporate governance has some elements resembling a start-up firm, wherein operating management typically enjoys high levels of equity.<sup>19</sup> Supporters of the buyout activity contend that the radical change in capital and ownership structure of the firm is accompanied by radical (and positive) changes in the firm’s post-buyout operations, thus interpreting the activity as an indicator of entrepreneurship (Singh 1990). LBO firms drastically change the way business is conducted if a strategic innovation offers a high likelihood of success (Markides 1997; Markides 1998; Wright 2001). Malone (1989) in a U.S. study and Wright and Coyne (1985) and Wright, Thompson et al. (1992a) for the UK show significant increases in new product development occurring post-buyout, which according to the view of the entrepreneurs concerned would not have been realised otherwise (Bull 1989). A more detailed study by Zahra and Fescina (1991) shows substantial increases in product development, technological alliances, R&D staff and capabilities and new business creation activities. These corporate entrepreneurship factors are also significantly and positively associated with changes in company performance (Wright, Wilson et al. 1996).

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<sup>18</sup> Private Equity firm Carlyle Group, one of the world’s largest, has build significant expertise in the aerospace and defense industries, leveraging the experience of its chairman emeritus Frank Carlucci, a former U.S. Secretary of Defense. Firms in this arena make up a significant share of the portfolio at Carlyle.

<sup>19</sup> Buyouts, however, differ markedly compared to start-ups in terms of the high level of debt carried by the now-private firm, which is atypical in a start-up situation.

#### 2.5.1.4. Financial Engineering in Buyouts

Leveraged buyouts have often been described to be simply “a financing technique for acquiring a company rather than a new type of organizational form” (KKR 1989). The whole concept of the leveraged buyout technique, in which the acquirer borrows a large percentage of the purchase price, typically from a variety of sources such as commercial banks, insurance companies, other sophisticated financial institutions and/or public purchaser of debt, highlights the significance of financial engineering. LBO firms apply their intimate knowledge of capital market mechanisms during the acquisition process and then share their financial expertise with the buyout target company thereafter (Anders 1992). In the deal structuring process, LBO firms leverage their excellent contacts to the above mentioned investors in the financial community to negotiate best available terms for the financing. LBO firms generally create competition among financing banks and/or investors to ensure to be given the best possible terms. They are also likely to be repeat players in the leveraged finance debt markets, and with their reputations as high profile clients and profitable borrowers at stake, lenders are likely to deal with them at easier terms (Cotter and Peck 2001).

After the buyout, LBO firms continue to lead negotiations for the portfolio company, assisting management in negotiating bank loans, bond underwritings, initial public offerings and subsequent stock sales at terms that the portfolio company would not have been able to receive on a standalone basis (Anders 1992; Cotter and Peck 2001). The application of the LBO firm’s financial engineering skills assists the portfolio company to manage its balance sheet through an optimal use of capital markets (Anders 1992). LBO firms are also likely to reduce agency costs of debt and costs of financial distress (Jensen 1989a; Palepu 1990). On the one hand, they have a comparative advantage over other equity investors in monitoring management, thus lowering the benefits from using tighter debt terms to motivate managers (Cotter and Peck 2001). On the other hand, LBO firms can also avoid much of the costs of financial distress<sup>20</sup>, and consequently, have reduced incentives to transfer wealth from lenders (DeAngelo, DeAngelo et al. 1984; Opler and Titman 1993). With respect to the weighted average cost of capital (WACC), Long and Ravenscraft (1993a) and Samdani, Butler et al. (2001) argue that it is more or less independent of leverage, since the tax advantage of a high level of debt is almost entirely offset by the higher cost of that debt. Or as Rappaport (1990) puts it: “borrowing per se creates no value other than tax benefits. Value comes from the operational efficiencies debt inspires”.

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<sup>20</sup> Features that lead to lower costs of financial distress include (i) an institutionalized debt workout process (or the privatization of bankruptcy) that may lower bankruptcy costs, (ii) strip financing where debt and equity are owned by the same investor, which decreases conflict between different classes of securityholders, and (iii) LBO sponsorship by specialist firms with reputational incentives to look out for debtholders, lenders and other investors’ interests (DeAngelo and DeAngelo 1987, Jensen 1989b, Opler 1993, Wruck 1990).

## 2.5.2. Indirect Drivers of Value Creation

In addition to value creation from financial engineering, operational improvements and through strategic repositioning which lead to stronger growth, there are important non-operational drivers in a buyout transaction, which play a role in value creation. These indirect drivers do not directly affect performance, but rather amplify the positive performance effects attributed to the direct drivers. Indirect drivers are related to the changes in the organizational, corporate governance and ownership structure. Research has shown that agency conflicts are highly relevant in the buyout context (Opler and Titman 1993), and buyouts are widely described as creating value through a reduction of agency costs (Jensen 1989a). The implicit changes in organizational structure and ownership in a buyout transaction allow to take advantage of these agency costs reduction mechanisms and subsequently lead to improved operating performance (Smith 1990a). These mechanisms are described in more detail in this section.

### 2.5.2.1. Management and Employee Incentivation in Buyouts

According to Cotter and Peck (2001), buyout transactions “provide a ‘carrot’ and a ‘stick’ mechanism to ameliorate agency costs”. Buyout associations conduct changes in the ownership and governance structure to provide incentives (the “carrot”) in order to align the interests of all parties involved and to reduce agency costs after the buyout (Bull 1989; Jensen 1989b; Lichtenberg and Siegel 1990). Managers are encouraged (if not forced) to increase their share in equity ownership in the company to a significant level (Muscarella and Vetsuypens 1990).<sup>21</sup> It is expected that this increase in the equity stake of the management directly increases the personal costs of inefficiency (Smith 1990b) and reduces their incentive to shirk (Jensen and Meckling 1976; DeAngelo, DeAngelo et al. 1984; Smith 1990a; Weir and Laing 1998). Furthermore, the change in status, from manager to co-owner could increase financial performance because it gives managers a positive incentive to look for efficiency gains and smart strategic moves (Phan and Hill 1995; Weir and Laing 1998). Their equity participation gives them a greater stake in any value-increasing actions that are taken (e.g. Jensen and Meckling 1976) and thus leads to better operating and investment decisions (Easterwood, Seth et al. 1989; Palepu 1990).<sup>22</sup> Taylor (1992) is convinced that “managers do not fail to do the right thing because they are unaware of what the right thing is. All too often, they fail to do the right thing because it is not in their economic interest or because there are no penalties for doing the wrong thing.” Another motivational side effect of the construction is that

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<sup>21</sup> Managers get usually offered a substantial stake in the equity of the company at favourable conditions (“sweet equity”). As a consequence, due to the high amount of the total investment compared to their personal net worth, managers usually have to take big financial risks to participate in the buyout (“pain equity”) (Kitching 1989; Wright et al. 1992a; Beaver 2001; Samdani et al. 2001).

<sup>22</sup> The equity owned by management in the LBO companies is generally illiquid. However, because of the requirement that the LBO association must liquidate the Limited Partnership within a fairly short time period (10 years or less), there is a quasi-guarantee that the company will be valued in a third-party transaction, at some point in the near future. This guarantee of future liquidity, and of an objective and unbiased valuation event, is crucial to the incentives provided by management equity ownership (Baker and Montgomery 1994).

management finds itself with a substantial un-diversifiable equity investment and their specific human capital locked into the company. This double lock-in should give them a strong motivation to safeguard their position (Wright, Thompson et al. 1992a).

On the contrary, increased managerial ownership in equity can result in a decrease in financial performance due to managerial risk aversion and the potential under-diversification of the managers' wealth (Fama and Jensen 1985; Morck and Shleifer 1988; Holthausen and Larcker 1996). Furthermore, Demsetz (1983) and Fama and Jensen (1983a) argue that if managerial equity ownership is concentrated, the manager may have effective control over the organization and disciplining mechanisms such as the market for corporate control and managerial labour markets may be rendered ineffective, which could result in a decline in performance as well (Holthausen and Larcker 1996).

In addition to an increased equity ownership of the top management, buyout associations increase the sensitivity of pay-to-performance for a large number of employees in the company (Jensen 1989a; Jensen 1989b; Anders 1992; Fox and Marcus 1992). General Partners at the LBO firm in general have an effective ownership interest in the gains realized by the buyout pool of up to 20%, with management also sharing significant gains (Jensen 1989a). New incentive systems are being implemented and employee contracts are being adapted in order to step up motivation to achieve the key goals of the organization, including changes in the way employees get evaluated and compensated (Baker and Wruck 1989; Easterwood, Seth et al. 1989; Muscarella and Vetsuypens 1990). These employee incentive schemes are not necessarily only restricted to upper and middle management. LBO firms may introduce employee share ownership plans (ESOPs) or other shareholdings schemes and participation programmes post-buyout (Wright, Thompson et al. 1992a). The compensation and ownership plans make the rewards to managers and employees highly sensitive to the performance of their particular business unit (Baker and Wruck 1989).<sup>23</sup> The use of incentives is consistent with the view that they benefit the owners and reduce managerial opportunism (Demsetz 1983). Support for the view that incentives help to reduce managerial opportunism comes from Wright and Robbie (1996), who empirically demonstrated that incentives were negatively related to MBO failure.

#### 2.5.2.2. Change in Corporate Governance in Buyouts

The increase in incentives usually goes along with a radical transformation and improvement of corporate governance structures in buyout companies to increase the quality of monitoring (Singh 1990; Thompson and Wright 1991). The greater concentration of equity in the hands of active investors encourages closer monitoring and leads to a more active representation in the board of directors (Lowenstein 1985; Jensen 1989a; Jensen 1989b; Smith 1990a). Jensen (1989a) describes

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<sup>23</sup> For an early review of employee ownership studies, see Wilson (1992). Conte and Svejnar (1987) and Jones and Kato (1995) find significant and positive effects on a value added measure of productivity from wider share ownership, no matter whether in cooperative or ESOP form.

an “active investor” as a person or party who “monitors management, sits on boards, is sometimes involved in dismissing management, is often intimately involved in the strategic direction of the company and on occasion even manages”. The monitoring of management and the increased involvement by members of the board offers the opportunity to obtain direct access to confidential company information. Furthermore, portfolio companies’ management is generally being evaluated on a regular basis (Palepu 1990; Anders 1992; Cotter and Peck 2001). Buyout specialists as professional active investors are likely to have a comparative advantage over third party equity investors in monitoring managers of post-buyout organization (DeAngelo, DeAngelo et al. 1984; KKR 1989; Jensen 1989a; Cotter and Peck 2001). However, the new corporate governance structure also raises the importance of another stakeholder, the buyout company’s financial lenders, which have generally received a pledge on the shares and assets of the company in exchange for financing. The financial lenders have strong incentives to monitor the managements’ actions closely and to make sure that the buyout company is able to meet budgets.<sup>24</sup> The financial covenants and debt repayment requirements accompanying the financing serve as clear benchmarks for the operating flexibility of the buyout company and constrain management action (Baker and Wruck 1989; Lichtenberg and Siegel 1990; Baker and Montgomery 1994).

#### 2.5.2.3. Leverage as Value Creator in Buyouts

Besides value creation through incentivitation, the use of significant amounts of debt in a buyout transaction contributes to value creation itself as it not only represents an important factor in the financing structure of the transaction, but also limits managerial discretion. Grossman and Hart (1982) and Jensen (1986, 1989a) argue that debt can induce management to act in the interest of investors in ways that cannot be duplicated with optimally designed compensation packages (Opler and Titman 1993). In relation to the agency cost theory, Jensen (1986, 1989a, 1989b) emphasizes that the use of debt in buyouts facilitates a reduction of available free cash flow and compels managers to service debt payments rather than spend it inefficiently. It reduces managers’ discretion over corporate expenditures<sup>25</sup> (Grossman and Hart 1982; Stulz 1990; Smith 1990a) and limits possible non-value maximizing behaviour (Newbould and Chaffield 1992). Therefore, the debt burden forces managers to efficiently run the company to avoid default (Lowenstein 1985; Jensen 1986; Thompson and Wright 1991; Cotter and Peck 2001).

The use of debt financing is in some instances encouraged through the asymmetric information inherent in buyouts (Opler and Titman 1993). Signalling arguments made by Ross (1977) and Brealey, Leland et al. (1977) suggest that in the presence of substantial asymmetric information, managers with favourable information are likely to hold a large share of the firms stock and obtain outside financing disproportionately with debt. Grossman and Hart (1982) mention another benefit

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<sup>24</sup>Wright, Thompson et al. (1992) argue that institutions supplying debt and loan finance have a comparative advantage in monitoring a company because of their long experience in that matter.

<sup>25</sup> A number of empirical studies have shown that expenditures decline following a leveraged buyout (Bull 1989; Kaplan 1989b; Kitching 1989; Muscarella and Vetsuypens 1990; Smith 1990a).

of debt financing to influence managerial behaviour, which relates to bankruptcy costs for managers. The high personal investment in the buyout company through equity stakes, but also non-financial aspects such as loss of power, control and reputation can create an important incentive driver for managers to work harder, dispose of prior privileges and making better operating and investment decisions. By this means, the risk of default is reduced considerably.

However, one of the main criticisms of the disproportionate debt financing in leveraged buyouts has been their increased exposure to external shocks and financial distress. These shocks caused e.g. through sudden economic weakness with shortfall in demand or an increase in interest rates, can lead to bankruptcy (Rappaport 1990; Singh 1990; Singh 1993). Furthermore, the increased financial leverage can make a firm short-term oriented because of its vulnerability to financial distress, leading to a decline in long-term competitiveness (Palepu 1990; Gifford 2001). Rappaport (1990) even suggests that modern competition would “require the financial flexibility of a public company not burdened with extraordinary debt”. Moreover, significant financial leverage could lead to non-value maximising project selection decisions by managers due to managerial risk aversion: high leverage could cause risk-averse managers to alter their investment decisions in such way as to decrease the risk of the assets of the firm in order to reduce the likelihood of default (Myers 1984; Holthausen and Larcker 1996)<sup>26</sup>. Conversely, Jensen (1989a) argues that the risk of insolvency of buyout firms and the associated costs of financial distress are much lower than proclaimed, since financial innovations and the interest of all parties of a successful workout process reduces bankruptcy risk considerably (referred to as “privatization of bankruptcy”). Kaplan (1989b) and Kaplan and Stein (1993) show that the systematic risk of equity in leveraged buyouts is much smaller than what would normally be predicted given the amount of financial leverage in these transactions. One explanation for the superior performance of equity in buyout transactions and the substantially lower risks than implied is related to the associated beneficial organizational changes (Palepu 1990). Under this hypothesis, although LBOs increase financial risk of the company, they reduce business risk at the same time.<sup>27</sup> Furthermore, Opler and Titman (1993) show that in most buyouts more debt is used than is needed to eliminate taxes, supporting the idea that the role of debt rather relates to the incentive problems associated with free cash flow and the cost of financial distress are therefore considered to be much lower.

#### 2.5.2.4. Buyout Culture and Communication

As highlighted among the direct drivers with respect to revenue growth, buyouts often benefit from a revived entrepreneurial spirit, which not only leads to more innovative ideas and processes, but also benefits corporate culture and lines of communication. Firstly, the new organizational structure of the buyout with more direct and open interaction between and governance presents managers of

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<sup>26</sup> It has been argued that an emphasis on financial controls induces managerial risk aversion (Lei and Hitt 1995)

<sup>27</sup> Consistent with this hypothesis, Jensen, Burkhardt et al. (1992) document evidence of operating risk reductions in a case study of a leveraged buyout.

post-buyout companies with an atmosphere, which is less constrained with corporate bureaucracy and centralism<sup>28</sup> (Lowenstein 1985; Jensen 1989a; Hoskisson and Turk 1990; Taylor 1992; Butler 2001; Wright 2001). “Buyouts provide the imagery as a creative way to reintroduce an entrepreneurial drive in the publicly held firm” (Singh 1990) as management feels and acts as entrepreneurs under the new organization, relieved from constraints of a corporate headquarters and thus encouraged to make independent decisions (Bull 1989; Jensen 1989a; Houlden 1990; Kester and Luehrman 1995; Weir 1996). Several authors have described this effect as “LBO fever” or “Buyout adrenaline”: energized and highly motivated management teams are willing to take nearly any action to make their buyout a success (Houlden 1990; Beaver 2001; Samdani, Butler et al. 2001). This includes taking even unpopular and difficult decisions like cutting jobs and disposing businesses (Butler 2001).

Another important aspect relates to improved communication and direct interaction between portfolio company management and LBO firm (Kester and Luehrman 1995). In practice, decisions can be taken much more freely and independently by buyout management as the LBO firm is well aware of overall strategic direction and the responsible LBO firm partner is just a phone call away from discussing and signing off more difficult decisions. LBO firms may choose to work directly with management on a day-to-day basis, and even if not, they are much closer to operations and management than in a traditional organization (Bull 1989; Hite and Vetsuypens 1989; Anders 1992). Furthermore, LBO firms bring substantial additional knowledge into the portfolio company, acting as advisors and enablers. Firstly, their financial engineering skills and industry expertise is a valuable new resource to the company and leads to cross-utilization of managerial talent (Hite and Vetsuypens 1989). In addition, they frequently recruit outside advisors with industry expertise into the company. Their network with the financial services and investor community helps the company to get better access to the financial markets and prepares it for an eventual exit through an IPO or trade sale.

### 2.5.3. Other Sources of Value Creation in Buyouts

The discussed direct and indirect drivers of value creation relate to the period post acquisition, with the direct drivers unswervingly affecting cash flows and indirect drivers enhancing the former. However, value in leveraged buyouts is often already created before signing the share purchase agreement, since a lot of value can be captured during the acquisition and negotiation process. These value drivers either relate to information asymmetries and capital market inefficiencies or superior negotiation skills. As Haspeslagh and Jemison (1991) put it: “A (LBO) firm’s ability to *capture* value through (buyout) acquisitions rests largely on the skills of a small but highly

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<sup>28</sup> Wright et al. (2001) highlighted that managers of pre-buyout organizations felt discouraged if their business division frequently provided profitable and innovative investment opportunities, which were in turn given low attention and the management was provided with limited discretion, because their division was not regarded of central importance to the parent organization (see also Weir 1996, Beaver 2001).

experienced cadre of legal and financial experts and operating managers with well-developed expertise in analysis and deal-making”. With respect to the above categorization, these sources of value creation are rather “indirect” in nature, but from a “direct” financial value creation perspective mainly relate to the transaction multiple arbitrage between entry and exit multiple.

#### 2.5.3.1. Information Asymmetries and Market Inefficiency around Buyouts

Leveraged Buyouts have been widely accused to simply exploit insider information to create value in the transaction (DeAngelo, DeAngelo et al. 1984; Lowenstein 1985; Wright and Coyne 1985; DeAngelo 1986; Lehn and Poulsen 1989; Opler 1992; Wright, Robbie et al. 1998). In the eyes of critics, value is created merely through the exploitation of private information that induces a market correction in the value of the assets involved (Singh 1990). The reason for the apparent controversy is that managers are subject to severe conflicts of interest in buyout transactions, because they cannot simultaneously act as both buyer and agent for the seller (Jensen 1989a). Therefore, especially leveraged buyouts in the form of a management buyout, in which the incumbent management participates significantly in the equity, have been scrutinized by research (Long and Ravenscraft 1993a). Lowenstein (1985) reports a range of insider techniques and options that pre-buyout management has available to depress the valuation of the company. Since management is the essential source of the business plan, on which a company is acquired, an opportunistic management team could take advantage of their insider information and misrepresent the future business and earnings development of the company (Lowenstein 1985; DeAngelo 1986; Hite and Vetsuypens 1989; Ofek 1994). Under this scenario, value would be transferred from selling shareholders to acquirers (management) as a result of private and inside information (Palepu 1990; Wright, Thompson et al. 1992a). Effectively, acquirers (management) would buy a company for less than a similarly informed bidder would be willing to pay, and informed owners would be willing to accept (Kaplan 1989b).

However, there are various arguments to support the fact that information asymmetries are not a major source of value creation on buyouts, but rather contribute to managers’ motivation to initiate a buyout (Lee 1992). Kaplan (1989b) found in his study on management buyouts that the majority of transactions are not completed by the existing management team. Moreover, court decisions have early paved the way to address conflicts of interest by conducting open auctions and using independent committees on the board of directors as well as independent external counsel (KKR 1989). The application of limited auctions for the acquisition process regularly involves extensive disclosure requirements prepared by outside advisors, which lowers the potential that managers of buyout targets are able to systematically conceal information about business and earnings prospects from the acquiring party (Lowenstein 1985; Palepu 1990; Singh 1990; Lee 1992). Assuming somewhat efficient capital markets, the danger of exploitation of insider information should be anticipated by increasingly educated investors and the monitoring routines exercised by independent committees and financial market analysts during open auctions, which have today become the de-facto standard selling process (Jensen 1989b; Wright and Robbie 1996; Indahl and



Zinterhofer 1998; Wright 2001). As a result of these counter-arguments to information asymmetry as source of value creation, Singh (1990) concludes that “the pure managerial opportunism argument implies a higher level of manipulation of superior information by management teams than is feasible in a competitive acquisition environment”. This is also to some extent demonstrated by the decreasing returns on LBO transactions experienced over the recent years as competition among LBO firms for deals has intensified (Reyes and Mendell 2004).

#### 2.5.3.2. Acquisition and Negotiation Skills in Buyouts

Financial buyers consistently paid less for their acquisitions than did trade buyers during the 1990s (Butler 2001). One explanation is that compared to strategic buyers, they follow a dispassionate approach, as they screen dozens of deals for every one they execute. By contrast, strategic buyers are restricted to their respective industry and a few targets. They tend to overestimate synergies or get carried away in the auction of the prize of the asset, on which corporate managers have set their hearts and possibly careers (Butler 2001). LBO firms may therefore often choose to avoid too competitive auctions with several trade buyers participating as they already expect them “to pay crazy prices”.<sup>29</sup> The second explanation is that LBO firms have developed excellent deal negotiation skills. They are tough negotiators and tend to negotiate downward from a price that had earlier been accepted in principle during the due-diligence phase: once they find themselves the sole bidder, they are skilled at discovering problems (for instance off-balance sheet liabilities, such as environmental liabilities, outdated equipment that requires higher capital investment) in the seller’s business offer (Butler 2001).

Another source of value creation potential is the network the LBO firm has created among corporate managers and the financial community. Their ongoing interaction with the financial community (especially Investment Bankers) about potential acquisition targets and their various approaches to top managers of potential targets, allows LBO firms to build up considerable industry expertise (Anders 1992). In addition, LBO firms should benefit from an “acquisition learning curve”, as most buyout professionals have executed dozens of deals. Even if a specific bid is unsuccessful, the bidding process and involved due diligence provides a valuable source of inside information and industry developments (Anders 1992). In contrast to the above outlined efficient market argument of buyout information, LBO firm professionals could have more direct and timely access to critical information through their network and are able to interpret it faster than the average market participant, hence enabling them to make quick decisions regarding acquisitions (Fox and Marcus 1992). Therefore, attractive target companies can be identified and approached before other potential bidders are alerted about this specific acquisition opportunity (Wright and Robbie 1996). This is evidenced by several (hostile) takeover bids in the past, in which a strategic buyer (“white knight”) enters the bidding only after a financial buyer has made an official tender offer. As a consequence, the LBO firm’s professionalism in deal negotiation, deal

structuring and due diligence reduces the gap of asymmetric information and hence often makes LBO firms the preferred party for the vendor of the asset, especially when a quick execution of the transaction is of relevance.<sup>30</sup>

## 2.6. Value Destruction in Acquisitions and Leveraged Buyouts

As outlined above, although LBO Associations in this and earlier studies are mainly associated with a capability to create value in their acquisition targets, the contrary effect is equally possible. The broad literature on value destruction experienced at companies, not only but especially in the M&A context, as well as in the overall economy, was initiated by the discussion of the extraordinary destruction of value/welfare after the world economic crisis of the late 1920s and the Second World War.<sup>31</sup> More recently, the literature on value destruction has widely focused on management failures, ill-fated diversification strategies and especially corporate merger and acquisition activity of (publicly traded) companies, habitually measured by various return characteristics to their owners.

The M&A literature has shown through several studies that the average abnormal return to acquirers' shareholders from merger and acquisition activity is either zero (Jensen and Ruback 1983; Franks, Harris et al. 1991), or even significantly negative over one to three years after the merger (Langestieg 1978; Dodd 1980; Asquith 1983; Magenheimer and Mueller 1988; Agrawal, Jaffe et al. 1992), which indicates that acquirers are paying at least equal or above the level of achievable value generation potential (i.e. synergies) of the target, hence destroying shareholder value. The notion of consistently negative returns is a puzzle to researchers as it holds as argument against the efficient market hypothesis. This led Jensen and Ruback (1983) to remark: "These post-outcome negative returns are unsettling because they are inconsistent with market efficiency and suggest that changes in stock prices during takeovers overestimate the future efficiency gains from mergers". Ruback (1988) later adds: "Reluctantly, I think we have to accept this result – significant negative returns over the two years following a merger – a fact". However, the results are not all one-sided. Langestieg (1978) had found that post-merger abnormal performance is not significantly different from that of a control firm in the same industry. Neither Mandelker (1974) nor Malatesta (1983) and Bradley and Jarrell (1988) – using Magenheimer and Mueller's sample but employing a different methodology – find significant underperformance after the acquisition. More recently, more sophisticated multifactor benchmark studies such as performed by Franks, Harris et al. (1991)

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<sup>29</sup> Partially based on the fact that financial buyers are often disadvantaged in competitive auctions with trade buyers, as they cannot rely on synergies to justify a higher acquisition price.

<sup>30</sup> Professional deal execution and speed are often relevant in corporate divestitures in which conglomerates sell divisions, as divisional management and employees are not or only marginally involved in the negotiation process and consequently the vendor generally prefers to limit the time of uncertainty.

<sup>31</sup> See for example Machlup (1935), v. Hayek (1932), Schiff (1933) and Kaldor (1932) for a European perspective of the world economic crisis and its impact on the value of companies. See Robinson (1945) for a summary of value destruction and problems of European reconstruction post World War II.

did not find any underperformance, but then again, using a comparable approach Agrawal, Jaffe et al. (1992) did.

The important question in this context therefore is: what triggers merger and acquisition activity and which factors determine value creation and value destruction? The notion of managerial superiority as a motive for mergers can be traced back to Manne's (1965) view of the market for corporate control as an arena in which competing management teams vie for control for corporate assets. Jensen and Ruback (1983) conclude that managerial competition "provides the mechanism through which economies of scale or other synergies available from combining or reorganizing control and management of corporate resources are realized". Hence, the takeover market is an important component of the managerial labor market; it therefore complements the internal and external managerial labor markets as discussed by Fama (1980). More recent studies have found that announcement-period stock returns are positively correlated with acquirer's pre-merger performance and negatively correlated with acquirees' pre-merger performance (Lang, Stulz et al. 1989; Morck, Shleifer et al. 1990; Servaes 1991). These findings have been interpreted by Servaes (1991) as evidence that "better performing firms also make better acquisitions and that more value can be created from taking over poorly performing companies". However, other studies have found that acquired firms do not appear to have been unprofitable prior to merger (Boyle 1970; Ravenscraft and Scherer 1987; Herman and Lowenstein 1988; Scherer and Ravenscraft 1989) and that their performance either does not improve or actually declines following acquisitions (Mueller 1977; Mueller 1980; Mueller 1985; Rhoades 1986; Ravenscraft and Scherer 1987; Herman and Lowenstein 1988; Scherer and Ravenscraft 1989). As mentioned above, a range of studies has even found systematically negative abnormal returns post-merger (Langetieg 1978; Chung and Weston 1982; Asquith 1983; Dosoung and Philippatos 1983; Malatesta 1983; Magenheim and Mueller 1988; Agrawal, Jaffe et al. 1992; Philippatos and Baird Iii 1996). Accordingly, the evidence does not clearly give support for the notion of managerial superiority and that the mechanisms of the market of corporate control necessarily lead to either value creation or value destruction in acquisitions.

The LBO literature documenting value destruction is thin and frequently based on case study research of individual buyout transactions (Baker 1992; Bruner and Eades 1992; Wruck and Stephens 1994; Wruck 1994a; Wruck 1994b; Lys and Vincent 1995; DeAngelo and DeAngelo 1998). Kaplan and Stein (1993) more broadly examined value destruction in buyouts across the 1980s and found indications of an increasing 'overheating' phenomenon in the buyout market during that time, characterized by increased levels of financial leverage, use of public junk debt, and extraction of equity capital through dividends by management and shareholders, which in combination led to an overall increase of the level of risk and financial distress. Denis and Denis (1995) report that 31% of the firms completing leveraged recapitalizations – often the most aggressively structured form of leveraged buyouts – between 1985 and 1988 subsequently encountered financial distress. On July 28, 1988, Revco Drug Stores filed for bankruptcy in what is arguably the most notable failure in the annals of highly leveraged transactions (Wruck 1994b).

The firm collapsed merely 19 months after going private, a life span astonishing for its brevity. Notable in the panoply were Revco's financial advisors, and their inclusion was an unprecedented extension of the doctrine of fraudulent conveyance. Perhaps the most arresting aspect of this case was the allegation made in the financial press, and eventually by the bankruptcy examiner himself that the leveraged buyout left Revco with an "unreasonably small amount of capital" (Bruner and Eades 1992). However, Roden and Lewellen (1995) find evidence of a highly conscious effort on the part of the buyout groups and their capital suppliers to tailor the respective financing packages to the specific circumstances of the individual firms being acquired, discounting the negligence argument. Nevertheless, the rise in bankruptcies during the late 1980s led to a constant rise in voiced criticism questioning the ethical nature and social value of these transactions (Bruner and Paine 1988), which were increasingly and stereotypically perceived as "value destroying". Shleifer and Summers (1988) support the idea of value destruction (or transfer) through their analysis on gains from hostile takeovers, which they generally attributed to stakeholders' wealth losses such as declines in value of subcontractors' firm-specific capital or employees' human capital. In their view, shareholder gains in takeovers are therefore redistributions from stakeholders, and will in the long run eventually result in a deterioration of trust, which is deemed necessary for the functioning of the corporation. Other major stakeholders of buyout targets subject to potential wealth losses besides suppliers and employees were seen in existing pre-buyout bondholders (Warga, Warga et al. 1993), as well as the government (the "taxman") (Kaplan 1989a). Despite criticism regarding value destruction caused by aggressive leveraged buyouts, several authors also stress the benefits of financial distress and its positive effect on internal capital markets and organizational efficiency in the buyout context (Wruck 1990; Wruck 1994a; Kaplan, Mitchell et al. 1997). According to Wruck (1990), imperfect information and conflicts of interest among the target firm's claimholders have the largest influence on the outcome of financial distress, both areas in which methods for resolving these problems are generally available. Denis and Denis (1995) therefore attributed the high rate of distress cases in the late 1980s primarily to unexpected macroeconomic and regulatory developments, rather than structural deficiencies.

Furthermore, the broad literature researching performance improvements in LBOs (Baker and Wruck 1989; Jensen 1989a; Kaplan 1989b; Lichtenberg and Siegel 1990; Muscarella and Vetsuypens 1990; Singh 1990; Smith 1990a; Long and Ravenscraft 1993c; Ofek 1994; Smart and Waldfogel 1994; Phan and Hill 1995; Weir and Laing 1998), as well as reverse LBOs (Holthausen and Larcker 1996; Jalilvand and Switzer 2002) appears to be less divided with respect to post-buyout performance than the literature on post-merger and acquisition performance. The positively skewed literature findings could suggest that the scope for value destruction in buyout targets may be significantly lower than in public market mergers and acquisitions. One potential explanation could be seen in the fact that financial buyers limit their downside risk through a very disciplined, dispassionate and objective target selection approach, which on average makes them pay consistently less than trade buyers, i.e. they avoid overpaying for their acquisitions (Butler 2001).

# 3. Methodology and Research Design

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## 3.1. Research Goal of the Study

The purpose of the proposed study is to provide practitioners in the Private Equity industry and academia with a better understanding of the value creation process in buyout transactions. Especially, this study seeks to shed light on the drivers that lead to such successful buyout transactions and in turn to the observed “abnormal” performance in LBO funds when compared to either similar acquisitions performed by strategic buyers or to public equity market performance. More specifically, the thesis shall focus on factors influencing performance and contributing to value creation from three major sources:

1. The contribution of *exogenous, systematic drivers of value creation*, which are (i) related to general market conditions, (ii) related to the financial performance of the target or its industry or (ii) related to the type of acquisition undertaken (together the “financial” impact on performance).
2. The contribution of *indigenous, non-systematic drivers of value creation*, which can be attributed to the following two areas:
  - a) The characteristics and resulting managerial approach of buyout investment manager profiles as well as buyout firm profiles (the “managerial” impact on performance)
  - b) The acquisition management approach and strategic drivers specific to each single LBO transaction (the “strategic” or “operational” impact on performance)

In brief, the proposed dissertation shall provide answers to three closely linked research questions:

*R1: What are the drivers of value creation in a leveraged buyout transaction and how do these drivers positively correlate to a firm’s acquisition performance?*

*R2: Beyond purely “financial” value drivers, what impact on success does the human factor “Buyout Firm and its Investment Manager Team”, have; and to what extent does the strategic factor “Buyout Strategies”, contribute to positive buyout performance?*

*R3: What can Private Equity firm practitioners and their investors learn from the analysis of past buyout transactions and how can they apply this knowledge to make better investment decisions in the future?*

The dissertation's ultimate goal is to develop a better understanding of how value is created in buyouts with a particular focus on how the LBO firm and its team of investment managers contributes to this value creation, in effect not only determining the individual transaction's, but eventually the whole LBO fund's performance. The factor management on both the company level and to a lesser extent on the LBO fund management level has been identified as a key criterion in prior pilot studies, although this study will limit its scope to the LBO fund management level. The factor management on the company level has been more frequently researched with respect to principal agency (i.e. alignment of interest) theory (Easterwood, Seth et al. 1989; Kaplan 1989b; Morck, Shleifer et al. 1990; Palepu 1990; Smith 1990b; Wiersema and Liebeskind 1995; Weir and Laing 1998; Gottschalg 2002). Based on these prior findings, there continues to be a clear indication that agency theory (Jensen and Meckling 1976) and its implications play a crucial role in the buyout context overall. However, this especially applies at the *micro-level* of the company, as organizational changes in ownership structure and corporate governance have significant effects on buyout performance. However, LBO Fund of Fund managers have highlighted in interviews prior to this study that their fund investment decisions for an LBO fund are significantly driven by their assessment of the LBO fund management team and their implemented value creation strategies rather than purely on their performance track record.<sup>32</sup> According to their argument, the increased competition in the Private Equity industry for attractive assets makes the role of the buyout firm and its managerial capabilities to identify and implement such value enhancing strategies quintessential. Based on that perspective, this study therefore seeks to explore these additional important and almost completely un-researched, somewhat more *macro-level* factors of value creation in more detail. Consequently, this study will initially focus on financial (and other exogenous) drivers surrounding buyout transactions. Subsequently, this study analyzes investment manager and buyout firm teams as well as their value creation strategies in more depth.

In summary, this study seeks to be an important contribution (i) for practitioners in the Private Equity fund and investor community, as it counts as the first study to provide a comprehensive overview of Private Equity and Buyout Fund returns as well as its value creation drivers, based on an unique data set, (ii) to the recent increased discussion and investor demands for more transparency and disclosure in the Private Equity industry, pointing at key areas of focus, (iii) to the existing literature, focusing on two areas of value creation drivers – the buyout association and their value creation strategies – that have not yet been broadly analyzed in academic research, (iv) to the broader academic research effort to develop an integrated theory of the firm by combining findings from the finance (agency theoretical), management team and strategic management fields, using the buyout context as a platform.

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<sup>32</sup> Private Equity Fund of Funds are more frequently making use of newly developed LBO fund management team evaluation tools in order to assess the buyout firm's quality of investment professionals and their investment approach and track record.

## 3.2. Research Object of the Study

### 3.2.1. Industry Perspective

This dissertation focuses in general on the global Private Equity industry, with particular focus on Leveraged Buyout Funds.<sup>33</sup> The increased pressure for disclosure in the Private Equity industry, the need for institutional investors such as Private Equity Fund of Funds to identify top quartile performing LBO funds for their large scale investment decisions as well as an expected consolidation in an overcrowded and to some extent still underinvested Private Equity industry form a fascinating basis to study the above outlined research questions and to contribute to the current discussion in the industry.

#### 3.2.1.1. Pressure for Disclosure in the Private Equity Industry

Spurred by the turbulent capital market development subsequent to the burst of technology (investment) bubble in 2000, the Private Equity industry has become under intense pressure from its investor community. Investor calls for more transparency and disclosure around investment returns and with respect to strategic actions taken in individual investments – in order to better assess a Private Equity Fund’s capabilities – have mounted. After significant pressure from its contributing members, several U.S. pension funds have initiated basic disclosure of their LBO fund investments’ returns and announced increased transparency.<sup>34</sup> With more and more industry players openly debating disclosure policies, the industry is set to undergo radical change. This study is intended to contribute by finding relevant disclosure areas and formats for the practitioner community.

#### 3.2.1.2. Pressure for Performance in the Private Equity Industry

The Private Equity industry has seen an unparalleled inflow of capital during the boom years of the technology and internet bubble and sharply increasing capital markets (see detailed results in section 4.2.1.). On the one hand, investors were seeking to benefit from the stellar returns realized

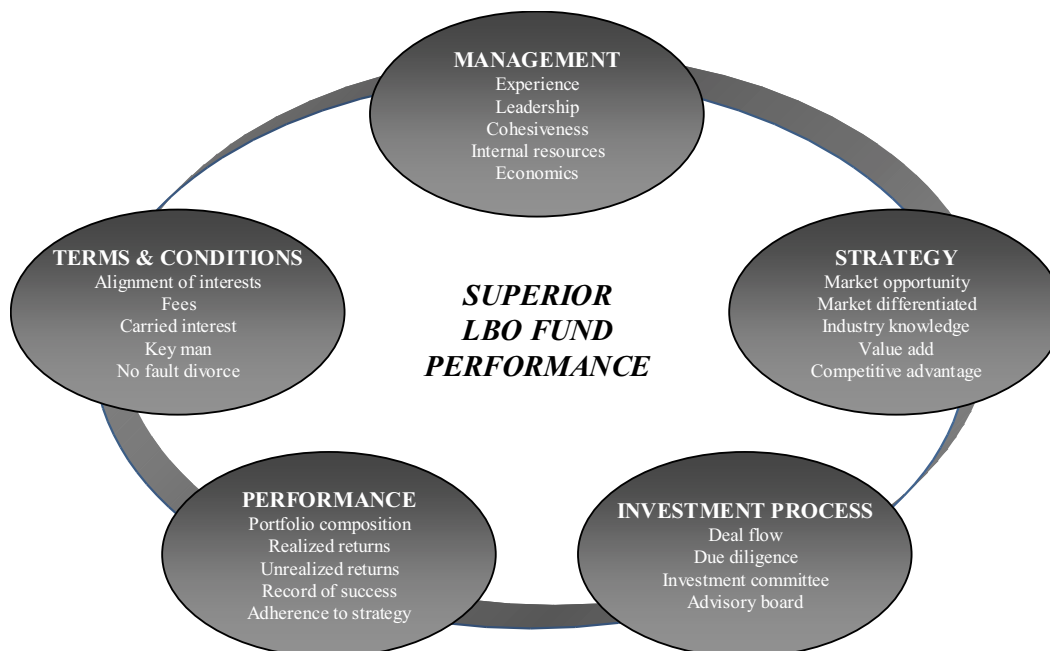
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<sup>33</sup> A limitation on individual countries is not useful, as most large buyout funds have either a global or Pan-European investment focus and are not restricted to individual countries to seek investment opportunities. Some funds may also invest in other assets besides traditional buyout situations.

<sup>34</sup> The California Public Employees’ Retirement System (CalPERS) was forced to publish returns on its alternative investment program (AIM), including returns on its Private Equity fund investments, for the first time in summer 2002 after threatened litigation by a court rule initiated by its pensioners. This publication was followed by several other pension funds’ disclosures. On March 17<sup>th</sup> 2003, CalPERS announced to become the first U.S. public pension fund to adopt a comprehensive performance disclosure policy for its Private Equity investments in an effort to improve transparency for its members. CalPERS will publish on a quarterly basis, internal rate of returns (IRRs) for its funds and fund of funds, and amounts of cash invested and profits realized from that cash invested. In addition, the System intends to work closely with the Private Equity industry to improve the quality of public information related to IRRs and portfolio company valuations.

in Private Equity during this time, especially in Venture Capital, but also in the buyout area as open capital markets allowed quick exits from investments.

On the other hand, investors were keen to diversify their heavily equity-balanced portfolios with alternative investments, such as the less correlated Private Equity investment asset class. The large availability of capital at the same time triggered a boom of Private Equity Fund of Funds, as these new investment vehicles were allowing a large class of investors, which were previously restricted from direct investments into Private Equity funds, “to take part in the game” through the less risky and more diversifying approach of these specialized fund of funds. However, the steep economic and capital market downturn that started in March 2000 has left the Private Equity industry with enormous amounts of un-invested capital, as well as few investment and exit opportunities.



**Figure 4: Key Areas and Criteria for LBO Fund Due Diligence**

Source: Anonymous Private Equity Fund of Fund.

In this environment, achieving performance on investments, which is in the top quartile of the industry, is therefore vital for all players in the industry. As a consequence, Private Equity investors continue to advance their investment due diligence approach and tools to substantiate their investment decisions. Figure 4 summarizes key areas of due diligence that these investors have developed in order to assess the potential of an LBO fund to demonstrate superior performance. This study seeks to contribute to this increasing due diligence effort by reflecting on historic data and trends and introducing new investment analysis tools that could improve investment decisions in the practitioner community going forward.



### 3.2.1.3. Consolidation in the Private Equity Industry

As a result of the above mentioned pressure for more disclosure and performance, the Private Equity industry is set to undergo a substantial consolidation. The lack of investment opportunities has already led several Private Equity funds to return their raised capital – in part or completely – to investors. Industry experts suggest that a large amount of the more recently established Private Equity funds will go out of business, while the market for new fundraisings has become much more challenging<sup>35</sup>. Furthermore, some of the largest investment banks with merchant banking operations in the industry have suffered from considerable asset write-downs on their Private Equity portfolios, eradicating already weak earnings and hence reporting large losses. These banks have started to divest or securitize these portfolios in order to reduce earnings volatility on the one hand, and in order to comply with new legislation on bank capitalization set out by the Basel II Accord.<sup>36</sup> These portfolios, often offloaded at steep discounts to net asset value (NAV), are now traded in the Private Equity secondary market among fund of funds and other investors. Private Equity fund of funds, however, are themselves equally suffering from the dismal recent performance of the primary funds in which they have invested.

### 3.2.1.4. Benchmarking Returns in the Private Equity Industry

In spite of the external pressures and the increased scrutiny of fund performance by investors, there currently is only very limited knowledge around appropriate benchmarking tools in the Private Equity market. Private Equity return data providers such as Venture Economics and PE Intelligence generally provide investors with fund return benchmarks according to vintage years. This approach is not taking into consideration some important elements. First, fund returns are dependent on the nature of its underlying investments, which means that funds focusing on high risk investments (e.g. Venture Capital) may generate higher returns than funds that are investing in traditional mature businesses. Also, the average return of investments may be boosted by a single or a few successful investments. Secondly, the aggregation on the fund level does not make explicit the value creation that the buyout firm has generated, e.g. when compared to public market performance of targets in their respective industries. Finally, geographic differences may not be accounted for when comparing returns with benchmark funds. This study proposes alternative ways of benchmarking Private Equity investments, taking into account investment timing, horizon, industry performance and geographic differences.

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<sup>35</sup> Some of the largest Private Equity firms, e.g. Doughty Hanson, Industri Kapital or Terra Firma Capital Partners, had to reduce their fund raising targets in 2003 following problems to secure a sufficient level of commitments.

<sup>36</sup> For example, Deutsche Bank's Private Equity arm, DB Capital, has been spun off in 2003 in a management buyout to some of its partners and is now operating under the new name MidOcean Partners. UBS Capital has been sold in 2003 as the bank decided to reduce its Private Equity direct involvement. JPMorgan Capital Partners, one of the largest merchant banks worldwide, has significantly reduced its portfolio and is also considering a spin-off.

### 3.2.2. Transaction Perspective

The traditional subject in M&A literature surrounds mergers and acquisitions, takeovers and related issues of corporate restructuring that result in a change of a firm's ownership structure. This study on performance and value creation drivers of buyout transactions focuses on deals that have been characterized by Copeland and Weston (1988) as "Leveraged Buyouts" in their categorization of corporate restructuring events. All other corporate restructuring types are not being considered, as they are either more likely to resemble acquisition activity among non-financial, strategic buyers (i.e. mergers and acquisitions, divestitures, etc.) or do not follow the intention of change in ownership and use of significant debt financing to gain the required control over a potential target. Hence, although at least three alternatives can result in change in ownership structure according to Copeland and Weston (1988), these options lack the significant debt financing involved in Leveraged Buyout. As expanded on in the literature review, debt financing is seen to play a fundamental role buyout and has significant effects on management financial discipline, incentivization, agency costs and value creation. Therefore, no other categories are considered in this study's samples.

I.	Expansion	<ul style="list-style-type: none"> <li>■ Mergers and Acquisitions</li> <li>■ Tender offers</li> <li>■ Joint ventures</li> </ul>
II.	Sell-offs	<ul style="list-style-type: none"> <li>■ Spin-offs (Split-offs &amp; Split-ups)</li> <li>■ Divestures</li> <li>■ Equity carve-outs</li> </ul>
III.	Corporate control	<ul style="list-style-type: none"> <li>■ Premium buybacks</li> <li>■ Standstill agreements</li> <li>■ Anti-takeover amendments</li> <li>■ Proxy contests</li> </ul>
IV.	Changes in ownership structure	<ul style="list-style-type: none"> <li>■ Exchange offers</li> <li>■ Share repurchase</li> <li>■ Going private</li> <li>■ Leveraged buyouts</li> </ul>

← Study Sample Focus

**Table 2: Types of Corporate Restructuring**

Source: Copeland and Weston (1988)

Accordingly, leveraged buyouts in this study can be described as "transactions in which a (majority control) ownership stake is acquired (at least involving a change in ownership) and a significant amount of debt is utilized to finance the purchase price of the acquisition". Based on this perspective, there are several types of leveraged buyouts from a market and ownership perspective that can be distinguished in general:<sup>37</sup>

<sup>37</sup> See Butler (2001) for details on internal LBOs, adapted by the author.

<b>Form</b>	<b>Characteristics</b>	<b>Ownership</b>
A. Management Buy-Out (MBO)	Encompasses the current management team, seeking advice and financing from outside investors to acquire the company, generally with a LBO firm	Change: LBO
B. Management Buy-In (MBI)	Encompasses an external management team, seeking advice and financing from investors to acquire the company, generally with a LBO firm	Change: LBO
C. Public to Private (P-to-P)	Encompasses a LBO firm (and/or MBO/MBI), making a tender offer for shares of a public company, taking it private.	Change: LBO
D. Private to Private	Encompasses a LBO firm (and/or MBO/MBI), buying a controlling stake in a private company, often a family firm	Change: LBO
E. Divisional Spin-off	Encompasses a LBO firm (and/or MBO/MBI), buying a division of a private or public company (corporate divestiture), running it as an individual business	Change: LBO
F. Internal LBO	There are several types of internal LBOs that can be distinguished: <ul style="list-style-type: none"> <li>■ Internal Carve-Out, leaving ownership of division with parent company</li> <li>■ Leveraged Partial Public Offering, offering part of the company on the public market</li> <li>■ Corporate Management Buy-Out, with parent company retaining majority control</li> <li>■ JV LBO, separation from parent, but parent company retains significant minority stake</li> </ul>	Generally no significant change: No LBO
G. Leveraged Recapitalization	Generally encompasses a public company, which leverages itself in combination of a employee equity participation program in order to strengthen the incentive to maximize the company's performance	No significant change: No LBO
H. Secondary Buy-Outs	A buyout investment is purchased in a transaction encompassing two LBO firms	Change: LBO

**Table 3: Forms of Leveraged Buyout Transactions Classification**

According to this LBO transaction classification, this study includes all of the above outlined forms of leveraged buyouts and their combinations, except for the internal LBO and leveraged recapitalization (“F” and “G”). Although these latter two forms of buyouts may potentially involve some form of debt financing, they do lack the necessary change of ownership that allows meaningful organizational transformation. In other words, although these latter forms may result in some of the benefits associated with LBOs, the continued dominant involvement of the former shareholders is unlikely to induce a far-reaching re-alignment of interests or radical corporate restructuring. Secondary buyouts do qualify as LBOs for the purposes of this study, despite the fact that this form is not expected to accompany such significant corporate change due to the similarity of objectives of the financial buyer and seller. Although not subject of this study, it could be anticipated that the transformational changes and factors contributing to value creation differ between primary and secondary buyout.

### 3.3. Research Model

#### 3.3.1. Development of the Research Model

The presented research model has, on the one hand, been developed on the basis of the literature review. However, the most important input to the research model's design came from interviews carried out prior and during this study with industry practitioners in the Private Equity Fund as well as Private Equity Fund of Funds industry. Through these brainstorming sessions about (i) what an ideal approach to measuring value creation in buyouts would be, and (ii) which effects and control variables should crucially be taken into consideration, this research model has gained considerable complexity, yet strong explanatory power of variance in buyout returns (i.e. the dependent variable deal IRR in this study). The expert interviews not only helped to ensure that the study adequately reflects the key focal points and most important drivers of value creation in buyouts, but also indirectly contributed to increase the validity of the proposed research (and regression) model(s). Furthermore, this process also guaranteed to derive conclusions which are relevant and useful for the buyout practitioner community, i.e. both for Private Equity firms and their (buyout) managers as well as Private Equity investors.

In summary, the development of the proposed research model followed these steps:

1. Identification of the main sources of value creation according to the steps in a typical leveraged buyout acquisition process, starting from the pre-acquisition and negotiation phase to the post-acquisition phase of organizational changes and operational improvements with their respective performance impacts.
2. Challenge and extend ideas through brainstorming sessions with Private Equity practitioners. Identification of relevant (external, systematic) control variables that will influence buyout returns. Identification of areas of research interest of practitioners, which influenced research design.
3. Definition and aggregation of constructs based on key variables on the buyout firm and manager level, buyout strategy and buyout target level as well as control variable level, which could have significant influence on the value creation process in buyouts.
4. Test of the research model's desired constructs and variables for predictability and operationalizability based on accessible data.
5. As an overall goal, the research model at all times was intended to form a reliable basis to provide a constructive contribution to (i) practitioners in the Private Equity and industry and their investors to improve their due diligence and investment processes for leveraged buyouts and LBO funds respectively, and (ii) to academia's so far limited understanding of sources of value creation in Buyouts and potential discovery of important non-researched drivers, e.g. the impact of the factor (GP team) management.

### 3.3.2. The Research Model

As mentioned above, the research model design has been based on both expert interviews and literature review. Following the latter, a typical acquisition process that holds for any type of acquisition, including leveraged buyouts, can generally be understood as an eight-step process:

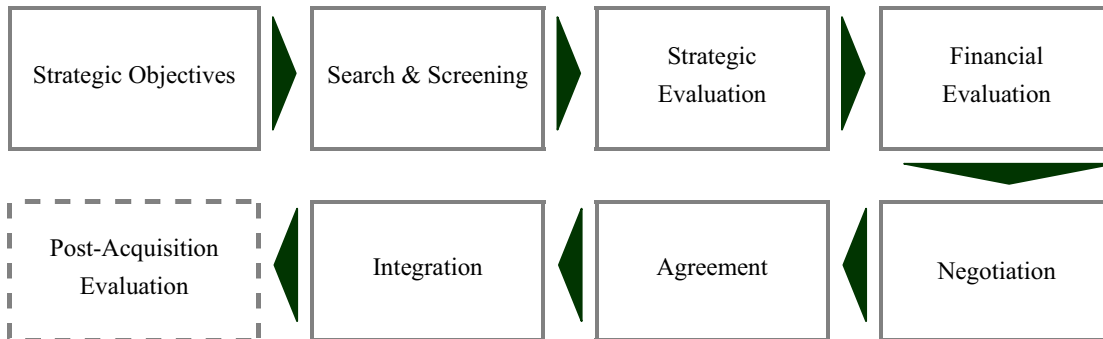


Figure 5: General Acquisition Process  
Source: Hasepeslagh and Jemison (1991)

With respect to analyzing value creation in buyouts, the focus according to this model must be on the “negotiation” and “integration” phases. According to one stream of research (Anders 1992; Fox and Marcus 1992; Wright, Wilson et al. 1996; Butler 2001), buyout firms have consistently been able to capture value from the seller through skilled negotiations. However, given counter-arguments based on the efficiency of today’s auction processes (Jensen 1989b; Singh 1990; Wright and Robbie 1996; Indahl and Zinterhofer 1998; Wright 2001), most authors agree that the main source of value creation will originate from the post-acquisition management phase, rather than market inefficiency. Following the latter argument, i.e. assuming for a moment to fully discount the potential source of value creation from the negotiation phase on the basis of efficient market theory, the post-acquisition management phase hence offers the single and foremost opportunity to demonstrate the value that a certain buyout firm can bring to the buyout target through its team of investment managers and its buyout target value creation strategy. The below process chart (figure 6) summarizes the key steps in a buyout acquisition process.



Figure 6: Acquisition Process – adapted to Leveraged Buyouts

However, such process charts do not sufficiently reflect the potential other sources of value creation, which are inherent in the respective buyout firm’s managerial and strategic characteristics. In addition, they not only say little about the different levels of characteristics, from which drivers

of value creation are derived from, but they also neglect the important interactions and interdependencies among value drivers. In fact, the process chart implicitly assumes that the process itself creates the anticipated value creation performance. Thus, such an approach tends to underestimate the influence that the LBO Fund and its management team may have on the performance of the deal. In addition, it is unable to capture side-effects that make a flow chart analysis irrelevant. Taking these factors into account, the focus shifts from an acquisition process view to a value creation view that could be illustrated as follows:

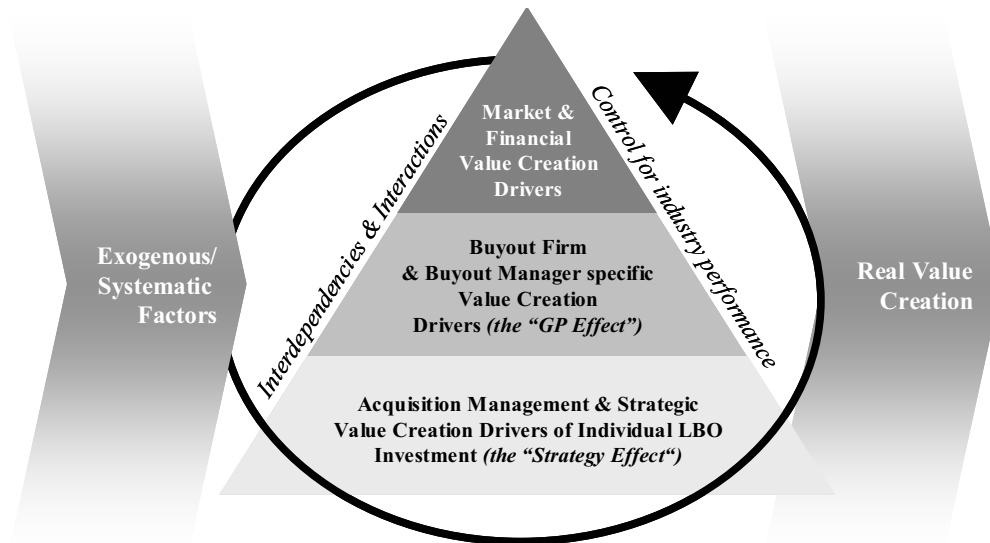


Figure 7: LBO Value Creation Model

The LBO Value Creation model outlines the major categories that may influence buyout performance. First, market and financial value creation drivers, such as the state of the public equity markets or financial developments and outlook in a certain industry, explain to a certain extent the performance of a buyout target, given that there is an indisputable link to economic and industry dynamics. Secondly and more importantly, this study argues that the buyout firm itself is a direct source of value creation, as on the one hand the experience and profile of an individual buyout investment managers and on the other hand the experience of the buyout firm as a whole in undertaking buyout transactions may affect the return of buyout transactions.

Thirdly, acknowledging that there may be a "GP effect" in value creation through the acquiring General Partner firm, the third layer of analysis focuses on value drivers that are based on the strategic actions taken by the buyout firm to implement their desired value generation process. After controlling for exogenous, systematic factors, such as transaction entry and exit modes and types (further detail below) that affect buyout success, value creation can to a large extent be made explicit through this model. Lastly, in order to make a relative comparison, each investment is benchmarked against public market performance in its respective industry over the investment horizon to uncover "excess-to-market" or real value creation. The illustration of the LBO Value

Creation model as a pyramid is intentional and represents a macro to micro view of value creation drivers. The final layer, neither depicted in the LBO Value Creation model nor part of this study, would be a company and target management level, which does, however, go beyond the scope of this study. The research design chosen by the author intentionally omits this layer due to his conviction that the key strategic decisions leading to value creation are made on the GP level, and not the company level.

The following research model summarizes these identified levels of potential value creation drivers in leveraged buyouts that may lead to real (market-adjusted) buyout acquisition out-performance:

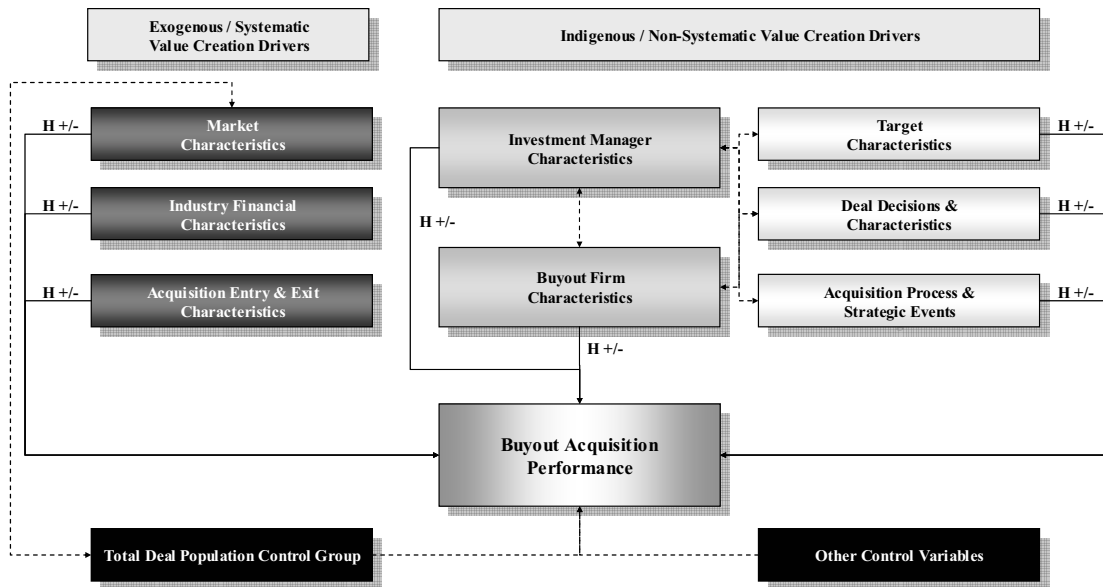


Figure 8: Research Model

The research model is an extension from previous approaches to analyze leveraged buyouts on a company level, which almost exclusively concentrates on the buyout company itself (Kaplan 1989b; Lichtenberg and Siegel 1990; Smith 1990b; Gottschalg 2002). The core of the model on the far right therefore still forms aspects of the “*buyout company level*”. However, as outlined above, the perspective of the buyout company level in this study shifts up the causal chain to a perspective, in which corporate action is seen as strategic events initiated by the acquiring buyout firm. The buyout company or strategic level will take into consideration three areas of variables: (i) *the buyout target’s specific operational and organizational characteristics*, business strategy, market approach, and operating environment, (ii) *deal specific decisions* taken by the acquiring buyout firm, motivations for the deal and role of management, and (iii) *the specific acquisition process*, on the one hand in order to capture to some extent the process based view of value creation as outlined by Haspeslagh and Jemison (1991), and on the other hand to encapsulate the strategic actions implemented at the buyout target by management (but based on the General Partner’s guidance).

The research model in this study is extended by another important level of potential value drivers, which are determined by the *LBO fund and its management team*. This level has been developed according to Private Equity industry expert views that the experience profile of individual investment managers as well as the buyout experience gained by the General Partner as a firm has a strong potential impact on buyout performance. Under this view, the core of the research model shifts to the GP firm as it is the main source of action for any value creation processes implemented at the company level. For instance, the success of a leveraged buyout under this model therefore not necessarily depends on (operational) decisions and actions taken at the company level by the target's management. Instead, it is more dependent on the strength of the GP management team, determined for example by the GP team's background, experience and creativity, its cohesiveness and functionality as a team as well as the team's investment track record. Also, the GP firm's management approach towards leading the buyout portfolio company, setting its strategy as well as their proprietary network will be important variables that may determine value creation.

Finally, the research model in this study includes a third pillar categorized as exogenous, systematic factors of value creation. This layer includes the following variables: (i) *market characteristics*, encapsulating industry and equity market performance, state of the overall economy, and entry and exit conditions and valuation levels, (ii) *industry financial characteristics*, which determines what the recent, current and expected financial status in the respective buyout target's industry is both at the time of entry and exit, and (iii) *acquisition entry and exit conditions*, which unlike the before mentioned market-related conditions include the entry and exit types, e.g. auction, negotiated sales, intermediary, IPO, and entry and exit modes, e.g. acquisition, recapitalization, private or public exit. These combined exogenous factors have a fundamental impact on the performance of a buyout. Nevertheless, one of the reasons why this study stresses the importance of the GP firm is that the more successful GP firms should be able to read the exogenous factors and exploit opportunities accordingly, both at the time of entry and exit. For instance, the investment decision for a buyout target in a certain industry by the GP firm should be based on a view on market entry conditions and valuation, growth prospects for the industry, and positive exit prospects in the near- or mid-term. Therefore, although these factors are de facto exogenously given, successful LBO firms will consistently have to take a better view on companies than public markets and/or their buyout target's management. In order to achieve this goal, LBO firms may choose to restrict their LBO fund's investment strategy with respect to investment size or pursue a regional or industry niche focus. Several *control variables*, such as entry and exit years, geographic distribution, separation of realized and unrealized deals, amount of invested capital, ownership percentage acquired, etc. support the research model to identify, isolate and test the above outlined constructs and to explain variance in buyout returns.

The presented research model is intended to provide a basis for practitioners and academia to explain variance in buyout performance based on historical buyout returns. The model's results should be utilized to develop research in the buyout field further and – from a practitioner/investor point of view – to eventually provide forward-looking indications about which specific LBO fund



and which LBO firm management team is likely to add value to a specific buyout transaction and which is not. For instance, an excellent GP team track record gained in one industry may not guarantee success in a new buyout opportunity, if (i) it is not within the GP's core industry or regional focus, (ii) it is far larger than prior transactions performed by the team, or (iii) the strategy setting and management approach differ.

The following section summarizes the main hypotheses of the study. The subsequent sections will then provide more detail about the empirical approach and operationalization of the research model, as well as a detailed formula deduction of the dependent variable in this study – buyout deal gross IRR (internal rate of return) performance. As this study is arranged into three main sections of empirical tests, a detailed description of tested independent variables and their measurability, followed by further discussion and conclusion with respect to tested variable hypotheses is provided in each empirical test section of this study separately.

### 3.4. General Hypotheses

The introduced research model forms the basis to provide constructive answers to the following general hypotheses (“GH”) along the model's three pillars:

- GH1. The more favorable the market, industry, entry and exit conditions surrounding a buyout acquisition, the higher the expected buyout return on investment.*
  
- GH2. The higher the degree of relevant background and experience of an individual investment manager, as well as the higher the degree of combined diversity of such backgrounds, assembled knowledge and experience of a buyout firm in relation to executing buyout deals, the higher the expected buyout return on investment.*
  
- GH3. The more attractive the target company's business characteristics, the more favorable the deal decisions taken by the acquiring LBO fund and the more radical the strategic actions implemented by the acquiring LBO fund, the higher the expected buyout return on investment.*

These three overall research study hypotheses will be further extended in each of the three sections of empirical tests. A range of explanatory dependent variables are introduced, defined and tested through multivariate regression models in each respective section. The results from these tests will support acceptance or rejection of the above main hypotheses of the study.

Due to the complexity and number of explanatory variables in the empirical tests, not all variables will be tested in a single multivariate model. Instead, variables will be tested according to their main pillar from a macro to micro level as outlined in the value creation model (figure 7) and

research model (figure 8). Complexity is being added iteratively through nested multivariate regression models in order to demonstrate relative impacts of each explanatory variable or group of variables to the model's power to explain variance in buyout returns (IRR).

## **3.5. Performance Evaluation**

### **3.5.1. Overview of Performance Evaluation**

Venkatraman and Ramanujam (1986) distinguish three general categories of business performance measures: financial performance, operational performance and organizational effectiveness. Financial performance is the narrowest, but the most frequently used concept in both finance as well as the empirical strategic management studies (Hofer 1983). Measures used are either accounting-based, such as sales growth, profitability, earnings per share, or market-based like (abnormal) stock returns. To widen the perspective of the concept of business performance, Venkatraman and Ramanujam (1986) combined financial and operational performance. Operational performance can be evaluated with non-financial measures such as market share and product quality reflecting the fulfillment of economic and operational goals. The broadest domain introduced by Venkatraman and Ramanujam, the domain of organizational effectiveness, has been approached conceptually by strategic management. However, no generally accepted measures have yet been introduced, and most studies have continued using financial and business performance measures. Research in the fields of finance and strategic management has been criticized for using accounting-based data to measure performance (Datta, Rajagopalan et al. 1991; Hoskisson, Hitt et al. 1993). This criticism draws on the weakness of accounting data in manipulating firm performance and suggests that researchers should focus on market-based performance measures exclusively or at least to validate the results obtained with accounting data (Nayyar 1992; Dalton, Daily et al. 1998). As a consequence, this study will only employ a market-based measure of performance: the internal rate of return (IRR) on buyout investments will serve as primary indicator of buyout performance and value creation. Nevertheless, as demonstrated in section 3.5.4. through a mathematical return deduction formula, the market-based return can be broken into constituents, which are based on the operating and accounting performance of the target.

### **3.5.2. Performance Evaluation in Leveraged Buyouts**

At the end of a buyout process, i.e. upon full exit from the investment, remains the evaluation of the buyout performance, which gives evidence about the degree of value creation in the deal. Although the LBO firm generally takes strategic action and value creating measures immediately after the acquisition, a large portion of value creation will only occur over the subsequent months or years. LBO firms frequently report "hypothetical" returns of their unrealized investments

according to current market valuation over the holding period, e.g. during new fundraising efforts. These unrealized deal returns are based on the assumption that a certain portfolio company would (on average) be valued according to industry peers if sold at any given time. However, it is standard practice (for investors) to measure LBO performance at the time of the exit from the investment, i.e. to analyze actual realized returns<sup>38</sup>.

As a consequence, in order to measure the long-term performance impact of the buyout, the study intends to focus on the internal rate of return (IRR) of the buyout as superior performance measure and dependent variable. Theoretically, the internal rate of return method compares the value of the buyout firm's equity stake at exit against their initial equity investment. This simple method, however, can be flawed should there be significant intermediate cash flows (e.g. extraordinary dividends) that were paid out to the shareholders. Nonetheless, the internal rate of return calculation can easily be extended to include a discounted cash flow analysis, in which all cash inflows (and outflows) by the General Partner are discounted appropriately. It has become market practice to calculate and report deal IRRs based on exact cash in- and outflows and their timing. On the other hand, exact cash in- and outflows are not generally adequately documented and made available by General Partners, e.g. through their private purchase memoranda. Instead, these cash flows are often only implicitly presented through a differentiation between *realized and unrealized values* of an investment at the time of exit or valuation date. The realized value portion will incorporate both cash inflows during the holding period and/or at exit. The total value, which combines realized and unrealized values, therefore represents a good proxy to calculate returns on invested capital.<sup>39</sup> In addition, sizable intermediate cash in- or outflows are generally not very frequent, since (i) covenant restrictions under the debt financing agreements do not generally permit cash dividends from the portfolio company to the financial sponsor, and (ii) sponsors are generally reluctant to invest additional capital into the business after their initial investment.

Based on the above discussion, this study's descriptive and statistical analysis is mainly based on reported IRRs from buyout firms; hence IRRs used as performance measures in this study should *ceteris paribus* reflect the correct cash flow-based reporting methodology, while at the same time a certain degree of reporting flexibility of buyout funds must be acknowledged. A small portion of transaction IRRs in the database underlying this study has been calculated manually based on total value assumptions at exit, assuming no intermediate cash flows for the above mentioned reasons.

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<sup>38</sup> Investors generally also perform an evaluation of unrealized returns, applying their own valuation techniques and views on these investments.

<sup>39</sup> However, there is no detailed information given by the General Partner whether some part of the intermediate cash flows are compounded to account for the time value of money. However, this effect is more likely to be negligible since paid out distributions to Limited Partners are not necessarily reinvested at the same return. Consequently, this assumption is the more conservative approach, but may slightly affect the actual level of IRR.

### 3.5.3. The Internal Rate of Return Formula

The primary measure of return in a LBO transaction and the dependent variable in this study is the *gross internal rate of return* on invested capital by the fund. Buyout funds generally report both gross and net IRRs, which are both based on actual cash flows. This study exclusively focuses on *gross IRR*, i.e. actual returns on a single buyout investment made by the General Partner compared to *net IRR*, which represents the actual distribution to the buyout fund's investors (Limited Partners) net off fund management fees as well as carried interest. The latter represents the profit sharing part of the General Partner on the respective transaction and is commonly set at 20% as an industry standard. The importance for choosing gross IRR as primary measure in this study is based on the fact that the goal of the empirical analysis is (i) to compare actual deal performance with public market industry performance over the investment period, and (ii) to break down and analyze the determinants of this gross IRR value creation. This study therefore does not intend to measure cash flow returns to fund investors, which would be appropriate for an evaluation of Private Equity as an investment asset class<sup>40</sup>.

The buyout target's valuation is generally based on entry and exit point enterprise values (as reported), from which equity contributions to the General Partner are calculated. The dependent variable is defined as:

$$IRR = \left[ \frac{Equity\ Value_{Exit}}{Equity\ Value_{Entry}} \right]^{(1/Holding\ Period)} - 1$$

with

*Equity Value<sub>Exit</sub>* = Amount of total realized and unrealized value at time of exit (or at time of deal valuation)

*Equity Value<sub>Entry</sub>* = Equity amount invested by General Partner (at time of acquisition)

*Holding Period* = Date of exit minus date of acquisition, expressed in years

### 3.5.4. Value Attribution in Buyouts – Deduction and Extension of the IRR Formula through the Dupont Equation

The total Equity Value at exit is a result of the combined value creation activities that the buyout firm has implemented over the holding period of the investment. In the majority of cases, these activities should have had a positive influence on (i) revenue growth at the target, (ii) improvement in operating efficiency at the target (measured as EBITDA margin), (iii) relative trading multiple valuation of the company (indirect result either through improvements of financial performance in (i) and (ii) or through a general increase in trading valuations in the public markets), and (iv) cash flow generation at the target, which has led to leverage/debt reduction. As a consequence, an ex-

<sup>40</sup> Compare Gottschalg, Phalippou et al. (2003), Kaplan and Schoar (2003) and Ljungqvist and Richardson (2003) for recent findings.

post comparison of these constituents at the time of acquisition and disposal of the business allows making explicit what the sources of increases in equity value have been over the holding period.

The following mathematical deduction, in the following referred to as “Value Attribution Analysis of Leveraged Buyouts”, is based on the Dupont formula. The Dupont formula has traditionally attracted widespread academic attention from various research fields, including finance, marketing, strategic management and operations research for its ability to make explicit drivers of performance (Banker, Hsi-Hui et al. 1993; Banker, Hsi-Hui et al. 1996; 1997; Banker and Brief 1999; Firer 1999; Rust and Keiningham 1999; Rust, Moorman et al. 2002).

Based on the IRR formula, the equity value can be further decomposed utilizing an adapted variation of the Dupont formula, which offers additional insight into the value drivers of complete transactions:

$$\begin{array}{l}
 \text{From} \quad \text{Enterprise Value (EV) = Equity (E) + Net Debt (ND)} \\
 \text{We receive} \quad E = \text{EV} - \text{ND} \\
 \text{Which is} \quad E = \text{Sales} \times \text{EBITDA margin} \times \text{EBITDA multiple} - \text{Net Debt} \\
 \qquad \qquad \qquad \underbrace{\hspace{10em}}_{\text{EBITDA}} \\
 \qquad \qquad \qquad \underbrace{\hspace{15em}}_{\text{Enterprise Value}} \\
 \qquad \qquad \qquad \underbrace{\hspace{20em}}_{\text{Equity}}
 \end{array}$$

The exact mathematical deduction from the simple Dupont formula is as follows:

$$\begin{aligned}
 \text{ROE} &= \left( \frac{NI}{Rev} \right) \left( \frac{Rev}{A} \right) \left( \frac{A}{E} \right) \\
 &= \text{Profit Margin} \times \text{Asset Turnover} \times \text{Equity Multiplier}
 \end{aligned}$$

with

$NI = \text{Net income}$

$Rev = \text{Revenues}$

$A = \text{Assets}$

$E = \text{Equity}$

or

$$\begin{aligned}
 \text{ROE} &= \text{ROA} \times \text{EM} \\
 &= \text{Return on Assets} \times \text{Equity Multiplier}
 \end{aligned}$$

We shall consider  $\text{Assets} = \text{Total Debt (D)} + \text{Market Value of Equity (E)}$   
 $= \text{Enterprise Value (EV)}$

and receive

$$\text{ROE} = \left( \frac{NI}{Rev} \right) \left( \frac{Rev}{EV} \right) \left( \frac{EV}{E} \right)$$

As we are not interested in the (static) return on equity, but seek to determine the (dynamic) equity appreciation between entry and exit of the buyout transaction under review, we divide both sides by net income and take the reciprocal to obtain

$$E = (Rev) \left( \frac{EV}{Rev} \right) \left( \frac{E}{EV} \right)$$

As we eventually want to display both, the sales and margin growth impact on IRR, we introduce our operating earnings measure “earnings before interest, taxes, depreciation and amortization” (EBITDA) by multiplying both sides by one, and receive

$$E = (Rev) \left( \frac{EBITDA}{Rev} \right) \left( \frac{EV}{EBITDA} \right) \left( \frac{E}{EV} \right)$$

In order to determine the (dynamic) IRR and analyze the value attribution of its constituents over time, we build compounded annual growth rates (CAGRs) on both sides of the formula, and receive

$$(1+(CAGR(E)) = (1+(CAGR(Rev)))(1+(CAGR\left(\frac{EBITDA}{Rev}\right)))$$

$$(1+CAGR\left(\frac{EV}{EBITDA}\right))(1+(CAGR\left(\frac{E}{EV}\right)))$$

with (1+CAGR(E)) being equivalent to 1+IRR(Equity). In order to receive an “addition format” for the value-creating elements that decompose the equity IRR of the transaction, we need to take the natural logarithm (ln) of the equation. In order to achieve the effect on 100% of the IRR, we then need to divide both sides by the natural logarithm of 1+IRR(equity) to obtain

$$100\% = \left( \frac{\ln(1+(CAGR(Rev)))}{\ln(1+(CAGR(E)))} \right) + \left( \frac{\ln(1+(CAGR\left(\frac{EBITDA}{Rev}\right)))}{\ln(1+(CAGR(E)))} \right)$$

$$+ \left( \frac{\ln(1+CAGR\left(\frac{EV}{EBITDA}\right))}{\ln(1+(CAGR(E)))} \right) + \left( \frac{\ln(1+(CAGR\left(\frac{E}{EV}\right)))}{\ln(1+(CAGR(E)))} \right)$$

Each bracket now represents the value adding component of equity IRR that add up to 100% (pure leveraged buyout value attribution analysis). By multiplying both sides with the equity IRR, we find each factor’s contribution to the level of IRR, hence

$$IRR (Equity) = IRR (Equity) \left( \frac{\ln(1+(CAGR(Rev)))}{\ln(1+(CAGR(E)))} \right) + IRR (Equity) \left( \frac{\ln(1+(CAGR\left(\frac{EBITDA}{Rev}\right)))}{\ln(1+(CAGR(E)))} \right)$$

$$+ IRR (Equity) \left( \frac{\ln(1+CAGR\left(\frac{EV}{EBITDA}\right))}{\ln(1+(CAGR(E)))} \right) + IRR (Equity) \left( \frac{\ln(1+(CAGR\left(\frac{E}{EV}\right)))}{\ln(1+(CAGR(E)))} \right)$$

or, in simpler terms

$$IRR (Equity) = Revenue\ growth\ effect\ (on\ IRR) + EBITDA\ margin\ effect\ (on\ IRR)$$

$$+ Multiple\ expansion\ effect\ (on\ IRR) + Leverage\ Effect\ (on\ IRR)$$

Alternatively, we can also determine the Dupont-enabled value decomposition based on enterprise values only, i.e. without equity values, as long as we know the capital return multiple on the transaction (i.e. equity capital received at exit from transaction divided by total equity capital invested). Hence, neglecting leverage in the Dupont formula for a moment, and due to

$$EV = \text{Revenues} \times \text{EBITDA margin} \times (\text{EV/EBITDA})$$

the EV multiple effect can be presented as a multiplication of factors between entry and exit, so we receive

EV Multiple =

$$\frac{EV_{\text{Exit}}}{EV_{\text{Entry}}} = \left( \frac{Rev_{\text{Exit}}}{Rev_{\text{Entry}}} \right) \left( \frac{EBITDA \text{ margin}_{\text{Exit}}}{EBITDA \text{ margin}_{\text{Entry}}} \right) \left( \frac{(EV/EBITDA)_{\text{Exit}}}{(EV/EBITDA)_{\text{Entry}}} \right)$$

In order to determine the impact of financial engineering, i.e. leverage and/or other amplification of equity through debt pay down and other cash generation at target, we compare the total capital gain multiple of the equity investment between entry and exit

$$\begin{aligned} \text{Total Capital Gain Multiple} &= \text{Return Multiple} \\ &= \text{Value of Equity at Exit} / \text{Total Cost of Investment} \\ &= \frac{E_{\text{Exit}}}{\text{Cost}_{\text{Entry}}} = \end{aligned}$$

Hence, the leverage effect is determined by

$$\text{Leverage Effect} = \left( \frac{\frac{E_{\text{Exit}}}{\text{Cost}_{\text{Entry}}}}{\frac{EV_{\text{Exit}}}{EV_{\text{Entry}}}} \right)$$

Hence, the complete capital gain multiple must be equivalent to

$$\frac{E_{\text{Exit}}}{\text{Cost}_{\text{Entry}}} = \left( \frac{\frac{E_{\text{Exit}}}{\text{Cost}_{\text{Entry}}}}{\frac{EV_{\text{Exit}}}{EV_{\text{Entry}}}} \right) \left( \frac{Rev_{\text{Exit}}}{Rev_{\text{Entry}}} \right) \left( \frac{EBITDA \text{ margin}_{\text{Exit}}}{EBITDA \text{ margin}_{\text{Entry}}} \right) \left( \frac{(EV/EBITDA)_{\text{Exit}}}{(EV/EBITDA)_{\text{Entry}}} \right)$$

Similar to the equity IRR method above, we need to take the natural logarithm (ln) in order to receive an “addition format” for the value-creating elements of the buyout transaction. In turn, we index both sides by dividing by the natural logarithm of the capital gain multiple to obtain

$$100\% = \frac{\ln\left(\frac{E_{Exit}}{Cost_{Entry}}\right) + \ln\left(\frac{EV_{Exit}}{EV_{Entry}}\right) + \ln\left(\frac{Rev_{Exit}}{Rev_{Entry}}\right) + \ln\left(\frac{EBITDA\ margin_{Exit}}{EBITDA\ margin_{Entry}}\right) + \ln\left(\frac{(EV/EBITDA)_{Exit}}{(EV/EBITDA)_{Entry}}\right)}{\ln\left(\frac{E_{Exit}}{Cost_{Entry}}\right) + \ln\left(\frac{E_{Exit}}{Cost_{Entry}}\right) + \ln\left(\frac{E_{Exit}}{Cost_{Entry}}\right) + \ln\left(\frac{E_{Exit}}{Cost_{Entry}}\right)}$$

which will result in the exact same value attribution results as with the deduction by equity IRR. Correspondingly, the enterprise value approach can also be implemented with the compounded annual growth formula, if applied equally to EV multiple constituents as well as total capital gain multiple.

However, the limitation of this formula is that it only holds for utilization in a single event exit, i.e. a single point of entry and exit from the business. In practice, there may be intermediate cash flows into (additional investment) or from the buyout target (dividends, recapitalization). Moreover, exit methods, such as an IPO, often involve a gradual divestment from the business with several share placements of the buyout firm. Therefore, the value attribution formula would have to be further extended to allow for these intermediate cash flow events. This, however, especially complicates the computation of the leverage effect part of the formula (further proof omitted here). One solution for any ex-post analysis is to apply an appropriate compounding growth rate to calculate the future value (FV) of any intermediate cash flows at the time of exit, i.e. to receive a total value. The applied interest rate could either be related to the IRR, an alternative investment, or the risk-free rate.



### 3.5.5. Value Attribution Case Study – The University of St. Gallen Catering Company

The below case study has been developed to illustrate the theoretical deduction of the value attribution formula through a practical example.<sup>41</sup>

#### *Value Attribution in Leveraged Buyouts – Case Study*

After a pro-longed period of underperformance, the University of St. Gallen Catering Company, Inc. had been subject to a successful management buyout by the UNISG Student Buyout Capital Fund in December 1999. After successful implementation of several value-enhancing strategies through the fund (e.g. a “value for money” program), it was sold to a consortium of investors in December 2003.

***Question: How much value was created in this transaction and what were the value drivers that generated the return for the student management buyout fund?***

The following table is a summary of key financials of the St. Gallen University Catering Company, Inc. at the time of acquisition and disposal:

#### *St. Gallen University Catering Company, Inc. – Key Financials*

<i>in CHF '000, as of 31, December</i>	<i>Entry Year = 1999</i>	<i>Exit Year = 2003</i>	<i>CAGR 99-03</i>
Revenues	1,250	1,750	8.8%
EBITDA	125	225	15.8%
EBITDA margin	10.0%	12.9%	6.5%
Transaction multiple (EV/EBITDA)	5.0x	6.0x	4.7%
Cost of Investment/Equity Value	150	1,225	69.0%
Enterprise Value	625	1,350	21.2%
Total Net Debt	475	125	-28.4%
Equity Contribution	24.0%	91.7%	

#### ***Solution***

##### ***1. Determination of Enterprise Values into revenue, margin and multiple effect:***

$$\begin{aligned}
 EV_{\text{Entry}} &= \text{Revenues} \times \text{EBITDA margin} \times \text{Transaction entry multiple} \\
 &= 1,250 \times 10.0\% \times 5.0 = 625 \\
 EV_{\text{Exit}} &= \text{Revenues} \times \text{EBITDA margin} \times \text{Transaction exit multiple} \\
 &= 1,750 \times 12.9\% \times 6.0 = 1,350
 \end{aligned}$$

<sup>41</sup> Setting, names and figures are purely fictitious and not inspired by actual events.

Hence, the EV multiple effect can be presented as a multiplication of factors between entry and exit, i.e.

$$\text{EV multiple} = \text{Revenue multiple} \times \text{Margin multiple} \times \text{Multiple multiple}$$

$$\text{EV multiple} = 1.40 \times 1.29 \times 1.20 = 2.16$$

As we want to achieve an equity IRR point of view, we have to take the compounded annual growth rate between 1999 and 2003 (i.e. four year compounding), inherent in the multiple growth, into account. Hence, taking the fourth square root results into

$$\text{Annualized EV multiple} = 1.09 \times 1.06 \times 1.05 = 1.21$$

## ***2. Determination of financial engineering/ leverage effect, i.e. the amplification of equity through cash generation/ debt pay-down at St. Gallen University Catering Company, Inc.***

We determine the total capital gain multiple of equity stake from entry to exit

$$\text{Capital gain} = \text{Value of Equity at Exit} / \text{Total Cost of Investment}$$

$$\text{Capital gain} = 1,225 / 150 = 8.17$$

and by controlling for the compounded annual growth, we receive

$$\text{Annualized Capital gain} = 1.69$$

which, by subtracting by one, represents the equity IRR of 69% in the transaction.

Consequently, the leverage effect in the transaction must be

$$\text{Leverage effect} = \text{Annualized Capital gain multiple} / \text{Annualized EV multiple}$$

$$= 1.69 / 1.21 = 1.39$$

## ***3. Analysis of value drivers in transaction***

The total levered capital gain multiple, i.e. accounting for the leverage effect, is therefore

$$\text{Levered capital gain multiple} = 1.39 \times 1.09 \times 1.06 \times 1.05 = 1.69$$

We take the natural logarithm in order to extract the value-adding elements that can be added up

$$\ln(\text{Levered capital gain multiple}) = \ln(\text{leverage effect}) + \ln(\text{sales effect})$$

$$+ \ln(\text{margin effect}) + \ln(\text{multiple effect})$$

$$\ln(\text{Levered capital gain multiple}) = 0.33 + 0.08 + 0.06 + 0.05 = 0.53$$

In order to get the effect for 100%, we index by the  $\ln(\text{Levered capital gain multiple})$  and receive

$$\text{Indexed capital gain} = 0.63 + 0.16 + 0.12 + 0.09 = 100\%$$

**Answer**

The leveraged buyout of the St. Gallen University Catering Company, Inc. between 1999 and 2003 led to an annualized return of 69%. The decomposition of value drivers in the transaction is as follows:

<i>Effect</i>	<i>% of total</i>	<i>Contribution to IRR</i>
Leverage effect	63%	43,7%
+ Revenue effect	16%	11,1%
+ Margin effect	12%	8,3%
+ Multiple effect	9%	6,0%
<b>= Total Capital Gain effect</b>	<b>100%</b>	<b>69,0%</b>

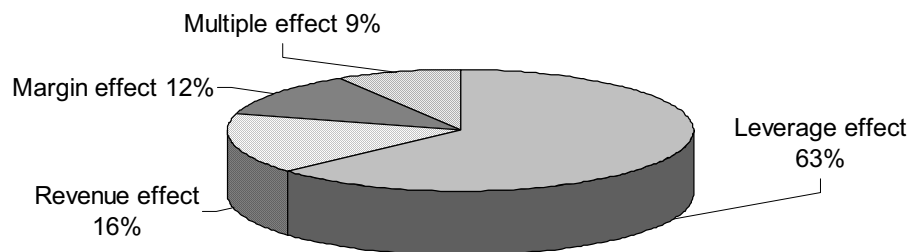


Figure 9: Summary of Value Attribution in Buyout of the St. Gallen University Catering Company, Inc.

## 3.6. Empirical Approach

### 3.6.1. Private Equity Data Collection

There are several hypothetical sources of information on leveraged buyout transactions. First and the most obvious, buyout firms could act as a direct source of information. However, Private Equity firms generally are extremely reluctant to share any information about their transactions and track record in order to avoid weakening their position in future deal negotiations, i.e. to reveal information that could adversely affect current investment exit plans. Private Equity firms do participate in surveys, but the amount of surveys received by these firms is large and makes a selection process in light of their limited resources inevitable. Based on the author's experience, Private Equity firms will also be hesitant to disclose any financial information in these questionnaires. Secondly, industry associations provide a valuable source of information on general industry trends, but do not generally comment on individual transactions, their financial performance or their member base.

Thirdly, there is a select group of Private Equity information providers such as Thomson Financial Venture Economics ("VE") that specializes in Private Equity return reporting. VE thereby acts as an intermediary, collecting data from the majority of the world's Private Equity funds and their investments, and reports these in two ways to clients: (i) it provides summary reports for investors (Limited Partners) on individual funds if the investor is an active investor in that particular fund, and (ii) it provides fund performance benchmarks based on the collected universe of fund data to the Private Equity community on an anonymous basis, i.e. no single fund performance is published, but instead blended results based on a selected group/specification of funds. There are several other providers of such professional reporting services, generally referred to as "gatekeepers", which in addition to reporting services also provide consulting services to Limited Partners, e.g. in order to optimize those clients' Private Equity fund investment strategies and/or due diligence processes. Consequently, the one group that in particular has high quality access to the detailed reported financial and return information on buyout funds is the funds' investor base/Limited Partners, either directly or indirectly (i.e. via VE or gatekeepers). However, confidentiality agreements generally prohibit them from sharing data with other third parties. Figure 10 summarizes the flow of financial reporting information in the Private Equity industry.

A final source of Private Equity information can be found in the public domain. First, there are several publicly listed "Private Equity" funds, e.g. in the form of listed Investment Trusts that publish information about their investments in their financial reporting. Secondly, another publicly available source exists for "reverse LBO" transactions, i.e. public-to-private buyouts that have subsequently been re-listed on the public market. Again, their obligatory historical financial reporting requirements in their offering memoranda reveal some financial and strategic information about the time the company had been taken private. However, reverse LBOs are not necessarily a representative sample of all buyouts and the number of such limits the maximum sample size.

Furthermore, the critical “performance variable” IRR is not revealed and must be replaced by other metrics of performance measurement, e.g. financial accounting ratios.

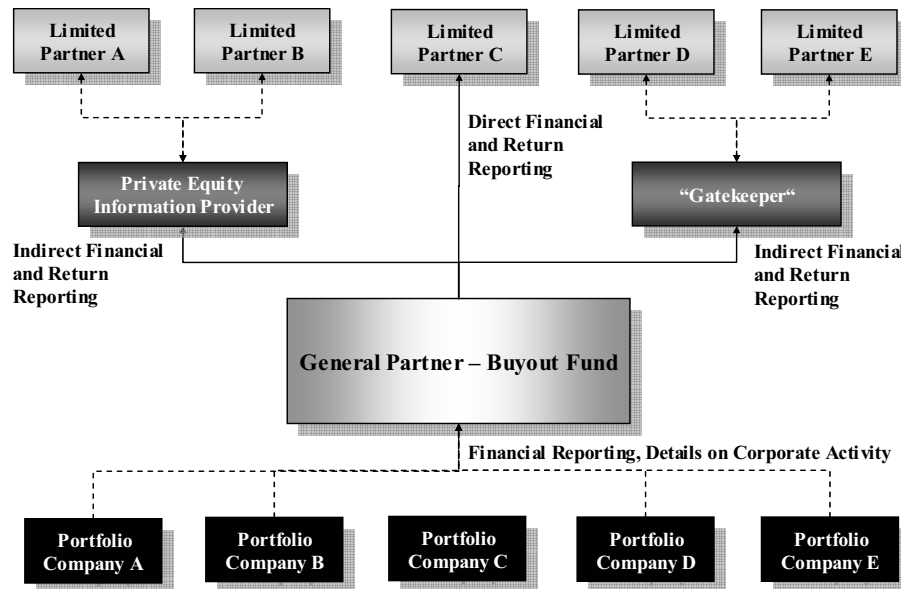


Figure 10: Flow of Private Equity Financial Reporting Information

The data that builds the basis of this study was collected from two of the above-mentioned sources. First, the author during his tenure as researcher at the INSEAD LBO Research Centre and Thomson Venture Economics, New York, agreed on a far-reaching cooperation in research, through which the author and his fellow LBO researchers gained access to the entire Venture Economics Private Equity database for statistical research, however, on a fully anonymous basis: no single investment, fund, or General Partner could be identified at any time in the project. Nevertheless, the VE database presents the most detailed available information source on Private Equity, including buyouts and Venture Capital transactions, to date. Secondly, the author during his tenure and research involvement at the INSEAD LBO Research Centre signed confidentiality and collaboration agreements with several Limited Partners, some of which are among the world’s leading Fund of Funds investors in global Private Equity funds. A detailed overview of these data sources is provided in the next sections.

### 3.6.2. The Venture Economics Database

The Thomson Venture Economics database is mainly intended to collect accurate fund returns of global Private Equity funds.<sup>42</sup> The database carries funds starting from 1967 until today (as of June

<sup>42</sup> The author would like to thank Mr. Jesse Reyes, Head of Research, and Thomson Venture Economics, New York, for generous access to their databases via the research collaboration.

2003), whereby the records of newly raised funds over the last decade have become increasingly complete. Venture Economics (VE) records the amount and date of all cash flows, going in and out of the respective fund. It also provides the aggregate quarterly book value of all unrealized investments for each fund until June 2003. Cash flows recorded in the VE dataset reflect net returns to Limited Partners (LPs), as cash flows from LPs to General Partners (GPs) (“take-downs”) include all fee payments, and cash flows from GPs to LPs (“distributions”) are already reduced by the carried interest and other charges. VE also collects information on the Private Equity investments that each fund undertakes through its VentureXpert database. However, the various cash flows associated to a single fund cannot be associated with individual transactions; the dataset therefore does not yet allow calculating accurate deal IRRs (i.e. for outside researchers, without the appropriate VE knowledge regarding allocation to anonymous portfolio companies). Nevertheless, there is highly valuable information that can be utilized from the VentureXpert database that offers insights into the nature of transactions undertaken by a certain fund. The basic information used from this dataset is for example the company’s VE industry code, which allows a classification of transactions according to their industry source, amounts invested in each company, and entry/exit dates of each investment. Based on this information on the company level and the accurate cash flow based fund IRR calculations, this study will combine these two datasets to draw some basic conclusions about returns. The following table provides an overview of the size of the VE database:

Fund Specialization	Fund Focus	No. of Funds	Observation Period	Source <sup>43</sup>
Private Equity	Global	17,993	All 1968-2003	Thompson Financial Venture Economics
	Global	10,705	1990-2000	
	Europe only	3,855	All 1968-2003	
	Europe only	2,378	1990-2000	
Buyout-related	Global	4,041	All 1968-2003	Thompson Financial Venture Economics
	Global	2,288	1990-2000	
	Europe only	779	All 1968-2003	
	Europe only	536	1990-2000	
Buyout <sup>44</sup>	Global	1,454	All 1968-2003	Thompson Financial Venture Economics
	Global	993	1990-2000	
	Europe only	290	All 1968-2003	
	Europe only	214	1990-2000	
	Study’s sample	802	1980-2003	

**Table 4: Private Equity Funds and Buyout Funds – Total Population Overview**

The total number of Private Equity funds in the Venture Economics database as of March 2003 was 17,993. As this study focuses on leveraged buyouts, a further classification of this total number is necessary. The amount of buyout-related and pure buyout funds was 4,041 and 1,454 respectively. The proportion of European Private Equity funds in the database is considerably lower, with only approximately 21%. The average number of deals for buyout-related and pure buyout funds has

<sup>43</sup> Thompson Financial Services, Venture Economics Private Equity fund database, as of March 2003.

been 4.4 and 5.5 respectively between 1968 and 2003, acknowledging that the average deal size and number of deals per fund has increased substantially over recent years (see results section 4.2.1.3.). The provided dataset in this study is limited to 802 U.S. and European buyout funds between 1980 and 2003. The below table summarizes the universe of underlying transactions for the two relevant buyout categories in the VE database:

Target Company Categorization	Company Location	No. of Deals	Observation Period	Source <sup>45</sup>
Buyout-related	Global	17,611	All 1968-2003	Thompson Financial Venture Economics
	Global	12,523	1990-2000	
	Europe only	4,646	All 1968-2003	
	Europe only	3,459	1990-2000	
Buyout	Global	7,992	All 1968-2003	Thompson Financial Venture Economics
	Global	4,438	1990-2000	
	Europe only	2,136	All 1968-2003	
	Europe only	1,438	1990-2000	

**Table 5: Buyout Funds' underlying Deals – Total Population Overview**

The dataset available for this study included 64,490 Private Equity transactions based on 27,739 companies, which involved 134,640 investments by various funds, between January 1980 and June 2003. These figures suggest that several companies saw several transactions, which particularly applies for companies that are subject to Venture Capital transactions. These companies generally undergo several financing rounds, each of which counts as one transaction in the VE database. On the buyout side, companies may also undertake secondary buyouts or other financing events. The study's sample includes 9,636 buyout (BO) fund transactions, 51,995 Venture Capital (VC) fund transactions and 2,859 others, which will represent the basis of the analysis. The below table summarizes the Venture Economics dataset sample used in this study.

	Buyout Funds	Venture Capital Funds	Other Funds	Total Private Equity Funds
Number of Investments	17,954	77,437	39,249	134,640
Number of Companies <sup>46</sup>	N/A	N/A	N/A	27,739
Number of Deals	9,636	51,995	2,859	64,490

**Figure 11: Study's Venture Economics Sample Overview (January 1980 – June 2003)**

<sup>44</sup> The "Buyout" category is held more restrictive in the definition of a pure buyout, while "Buyout-related" funds may also invest in other investment stages of the company or engage in alternative financing forms.

<sup>45</sup> Thompson Financial Services, Venture Economics Private Equity fund database, as of March 2003.

<sup>46</sup> Due to the fact that companies received investments from different types of funds in a single transaction, the sum of each category of "number of companies" that received investments from the various fund types would necessarily be larger than the actual total (double-counting) and has therefore been omitted here.

It should be noted that the Venture Economics database in this study only serves as secondary data source. The main reasons for analysis of the above outlined data in this study is (i) to provide a performance benchmark and total population control group to the primary dataset selected for the INSEAD LBO Research database, and (ii) to perform analysis and to present descriptive statistics and results on so far unpublished data in this format. However, the Venture Economics database has several limitations. Firstly, the return data (IRRs) are only recorded on a buyout fund level, not on a deal level, which makes an in-depth analysis of the potential sources of value creation impossible. The presented statistics in this study therefore focuses on fund returns and uses these also as a very rough proxy for individual investments (see section 4.2.2.6. and following for proxy return analysis). Secondly, while the database contains several thousand buyout investments, it captures only a limited number of variables on each of these transactions (e.g. date, location, industry, investment stage, acquirer, etc.). Thirdly, the database also does not provide financial information about individual transactions, no details about value creation strategies at portfolio companies and no information about the investment managers and General Partner firm undertaking the transaction. Consequently, the data is very valuable for the above outlined purposes, but not fully adequate to support this study's research model.

### 3.6.3. The INSEAD LBO Research Database

In addition to the dataset from Private Equity information provider Venture Economics, which represents a near proxy to the total global population of recorded Private Equity data, the author during his tenure as researcher at the INSEAD LBO Research Centre has collected a second unique dataset of over 3,000 Leveraged Buyout transactions undertaken by 84 buyout-focused Private Equity firms, drawn from 252 of these firms' funds between 1973 and 2003, with the majority of recorded transactions taking place during the 1990s. These buyouts took place across a variety of industries and over half of the recorded transaction has been realized (56.1%). The data contains characteristics of (i) the investing General Partner (including prior buyout track record), (ii) individual portfolio companies (including information regarding industry category, geographic location) and (iii) buyout transactions (including the size of the investment, entry and exit year, type and mode of in- and divestment, investment performance, to a lower degree strategic events, etc.). Based on this data source – the first of such breadth and depth – this study attempts to establish the missing link to deal-level performance and its sources of value creation.

Data is mainly derived from the records several large institutional investors in Private Equity funds in Europe and the U.S., referred to as “the Limited Partners”<sup>47</sup>. The research partners are among the

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<sup>47</sup> Limited Partners in the Limited Liability Partnerships provide the capital for equity investments of the buyout association (typically pension funds, large financial institutions, and specialized fund of funds



world's largest investors in Private Equity funds and manage commitments to such funds in the size of several billion US\$. As a condition for obtaining the data, the research agreements foresee to neither identify the Limited Partners nor the names of the General Partners, their respective underlying funds and portfolio investments in the dataset. The dataset represents both investments undertaken by the Limited Partners as part of their Private Equity Fund of Funds activities as well as randomly selected Private Placement Memoranda (PPMs) from the large archives of the Limited Partners. These PPMs are constantly being made available to Limited Partners by General Partners on a global basis in their efforts to raise new capital (i.e. new funds). Each of these institutions (LPs) screens several hundred newly raised buyout funds every year during their due diligence process<sup>48</sup>. The size of available data can be considered unique as the Limited Partners due to their significant influence and size receive almost the entire universe of PPMs that are being distributed for fundraising purposes in the U.S. and Europe, hence providing a very good proxy for the total population of Private Equity funds.

Most of the information on buyout firms and transactions in this study has been extracted from Private Placement Memoranda, an offering document, in which Buyout Firms describe their previous transactions for fundraising purposes<sup>49</sup>. PPMs submitted from buyout firms are used by potential investors to assess quality and strategy of the General Partner. Typically, PPMs contain information about the complete investment track record, i.e. a chronological list of all buyout investments including selective information on individual transactions. As a consequence of the confidential nature of PPMs, all information has been "sanitized", i.e. the names of General Partners, Limited Partners and portfolio companies have been replaced by numeric codes prior to the entering the data into the database.

With respect to the depth of the sample, it can be stated that the data is highly heterogeneous as each General Partner chooses his own level of transparency and disclosure of sensitive information in the PPM. The information about fund investments provided by the group of Limited Partners has proven to be available in much broader depth, since additional information requests to the General Partner during the Limited Partners' fund due diligence phase have generated valuable insight information.<sup>50</sup> Furthermore, Limited Partners commonly performs auxiliary sophisticated analysis to the data presented in the PPMs, e.g. revaluing unrealized investments in the General Partners'

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investors). They collect a large amount of information on buyouts associations in the context of their "fund due diligence" and investment process.

<sup>48</sup> Many of these are newly established "first-time funds" and hence do not report any track record of prior transactions in their PPM. These funds are consequently not useful for the research goals in this study.

<sup>49</sup> The fact that PPMs are marketing instruments leads to the expectation that buyout transaction, and especially the role of the General Partner, will be systematically presented in an overly positive fashion. Although there are industry guidelines to the presentation of financial information, this fact has to be kept in mind when interpreting results of this study.

<sup>50</sup> The General Partners differentiate in their level of initial disclosure to Limited Partners. Generally, only in case a Limited Partner shows serious interest in the fund investment opportunity and initiates further due diligence, the General Partner will submit an extended due diligence package to the Limited Partner, which supplements the PPM with far-reaching background information on each transaction undertaken, financial information, etc.

portfolio, commonly using multiple valuation techniques. Data collection from these vast documents was achieved through an intense and time-consuming effort by the author and a dedicated team of supporting research assistants, which transformed the heterogeneous data provided by the Limited Partners as well as in the PPMs into a standardized database. To the best of the author's knowledge, no published study in academic research exists in which detailed information (including performance and portfolio company characteristics) has been used across a similarly large sample of buyouts. The following table provides an overview of the primary sample in this study:<sup>51</sup>

<b>Primary Data Overview</b>									
	<b>U.S. Buyouts</b>			<b>European Buyouts</b>			<b>Total Buyouts</b>		
	<b>Realised</b>	<b>Unreal.</b>	<b>All Deals</b>	<b>Realised</b>	<b>Unreal.</b>	<b>All Deals</b>	<b>Realised</b>	<b>Unreal.</b>	<b>All Deals</b>
<b>Number of Deals (N)</b>	<b>682</b>	<b>459</b>	<b>1,145</b>	<b>403</b>	<b>356</b>	<b>759</b>	<b>1,688</b>	<b>1,316</b>	<b>3,009</b>
<b>Minimum IRR (%)</b>	-100.0%	-100.0%	-100.0%	-100.0%	-100.0%	-100.0%	-100.0%	-100.0%	-100.0%
<b>Maximum IRR (%)</b>	472.0%	437.4%	472.0%	466.0%	401.0%	466.0%	478.1%	437.4%	478.1%
<b>Mean IRR (%)</b>	55.5%	21.5%	42.0%	59.5%	7.3%	35.0%	52.8%	9.3%	33.8%
<b>StDev of IRR (%)</b>	89.8%	69.9%	84.0%	82.4%	58.6%	76.8%	87.6%	63.3%	80.8%
<b>Variance of IRR (%)</b>	80.6%	48.8%	70.6%	68.0%	34.4%	58.9%	76.7%	40.0%	65.3%
<b>Industry Distribution (N, IRR)</b>									
<i>Basic Industries</i>	48 57.6%	49 12.8%	97 35.0%	28 52.9%	32 -1.3%	60 24.0%	123 55.2%	103 7.6%	226 33.5%
<i>Cyclical Consumer Goods</i>	43 47.4%	33 1.8%	76 27.6%	24 41.5%	26 4.8%	50 22.4%	116 39.6%	86 4.5%	202 24.7%
<i>Cyclical Services</i>	93 48.4%	101 20.7%	195 34.9%	91 50.3%	61 2.9%	152 31.3%	234 11.9%	284 47.0%	519 31.5%
<i>General Industrials</i>	54 70.9%	40 19.3%	94 48.9%	49 65.2%	37 -6.1%	86 34.5%	172 57.1%	120 4.4%	292 35.5%
<i>Information Technology</i>	34 131.3%	27 32.7%	61 87.6%	52 94.3%	78 6.2%	130 41.5%	108 98.5%	131 4.6%	239 47.0%
<i>Non-cyclical Consumer Goods</i>	84 52.9%	61 49.5%	148 51.7%	77 62.7%	65 8.9%	142 38.1%	235 52.5%	156 22.6%	394 40.7%
<i>Non-cyclical Services</i>	20 78.6%	13 50.0%	33 67.3%	17 91.1%	13 41.1%	30 69.4%	56 89.6%	40 31.8%	96 65.5%
<i>Resources</i>	80 36.0%	31 -4.0%	111 24.8%	4 3.0%	N/A	4 3.0%	99 38.9%	41 -2.2%	140 26.9%
<i>Financials</i>	30 49.7%	22 30.7%	52 41.7%	6 35.1%	8 34.7%	14 34.8%	61 52.8%	43 34.2%	104 45.1%
<i>Utilities</i>	4 43.8%	1 27.7%	5 40.5%	N/A	N/A	N/A	4 43.8%	1 27.7%	5 40.5%
<i>N/A</i>	192 50.4%	82 14.7%	274 39.7%	55 40.3%	36 19.2%	91 32.0%	430 44.9%	361 2.7%	792 25.7%

**Table 6: Limited Partners' Primary Dataset Overview**

<sup>51</sup> Note that the classification in this table includes realized and unrealized buyouts from the U.S. and Europe. For interpretation purposes (e.g. with respect to mean IRR), the total buyouts column also includes deals, which could not be clearly classified into either the category for U.S./Europe (for example buyouts from other regions) or realized/unrealized (not announced).

### 3.6.4. Sample Comparison and Mean Comparison Test

It is difficult to assess, how representative the above described primary sample of leveraged buyout funds and transactions is compared to the entire universe. This is due to the confidential nature of buyout investments and as a result of the fact that even some very basic characteristics of the overall population are unavailable. One solution though is to make some inference about the sample characteristics by comparing it to the largest available database on buyout funds, VentureXpert, managed by Thomson Financial Venture Economics (see section 3.6.2.). This database provides aggregate performance information on a sample of 802 U.S. and European pure buyout funds. As of June 30th, 2003, the average (pooled) net internal rate of return (IRR) on these funds has been 12.3% for U.S. funds and 13.1% for European Funds, which compares to a (fund-size weighted) gross IRR of 24.2% for the primary sample in this study, which includes 252 Funds. The comparison of the number of funds suggests that the study's sample contains over 30% of the universe of buyout funds.

A large portion of the difference in the IRR figures between the primary sample and the Venture Economics sample stems from the fact that the Venture Economics figures are net of management fees and carried interest<sup>52</sup>, while the primary sample's IRR represents gross returns. At the same time, however, this study's sample may be biased towards top-performing buyouts firms. On the one side, the selection of the dataset from the outset was designed to avoid survivorship bias as (i) all of the recent investments made by the Limited Partners, on which information was available, have been included in the sample, and (ii) buyout General Partners have been selected randomly to extend the sample. Nevertheless, on the other side survivorship bias could potentially arise indirectly from the two above mentioned sources, because (i) the selection criteria for investments made by the Limited Partners in buyout funds are particularly strict and generally do not involve "first-time" funds; no proven track record of these funds is available that could be verified during the due diligence phase in order to support a relatively risky first-time fund investment decision<sup>53</sup>, and (ii) the selection of suitable documents among the universe of electronically stored PPMs has intentionally been shifted towards General Partners with a longer investment history for the purpose of creating this study's main sample database most efficiently. This approach also not only permits for greater depth of presented data, but also allows for essential time-series and cross-

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<sup>52</sup> Carried interest represents the share of return on invested equity capital beyond a certain hurdle rate, generally between 8-12 per cent, which the Limited Partners agree to pay to the General Partner as incentive fee. Carried interest is generally set at 20 percent as an industry standard. In addition, the General Partner charges a yearly management fee from the Limited Partners of typically about 2% of the capital committed and/or invested to the buyout association.

<sup>53</sup> Ljungqvist & Richardson (2003) discount this possibility of selection bias, as they are not convinced that a Limited Partner has extraordinary fund-picking abilities (in line with efficient market theory). They also argue that the Limited Partner, often a large financial services firm, may have an interest to sell other (investment) banking products to the General Partner and/or its portfolio companies alongside its investment. This may explain some degree of skewness towards larger funds that in turn undertake large buyout transactions, but not necessarily towards better performing ones. Among the data supportive

sectional analysis of performance, e.g. measuring the influence of increases in fund size and hence available capital on performance as well as the GP team dynamics over time (see empirical chapter two). However, this sample selection procedure also implies that the sample may to some extent be skewed towards larger and more successful funds that have been in the business for a longer time.

As a consequence of this research design, we can assume that only buyout firms, who relatively successfully managed their first fund, would be in a position to send PPMs to raise money for a subsequent fund. Hence the worst-performing buyout associations may either not attempt or succeed in raising subsequent funds, and hence their buyout investments would be excluded from the sample. Furthermore, as mentioned earlier, it needs to be considered that PPMs on the one side are (legally) approved, often partially audited offering documents, but on the other side also marketing instruments, which may result in some bias from the self-reported nature of the information they contain.<sup>54</sup> Finally, there may be some level of selection bias from the fact that the Limited Partners may not necessarily receive all PPMs and only a subset of the total available data could be codified. The overall upward bias in the Limited Partners' data, however, is considered to have only limited consequences in the context of this study, as the primary objective of this study is to explain variation and relative trends across buyout investments. In other words, it is not the intention of this study to assess the overall average level of risk- and market-adjusted returns of buyout investments or the Private Equity investment asset class as a whole (although these points will be touched upon). Instead, the foremost intention of this study is to make explicit sources of value creation that led to particular levels of performance in leveraged buyouts.

As a consequence of the above described procedure of data collection for the purposes of this study, a comparison of means highlights the mentioned differences. An independent means test shows that the average means differ considerably between the Venture Economics control population and the Limited Partners' dataset, with 17.5% and 33.8% respectively. The sample for comparison has been chosen according to the following methodology. Among the 802 Buyout-focused funds in the Venture Economics database (whole population), only those have been selected that were declared as fully liquidated, as otherwise very recent funds with much lower performance from paid out investments would have been included.<sup>55</sup> This resulted in 102 liquidated funds, which is the methodologically correct, however, comparatively low number given the overall original population. The Limited Partners' dataset does not represent reported but calculated fund returns, which are based on each fund's underlying individual transactions' performance. The initial weighted average returns had to be further adjusted for carried interest and management fees in order to compare them with the reported net fund returns of Venture Economics. The following methodology has been used to make this approximating transformation:

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Limited Partners in this study are also large global financial organizations that could have an interest to sell other products.

<sup>54</sup> This becomes transparent in particular with respect to valuation of unrealized investment. See section 4.3.2.2. for a discussion.

$$Fund\ IRR_{Net} = \left[ \frac{\left( \left( Avg\ Inv\ Cap \times (1 + Fund\ IRR_{Gross, Wgt})^{(Hold.\ Per.)} \right) \times (1 - Carried\ Interest) \right) - (Avg\ Inv\ Cap \times Hold.\ Per. \times Mgmt\ fee)}{Avg\ Inv\ Cap} \right]^{\left( \frac{1}{Hold.\ Per.} \right)} - 1$$

The above formula in the denominator determines appreciated equity capital value based on gross weighted fund IRR, which has been calculated on the fund’s individual transactions, then adjusts it for carried interest (assumed 20% as an industry norm) and subtracts the management fee (assumed only on invested, not committed capital) over the average holding period. Through a standard IRR formula, adjusted net fund returns are finally being calculated, which are lower than the gross weighted average. Several of the 252 funds had been excluded, because there was an incomplete and/or too low amount of transactions available for codification, which would have distorted fund returns. The results of the independent samples test outlined below demonstrate that there is a considerable difference in means between the net buyout fund return captured in the Venture Economics database and the Limited Partners’ dataset, with 17.5% and 33.8% net average IRR respectively. In addition, especially the standard deviation of returns appears to be higher for the Limited Partners’ dataset with 69.2% compared to the lower 31.4% for Venture Economics.

Group Statistics					
	Fund IRR Source	N	Mean	Std. Deviation	Std. Error Mean
Fund IRR	Venture Economics	102	17,541	31,375	3,107
Fund IRR	Limited Partners’ Data	190	33,798	69,159	5,017

Table 7: Mean Comparison Test – Group Statistics Summary

Independent Samples Test										
		Levene’s Test for Equality of Variances				t-test for Equality of Means				
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper	
Fund IRR	Equal variances assumed	13,924	,000	-2,252	290	,025	-16,257	7,220	-30,469	-2,0462
Fund IRR	Equal variances not assumed			-2,755	283,674	,006	-16,257	5,901	-27,873	-4,641

Table 8: Mean Comparison Test – Independent Samples Test Results

The differences in the underlying datasets become more obvious when interpreting the results for the independent samples test. The Levene’s Test for the Equality of Variances under the scenario of equal variances assumed is highly significant, which in fact means that the underlying variances differ and are not comparable. The overall significance of the model is high as well at the 0.05 level. The difference in means and especially variance can be the result of several factors. First, the remaining methodological differences with regard to computation of returns, which are cash flow based for Venture Economics and based on gross performance for the Limited Partners’ data, may lead to higher variance for the Limited Partners’ dataset. Secondly, as outlined in the above discussion it must be expected that there is a certain degree of survivorship bias as a result of the clearly better performing funds in the Limited Partners’ dataset. As a consequence, from a

<sup>55</sup> The mean net fund IRR on this larger sample is only 6.1%, with a standard deviation of returns of 34.5%.

statistical point of view the results on the Limited Partners' sample in this study have to be interpreted with care at all times, or in other words, conclusions from the results in this study with respect to the total population of buyout funds can only be made for observed relative trends of the individually reviewed variables, but not necessarily with respect to its absolute level of returns, which by tendency will be higher.

### 3.6.5. Other Data Sources

Alongside the enduring primary LBO data collection and database codification, the database was complemented by financial and performance benchmark data from Thomson Financial Datastream ("Datastream"). During the database information coding of the Limited Partners' data, an industry classification of each LBO transaction has been assigned. This effort allows making subsequent analysis of performance differences across industries. In essence, by assigning each transaction an industry code the database can generate (i) a benchmark stock market performance over the exact holding period of the underlying buyout investment from entry to exit, and (ii) an output of the industry's average financial accounting performance, e.g. average industry sales growth, margin growth, etc. This permits benchmarking of the buyout's IRR and financial performance against the industry, thereby making explicit any out-performances. Secondly, the industry benchmark contributes to understanding to what extent buyout returns are exogenously driven by industry performance.

The industry classification has been based on Datastream's industry codes, which are available and grouped on several aggregation hierarchies. At the highest level of detail (referred to as Level 6), this classification includes 96 different industries. On two further less detailed, more aggregated levels, the classification distinguishes between 35 industries (Level 4) and 10 industries (Level 3) respectively. The classification of transactions during the data input phase has been mainly carried out on Level 6, which ensures an unprecedented high level of comparability for a benchmarking analysis between comparable public markets (industry indices) and actual transaction performance (compared to a simple stock market performance). Not surprisingly, the Level 4 and especially the Level 3 aggregation provide for better possibilities of presentation and interpretation of general industry trends, while the high level of detail in the Level 6 categorization reveals for instance preferred and successful niche industries targeted by General Partners. Due to the direct hierarchical interdependency of all three levels, a classification on Level 6 automatically classifies the transaction within its respective Level 4 and Level 3 categories (please see tables 9 and 10 for details).

<b>Industries - Level 3</b>		<b>Industries - Level 4</b>	
<i>Code</i>	<i>Industry Description</i>	<i>Code</i>	<i>Industry Description</i>
BASIC	BASIC INDUSTRIES	AERSP	AEROSPACE & DEFENCE
CYCGD	CYCLICAL CONSUMER GOODS	AUTMB	AUTO & PARTS
CYSER	CYCLICAL SERVICES	BANKS	BANKS
GENIN	GENERAL INDUSTRIALS	BEVES	BEVERAGES
ITECH	INFORMATION TECHNOLOGY	CHMCL	CHEMICALS
NCYCG	NON-CYCLICAL CONSUMER GOODS	CNSBM	CONSTRUCTION & BUILDING MATERIALS
NCYSR	NON-CYCLICAL SERVICES	DIVIN	DIVERSIFIED INDUSTRIALS
RESOR	RESOURCES	ELECT	ELECTRICITY
TOTLF	FINANCIALS	ELTNC	ELECTRONIC & ELECTRICAL EQUIPMENT
UTILS	UTILITIES	ENGEN	ENGINEERING & MACHINERY
		FDRET	FOOD & DRUG RETAILERS
		FOODS	FOOD PRODUCER/PROCESSORS
		FSTPA	FORESTRY & PAPER
		HHOLD	HOUSEHOLD GOODS & TEXTILES
		HLTHC	HEALTH
		INFOH	INFORMATION TECHNOLOGY & HARDWARE
		INSUR	INSURANCE
		INVSC	INVESTMENT COMPANIES
		LESUR	LEISURE + HOTELS
		LIFEA	LIFE ASSURANCE
		MEDIA	MEDIA & ENTERTAINMENT
		MNING	MINING
		OILGS	OIL & GAS
		PERSH	PERSONAL CARE & HOUSEHOLD APPLICATIONS
		PHARM	PHARMACEUTICALS & BIOTECHNOLOGY
		RLEST	REAL ESTATE
		RTAIL	RETAIL, GENERAL
		SFTCS	SOFTWARE & COMPUTER SERVICES
		SPFIN	SPECIALITY & OTHER FINANCE
		STLOM	STEEL & OTHER METALS
		SUPSV	SUPPORT SERVICES
		TELCM	TELECOM SERVICES
		TOBAC	TOBACCO
		TRNSP	TRANSPORT
		UTILO	OTHER UTILITIES

Table 9: Datastream Industry Classifications (Level 3, Level 4)

Industries - Level 6		Industries - Level 6 (continued)	
<i>Code</i>	<i>Industry Description</i>	<i>Code</i>	<i>Industry Description</i>
AEROS	AEROSPACE	INSBR	INSURANCE BROKERS
AIRLN	AIRLINES & AIRPORTS	INSNL	INSURANCE - NON-LIFE
ASSET	ASSET MANAGERS	INTNT	INTERNET
AUPRT	AUTO PARTS	INVBK	INVESTMENT BANKS
AUTOS	AUTOMOBILE	INVNK	INVESTMENT COMPANIES
BANKS	BANKS	LEISR	LEISURE FACILITY
BIOTC	BIOTECHNOLOGY	LIFEA	LIFE ASSURANCE
	BUILDING & CONSTRUCTION		
BMATS	MATERIALS	LSREQ	LEISURE EQUIPMENT
BREWS	BREWERS	MEDAG	MEDIA AGENCIES
BUSUP	BUSINESS SUPPORT	MEDEQ	MEDICAL EQUIPMENT & SUPPLIES
CHEMS	CHEMICALS - COMMODITY	MINES	OTHER MINING
	CHEMICALS - ADVANCED		
CHMAV	MATERIALS	MISFI	OTHER FINANCIAL
CHMSP	CHEMICALS - SPECIALITY	MORTF	MORTGAGE FINANCE
CLTHG	CLOTHING & FOOTWEAR	MTUTL	MULTI-UTILITIES
CMPSV	COMPUTER SERVICES	MULTI	RETAILERS - DEPARTMENT STORES
CNELE	CONSUMER ELECTRONICS	NOFMS	NON-FERRECIOS METALS
CNFIN	CONSUMER FINANCE	OILEP	OIL & GAS EXPORT & PRODUCER
COMMV	COMMERCIAL VEHICLES	OILIN	OIL INTEGRATED
COMPH	COMPUTER HARDWARE	OILSV	OIL SERVICES
DEFEN	DEFENCE	OTHCN	OTHER CONSTRUCTION
DELSV	DELIVERY SERVICES	OTHCR	OTHER HEALTH CARE
DISTV	DISTILLERS & VINTNERS	OTHIN	OTHER INSURANCE
DIVIN	DIVERSIFIED INDUSTRIALS	PAPER	PAPER
DSCST	DISCOUNT & SPECIALITY STORES	PHOTO	PHOTOGRAPHY
DSVHL	VEHICLE DISTRIBUTION	PHRMC	PHARMACEUTICALS
EDUTR	EDUCATION & TRAINING	PRNSL	PERSONAL PRODUCTS
ELECT	ELECTRICITY	PUBLS	PUBLISHING & PRINTING
ELEQP	ELECTRICAL EQUIPMENT	REINS	RE-INSURANCE
ELETR	ELECTRONIC EQUIPMENT	REITS	REAL ESTATE INVESTMENT TRUSTS
ENGCO	ENGINEERING CONTRACTORS	RESTS	RESTAURANTS & PUBS
ENGFA	ENGINEERING FABRICATORS	RLDEV	REAL ESTATE DEVELOPMENT
ENGIN	ENGINEERING GENERAL	RROAD	RAIL, ROAD & FREIGHT
ERETL	RETAILERS - E-COMMERCE	SEMIC	SEMICONDUCTORS
FDPRD	FOOD PROCESSORS	SHPNG	SHIPPING & PORTS
FDRET	FOOD & DRUG RETAILERS	SOFTD	SOFT DRINKS
FMFSH	FARMING & FISHING	SOFTG	RETAILERS - SOFT GOODS
FORST	FORESTRY	SOFTW	SOFTWARE
FURFL	FURNITURE & FLOOR COVERINGS	STEEL	STEEL
GAMNG	GAMBLING	SUBEN	SUBSCRIPTION ENTERTAINMENT
GASDS	GAS DISTRIBUTION	TELEQ	TELECOM EQUIPMENT
GOLDS	GOLD MINING	TELFL	TELECOM - FIXED LINE
HAPPL	HOUSEHOLD APPLIANCES	TELWR	TELECOM - WIRELESS
HARDL	RETAILERS - HARDLINE	TEXOT	TEXTILES & LEATHER
	HEALTH MAINTENANCE		
HMORG	ORGANISATIONS	TOBAC	TOBACCO
HOSPM	HOSPITAL MANAGEMENT	TRPAY	TRANSACTION + PAYROLL SERVICES
HOTEL	HOTELS	TVRFE	TV, RADIO & FILM
HOUSE	HOUSE BUILDING	WASTE	ENVIRONMENTAL CONTROL
HSEPR	HOUSEHOLD PRODUCTS	WATER	WATER

Table 10: Datastream Industry Classifications (Level 6)



## 3.7. Research Methodology and Data Analysis

### 3.7.1. Research Methodology Discussion

It is generally acknowledged that the real world is too amorphous - and thus the nature of scientific research too diverse - to justify a single best scientific method (National Academy of Science 1989). The nature of scientific research itself is subject to diverging categorizations and definitions. Black (1999) distinguishes between empirical and non-empirical approaches as basis for understanding and decision making in social sciences. He stresses the value of systematic observations to reach more valid explanations and theoretically supported decision-making. The general categorization for scientific research methodologies has been the distinction between quantitative research and qualitative research. However, Miles and Huberman (1994) stress the importance of a linkage of both approaches in order to achieve more valid overall results, thus following the objective of contributing to theory. This study is mainly based on empirical tests through quantitative analysis, but following Miles and Huberman (1994), it seeks to include a high degree of qualitative discussion around the observed results.

The choice of research methodology depends on the research question (Bortz and Döring 1995; Flick, von Kardorff et al. 2000). The research question in turn is determined by the current state of research in the chosen research area. Along these lines, Yin (1994) has emphasized the dependency of the research strategy on three conditions, including the type of research question, the level of researcher control and the extent of focus on contemporary versus historical events. According to Bortz and Döring (1995), it can generally be distinguished between explanatory and exploratory research questions. The latter especially applies to un- or less researched areas as the initial goal is to give exploratory orientation to the research field, rather than following specific hypotheses (Bortz and Döring 1995). The question of testing hypotheses can therefore be considered “secondary” in very exploratory studies. The first research question in this study is clearly a “what” question and features exploratory character. It asks for the detailed characteristics – value creation drivers – that have led to the actual events (buyout performance). The second research question is of similar nature, specifying the key areas of focus in this study. In order to answer these questions, both qualitative and quantitative methods would be applicable to gain insights in relationships and independent variables. The focus to answer these questions in this study will be on quantitative analysis as the author believes that this methodology allows narrowing down the relative importance of constructs and variables and thereby opens the door for potentially more in-depth future (qualitative) research. The third research question is designed to take the causality chain further and to interpret the findings with respect to recommendations to practice. The question involves both a “what” and “how” part and is therefore of both exploratory and explanatory nature. This question therefore recommends an in-depth analysis of the results across all three parts of the study from a practitioner view.

Quantitative data analysis generally serves as a mean in understanding basic patterns and relationships across a large “quantity” of cases. By concentrating on a large number of cases, the peculiarities of individual phenomena are traded off against a purified image and a condensed pattern for generalization. However, as laid out by the research model, this study is designed to be “inquisitive” to the extent possible through quantitative research by following a macro to micro approach in analysis. On the macro level, exogenous factors of value creation such as market and industry conditions are analyzed. On a more micro level, the role of the GP firm will be tested with respect to understanding the extent to which it is able to take advantage of market situations and through what characteristics it may contribute to the value creation process. On the most micro level in this study, strategic actions on a reduced number of cases are tested. The dependent variable IRR as measure for buyout performance and proxy for value creation in this study remains the same and represents the object of the investigation (effect) throughout all three parts, while the independent variable(s) that are defining the cause of the variation in the dependent variable differ and are grouped according to the test settings in each part.

A lower number of independent variables usually increase the validity of generalization and the ultimate goal of any quantitative analysis is to measure high correlation to describe a pattern of covariation between two measurable variables. However, this study is intended to be a conceptual framework to describe sources of value creation; hence the amount of variables is intentionally high. However, the grouped test settings as well as the variable and data reduction steps serve to achieve this goal. The overriding objective of any quantitative research design is also to achieve high reliability and validity in the results. Firstly, concerning the study’s reliability with respect to choice of (quantitative) research instrument, the results of this study are considered to be replicable with a similar population of buyout transactions and under a similar methodology any time. Secondly, in order to be replicable and merited for generalizations in a theory-building process, validity of the quantitative analysis is crucial (Brinberg and McGrath 1982). The study’s internal validity with respect to achieving a clear causal relationship and control of all potential contributing variables has been ensured through Private Equity industry expert interviews, in which the test settings were discussed and variable reduction achieved. Proof of external validity is more complicated. The sample under investigation has been analyzed under neutral conditions, i.e. the data has been collected, codified in the database and was subsequently tested. In addition, the ex-post view, also of the broadly used public market data, ensures a neutral setting. The second condition of external validity, in which the study’s sample should be representative and stable in situation and time (Black 1999), can overall be agreed to as well. It must be acknowledged, however, that historical trends for leveraged buyouts found for the period under investigation, 1980-2003, may not equally hold in the future given the fundamental changes in the Private Equity industry at this time. Construct validity prevails if one measure is correlated with another in the same construct, thus entailing generalizability of the construct across measures or methods (Weber 1994). Each construct tested in the outlined research model contains a selective group of variables. As the empirical results and correlation matrices will demonstrate, there is a high level of construct validity prevailing: the selection of variables is at the outset often highly correlated within a

construct, so in order to obtain meaningful statistical results and to avoid multicollinearity effects, variables have subsequently been further reduced.

Waters (1998) sees the inherent justification of the role of statistics in the social sciences within the fact that most real world situations are not deterministic in nature, but are rather determined by uncertainty and have a stochastic and probabilistic character. Similar to the large field of study of merger and acquisition performance, the study of leveraged buyouts is a classic example of high degree of uncertainty and complexity of contributing factors. As a consequence, this study to a large extent applies multivariate statistical data analysis. In accordance with Hair, Anderson et al. (1998), multivariate analysis generally refers to all statistical methods that simultaneously analyze multiple measurements on each individual or object under investigation. It is the logical extension of uni- and bi-variate quantitative research, which is more suitable for a limited amount of variables. Through this chosen methodology and its complex research design, the author seeks to conduct theoretically significant research and to evaluate the effects of naturally occurring parametric variations (i.e. buyout returns) in the context in which they normally occur (to the extent possible).

### 3.7.2. Approach to Data Analysis

The structure of this study and the approach to data analysis conceptually follows the research model. The empirical part commences with an analysis of the Venture Economics dataset, which is considered as a proxy for the total population of buyout funds. It therefore serves as a cross reference point to the subsequent analysis of individual buyout transactions. The first part of the study then continues with an analysis of exogenous, market driven and acquisition setting related factors on buyout returns, including an analysis of industry financials (left pillar of research model). There will be an in-depth analysis of the various control variables that will continue to be used throughout the study. The first part will conclude with a value attribution analysis on a sub-sample of buyouts, as developed in section 3.5.4. The second part extends the analysis for a sub-sample of transactions by examining characteristics of buyout managers and buyout firms in order to establish what the role of the buyout firm is in the value creation process and which attributes facilitate it (middle pillar of the research model). Finally, the third part will explore on a small sub-sample of deals with high degree of data density and variables, which strategic actions and decisions at the buyout target led to value creation (right pillar of the research model). The following flow chart summarizes the data analysis approach of the study, including sub-level guiding “research questions”:

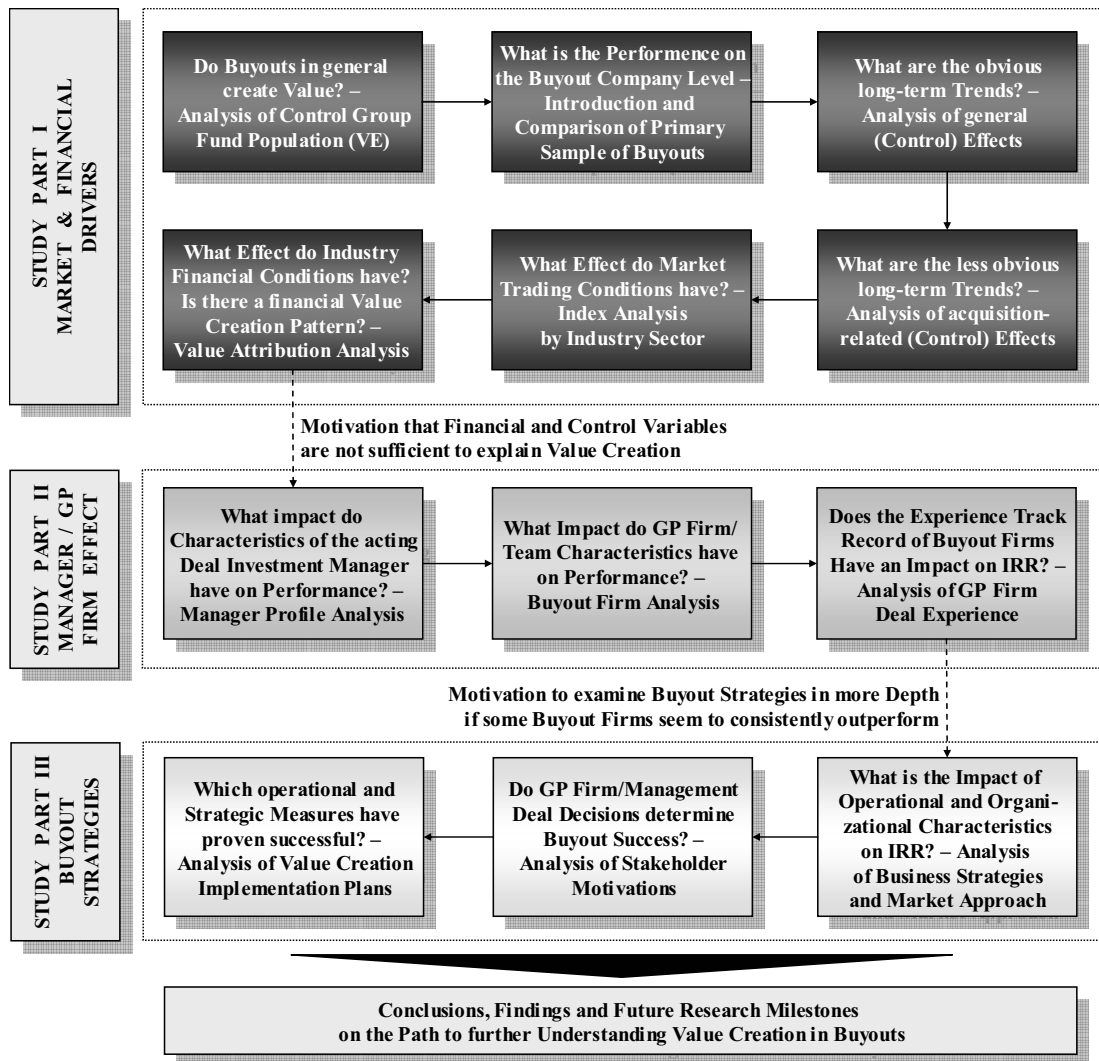


Figure 12: Conceptual Approach to Data Analysis in the Study

## 4. Empirical Part I – Market and Financial Value Drivers

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### 4.1. Introduction

Part one of the empirical results in this study follows the first research question and first pillar of the chosen research model, focusing on the market and financial drivers that may impact value creation in buyouts. The chapter commences with a detailed descriptive overview of the universe of Private Equity funds, based on the Venture Economics (“VE”) dataset. The data presentation is important as a benchmark and control group population to put into perspective the primary buyout deal data set in subsequent sections.<sup>56</sup> The VE dataset focuses on the description of historical Private Equity, Venture Capital and Buyout fund investment and (fund as well as proxy deal) return trends mainly between 1983 and 2002. In addition, the transformation of the underlying investments into industry groups (using the same methodology as for the primary sample of deals) and analysis according to investment stages represents so far unpublished results on the VE database.

The subsequent four sections in this chapter focus on results of both descriptive and statistical analysis of the collected primary dataset of leveraged buyout transactions. The explicit first of these four sub-sections, Leveraged Buyout Deal Performance, provides an introduction and broad overview of a large set of general market and acquisition related control variables that could impact the dependent variable buyout performance. These variables are tested group-wise (and later combined) through multivariate regressions. Based on these initial findings on tested variables, a group of control variables will be selected for more advanced empirical tests in this study. The second sub-section on the primary sample will compare the buyout deal performance with public market performance on a detailed industry level. This analysis allows drawing conclusions, whether buyout deals – over the exact same investment horizon and in the exact same industry – are able to outperform public markets. The latter analysis introduces buyout indices across time, which could serve as a new benchmark for buyout investments on the deal level. The third sub-section on the primary sample tests the impact of the buyout target’s industry financial environment on buyout success. Linear regression models will demonstrate which entry and exit condition metrics will eventually indicate superior value creation potential in buyout transactions. The fourth

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<sup>56</sup> The mean comparison test in section 3.6.4. has demonstrated that the introduction of the control population is particularly important here. The VE secondary dataset provides an overview of actual, absolute historical buyout fund performance levels. The analysis on the primary dataset focuses on making explicit the sources of value creation that lead to a certain level of performance, neglecting emphasis on the actual level of returns of focal buyouts under review.

and final sub-section on the primary data sample will analyze the financial performance of a sub-sample of buyouts, indicating potential financial performance patterns beyond the influence of industry financial performance. This section will involve an application of the value attribution formula, developed in section 3.5.4.

Each of the above sections (except for the VE data) will provide a description of tested variables, a discussion of tested “variable hypotheses” with respect to the variable’s potential impact on buyout performance, detailed statistical multivariate regression analysis and summary interpretation of results.

## **4.2. Control Population Overview**

The Venture Economics database used in this study contains information on 134,640 “investment events”, occurring in 64,490 transactions among 27,739 companies world-wide, mainly in the U.S. and Europe. This dataset can therefore be considered as the most complete, worldwide available total population of Private Equity transactions. The dataset also provides performance return information on more than 800 buyout funds, measured by exact cash flows recorded between the general and Limited Partners. However, the information on the above mentioned individual investments does not allow calculating internal rates of return on investment. As a consequence, the fund return will represent the main focus in this section, and will also be used as a proxy to infer conclusions between funds and their underlying investments. Among other detail on individual investments, the dataset in particular contains vast information on global Private Equity fundraising, which will be the introductory topic discussed in the next section.

### **4.2.1. Private Equity, Venture Capital and Buyout Market Historical Fundraising**

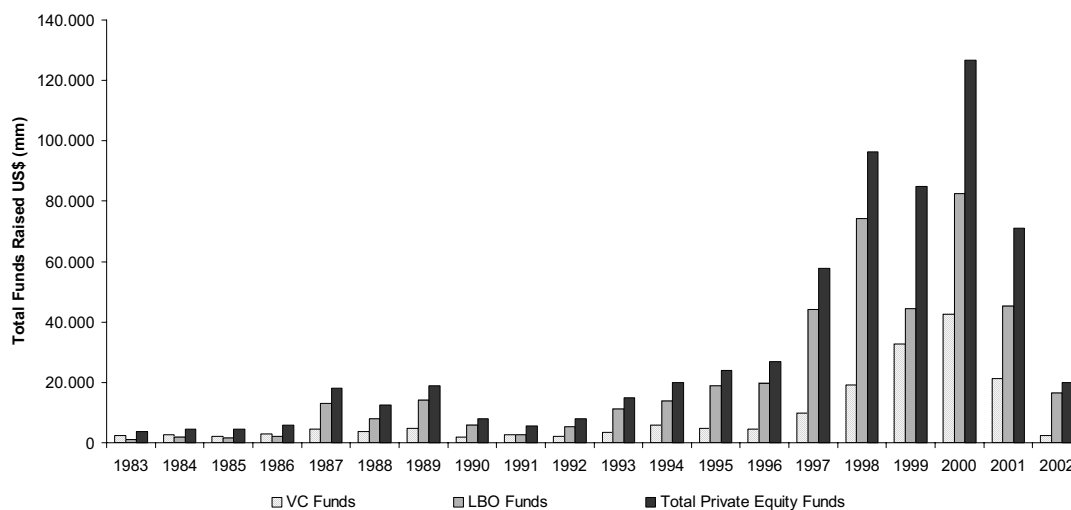
#### **4.2.1.1. Overview of Historical Private Equity Fundraising**

The success and failure of Private Equity fundraising is influenced by both, the track record (or potential) of the Private Equity firm as well as the economic, regulatory and capital market conditions. The list of factors that have been studied in economic literature focus on (i) the state of the market for initial public offerings (IPOs), (ii) GDP growth, (iii) expected yield returns to investors, (iv) capital gains taxation and pension fund regulation, (v) growth of overall market capitalisation, (vi) rigidity of labor markets and (vii) reliability of accounting procedures (Marti and Balboa 2001; Dresdale 2002). Among these factors, the IPO market has been seen as one of the most important factors to influence fundraising.<sup>57</sup> Due to the favorable regulatory and legal changes

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<sup>57</sup> Black and Gilson (1999) find a significant relationship between the number of venture-backed IPOs and new capital commitments to Venture Capital funds in the subsequent year. The volume of IPOs therefore

and access to new sources of capital (see Fenn, Liang et al. 1996), a sizable number of large new Private Equity partnerships were created in the early 1980s. In 1983, 63 new Private Equity funds were raised, totaling US\$ 3.6 billion, of which five funds were buyout funds, totaling US\$ 1.1 billion, and 57 were Venture Capital funds, totaling US\$ 2.5 billion.<sup>58</sup>



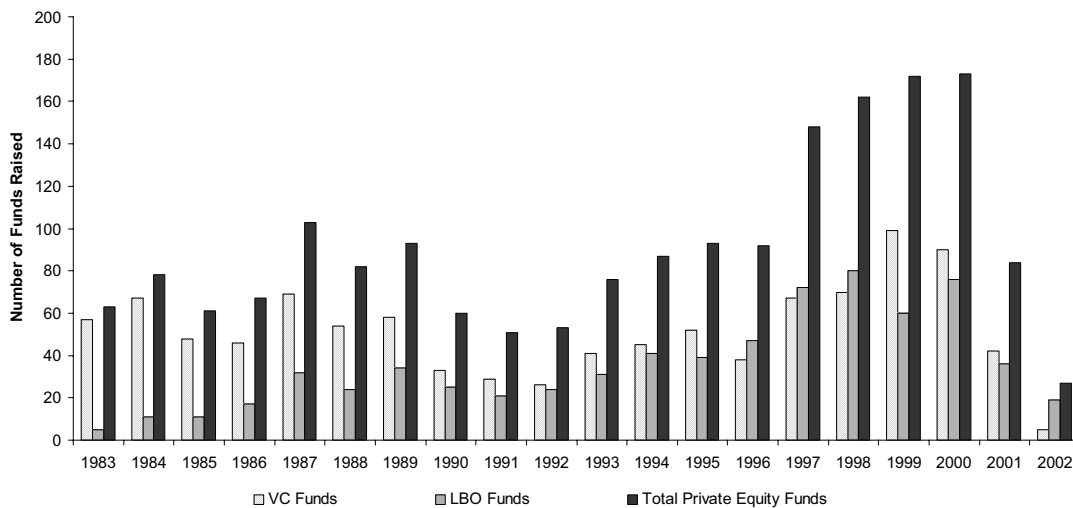
**Figure 13: Total Global Venture Capital, LBO and Private Equity Funds Raised (US\$ mm) by Year**

Source: Venture Economics data, analyzed by author.

The number and average amount of capital raised by buyout funds increased sharply in the period of 1987-1989. This was due to a strong track record of the pioneer Private Equity and buyout funds in the late 1970s/early 1980s and the heightened boom in buyout transactions in the mid-1980s. This trend was further enhanced by the development of the high yield debt (“junk bond”) market (Altman 1983; Altman 1987; Asquith, Mullins Jr et al. 1989; Altman 1992). Driven by investment banks such as Drexel Burnham Lambert, these debt instruments allowed for higher leverage at target companies and thus led to higher investment yields to investors. In 1989, the Private Equity market saw 93 new funds raising capital, of which 34 were buyout funds and 58 were Venture Capital funds, totaling commitments of US\$ 18.9 billion, US\$ 14.1 billion and US\$ 4.7 billion respectively. The average fund size of buyout funds had doubled from US\$ 217 million to 415 million between 1983 and 1989.

affects not only the supply of capital, but also its demand (Jeng and Wells, 2000). Potential fund investors especially scrutinize Private Equity funds during fundraising due diligence with respect to the Private Equity firm’s unrealized portfolio companies. A track record of successful recent exits, preferably via the IPO market, is seen as crucial when evaluating a Private Equity firm’s track record and influences the firm’s ability to attract the desired target fund capital.

<sup>58</sup> For clarification on consistency, this section presents data of the total Private Equity fund industry, the buyout fund industry and the Venture Capital fund industry. The figures shown for buyout and Venture Capital do not add up to total Private Equity figures, as the author has omitted small – but negligible for this study – figures referring to Mezzanine funds, Fund of Funds, or other Private Equity funds tracked in the Venture Economics Database.



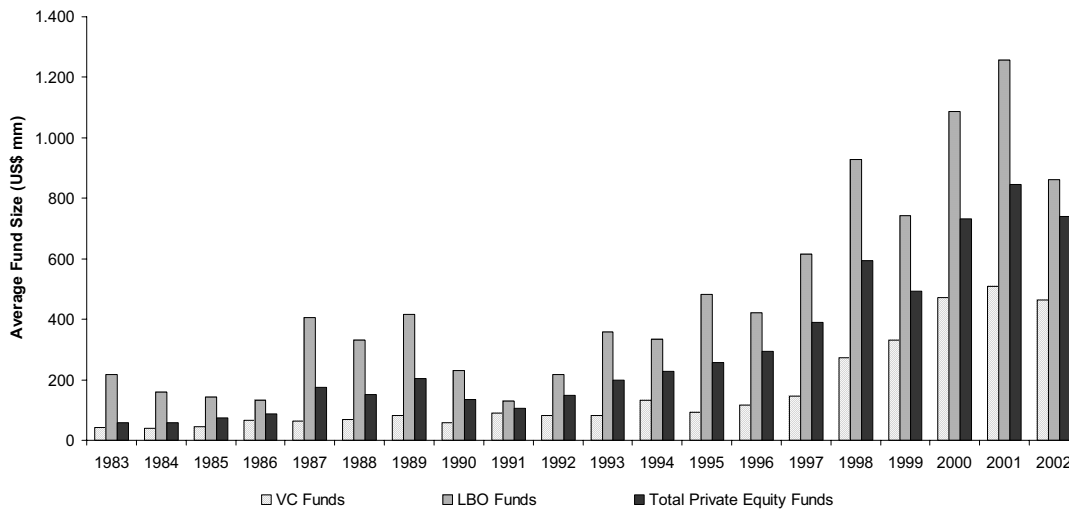
**Figure 14: Total Global Venture Capital, LBO and Private Equity Funds Raised (No. of Funds) by Year**

Source: Venture Economics data, analyzed by author.

The global stock markets crash in October 1989 and the recessionary economic development until the end of the first Iraq war in 1992 prompted an abrupt end to the positive and growing fundraising climate. The turbulent equity and credit markets triggered a series of high-level bankruptcies of buyout targets. These companies in most cases were over-levered from the outset of the transaction compared to their actual, much lower theoretical debt capacities, which would have been able to withstand adverse economic and market conditions. The series of buyout defaults and encompassing public and bureaucratic outcry about an “irresponsible destruction of prior healthy American companies” led to the collapse of the junk bond market at the end of the 1980s, which in subsequent years depressed the financing capabilities of buyout funds for new transactions considerably.

With the economic recovery in 1993, the accompanying increase in activity in the market for IPOs and the slow rebirth of a more moderate, but sophisticated high yield bond market, the investment and fundraising climate for Private Equity equally improved. By 1996, it reached a similar level in terms of number of funds raised compared to 1989. Between 1996 and 2000, the Private Equity market saw a spectacular rise in activity driven by the information technology and stock market boom. Total Private Equity fundraising almost increased by a factor of five from US\$ 27.0 billion in 1996 to US\$ 126.7 billion in 2000. Likewise, buyout fundraising more than quadrupled from US\$ 19.6 billion in 1996 to US\$ 82.6 billion in 2000. A total of 173 new Private Equity funds were raised in 2000 compared to only 92 in 1996, as well as 76 buyout funds in 2000 compared to 47 in 1996.



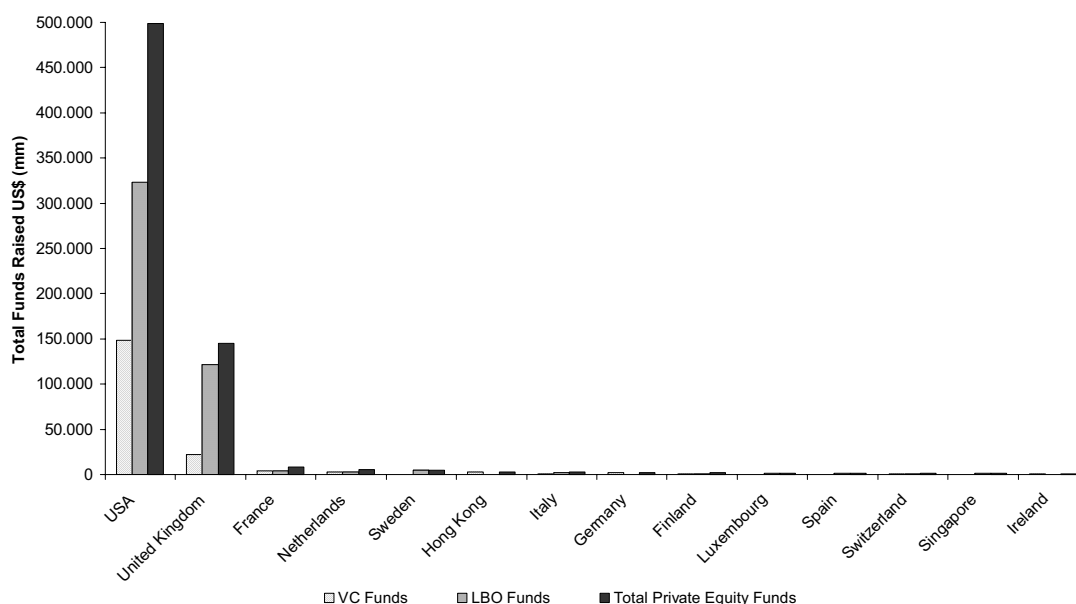


**Figure 15: Average Fund Size of Total Global Venture Capital, LBO and all Private Equity Funds Raised (US\$ mm) by Year**  
Source: Venture Economics data, analyzed by author.

More significantly, the average fund size increased sharply, resulting in ample capital for investment in gradually larger transactions. The average size of buyout funds tripled from US\$ 420 million in 1996 to a record US\$ 1.3 billion in 2001. Over the same period, Venture Capital funds more than quadrupled in average size from US\$ 118 million in 1996 to US\$ 508 million in 2001. The burst of the information technology & internet bubble since March 2000 and the sharp economic downturn had subdued fundraising substantially in 2002. Total fundraising of Private Equity funds dropped by 84% to US\$ 19.9 billion between 2000 and 2002, while buyout fundraising dropped by 80% to US\$ 16.4 billion. After a series of write-offs in their information technology portfolios and considerable value destruction of investors' funds, Venture Capital fundraising dropped by 95% to US\$ 2.3 billion in 2002 compared to its 2000 peak.

#### 4.2.1.2. A Global View on Private Equity Fundraising

The global Private Equity fundraising market has historically been dominated by the U.S. and the United Kingdom. Between 1983 and 2002, a total of 1,316 Private Equity funds with committed capital of US\$ 498.6 billion have been raised in the U.S. Among these, 440 buyout funds with US\$ 322.9 billion, or 65 per cent of the total as well as 807 Venture Capital funds with commitments of US\$ 183.8 billion were founded.

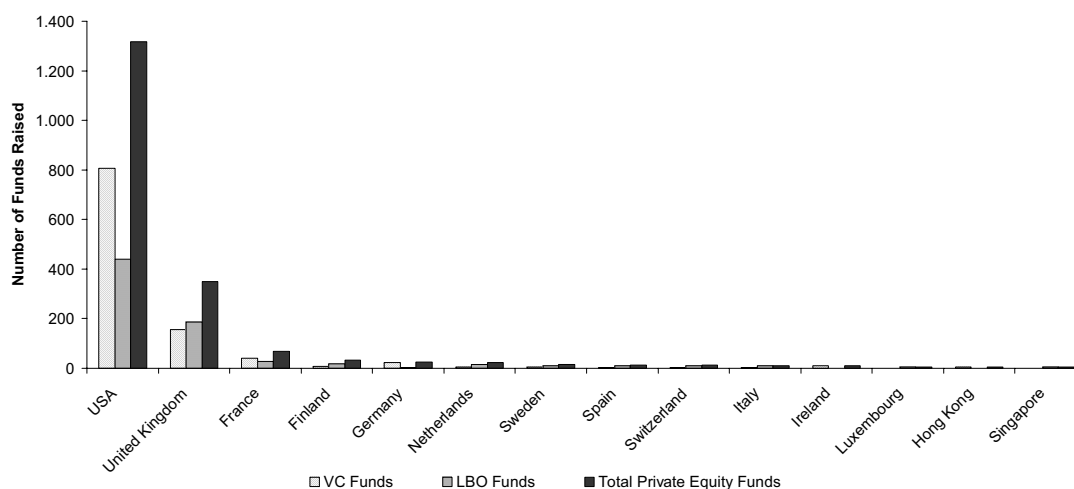


**Figure 16: Total Global Venture Capital, LBO and all Private Equity Funds Raised (US\$ mm) by Country**

Source: Venture Economics data, analyzed by author.

The United Kingdom has historically been one of the most active and significant buyout markets outside the United States. Private Equity fundraising in Europe began to gain pace during the late 1980s, mostly driven by U.S. funds entering the less developed, yet less competitive European Private Equity market. Between 1983 and 2002, a total of 349 Private Equity funds with committed capital of US\$ 145.3 billion have been raised in the United Kingdom. Among these, 187 buyout funds with US\$ 121.6 billion, or 84 per cent of the total as well as 157 Venture Capital funds with commitments of US\$ 22.3 billion were founded. The immaturity of the European Venture Capital industry compared to the U.S. is highlighted by a significantly lower ratio of Venture Capital funds (15 per cent) in the United Kingdom compared to the U.S. (30 per cent).<sup>59</sup> The early dominance of the United Kingdom for European Private Equity fundraising is mainly based on the similarity of its jurisdiction to the Anglo-American legal system, its regulatory framework supporting (U.S.) fund investor protection as well as the highest developed capital markets in Europe at that time.

<sup>59</sup> Structural differences in the funding system of entrepreneurial activity between the US (capital market driven) and Europe (government driven) are contributing to a less developed Venture Capital industry in Europe.



**Figure 17: Total Global Venture Capital, LBO and all Private Equity Funds Raised (No. of Funds Raised) by Country**  
Source: Venture Economics data, analyzed by author.

Other European countries have been slow to implement a favorable fundraising environment in their jurisdictions. France and Germany have become the most active buyout markets behind the United Kingdom in the late 1990s, having raised US\$ 8.0 billion (total of 67 funds, of which 27 were buyout funds and 39 Venture Capital funds) and US\$ 2.2 billion (total of 25 funds, of which 2 were buyout funds and 23 Venture Capital funds) of total Private Equity capital until 2002. Fundraising in the Netherlands attracted US\$ 5.3 billion (total of 22 funds, of which 15 were buyout funds and 6 Venture Capital funds) by 2002, driven by a favorable jurisdiction with significant tax incentives. Due to rapid development of the Scandinavian information technology industry and a strong buyout market, the Finnish and Swedish Private Equity fundraising market grew to a total of US\$ 7.0 billion (total of 46 funds, of which 27 were buyout funds and 11 Venture Capital funds).<sup>60</sup>

#### 4.2.1.3. Private Equity Investment Allocation by Industries

The allocation of Private Equity capital according to industries is of particular importance as it reveals the investment focus of buyout and Venture Capital funds, i.e. where these funds consider finding the most attractive investment opportunities. The classification of all 64,490 Private Equity transactions recorded by Venture Economics<sup>61</sup> has been performed according to the industry categorization of Thompson Financial Datastream (see detailed overview in section 3.6.5.)<sup>62</sup>.

<sup>60</sup> Data collected by Venture Economics for the European Private Equity market is less complete than for the US Private Equity industry. Presented figures should be considered as trends only.

<sup>61</sup> Recorded from January 1, 1980, until December 31, 2002.

<sup>62</sup> Venture Economics utilizes over 500 industry classifications in their Venture Economics Industry Classification (VEIC). These industries have been transformed to the Datastream Level 6 classification scheme utilizing a transformation key. This classification in turn allowed for the direct aggregation of the presented Level 3 and Level 4 industry categories. The industries have been assigned according to the

#### 4.2.1.3.1. *Level 3 Industry Classification*

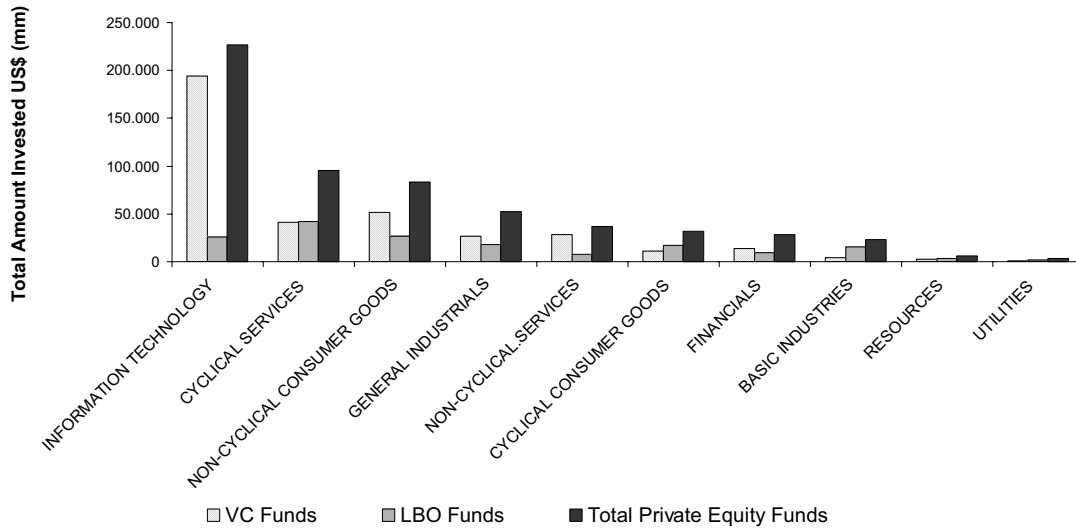
On the most aggregated industry classification, the results highlight the key investment areas of Private Equity funds in the global economy. The information technology industry is the most invested industry sector, having received US\$ 227 billion of Private Equity fund investments.<sup>63</sup> The sector is dominated by Venture Capital funds with US\$ 194 billion of investment, but also buyout funds invested in this sector (US\$ 26 billion).<sup>64</sup> The second largest industry sector is the cyclical services industry with US\$ 95 billion of total Private Equity investment (US\$ 42 billion of buyout and Venture Capital investments each), followed by the non-cyclical consumer goods sector with US\$ 83 billion of total Private Equity investment (US\$ 27 billion of buyout and US\$ 51 billion of Venture Capital investment) as well as general industries with US\$ 53 billion of total Private Equity investment (US\$ 18 billion of buyout and US\$ 27 billion of Venture Capital investment). The apparent key investment focus of buyout funds in cyclical services, which is six times higher than in the non-cyclical services industry, is a surprising result. Based on theory (see table 1), buyout firms seek to avoid industries with high cyclicity. Their investment focus on cyclical services can be interpreted as being more attractive from a returns perspective. Service businesses often demonstrate attractive margins; hence buyout firms are likely to be tracking the industry cycle of cyclical services firms and are buying at attractive (low) enterprise values in a down-cycle. Other important industries for buyout funds are cyclical and non-cyclical consumer goods as well as general and basic industries. The latter two sectors generally represent very mature companies with stable business models and financials, but low growth prospects.

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author's best knowledge, but the potential for a limited subjective bias with respect to this transformation/re-classification has to be acknowledged.

<sup>63</sup> "Investment" here is defined as the sum of total equity investment in all deals with this industry classification (Venture Economics classification: "Estimated Round Total"). With respect to consistency of presented data, the author needs to point out that adding all investments across industries, e.g. by VC funds, leads to higher US\$ investment amount than actual VC funds raised (see section above). The reason is twofold. First, the above presented fundraising data refers to the period from 1983-2002, while the aggregated data here refers to investments recorded by Venture Economics from 1980 to 2002. Also, there is no fund size data provided for all Private Equity funds in the Venture Economics database, therefore understating the actual funds raised. Secondly, the invested amount ("Estimated Round Total") may also include investments from other parties than Private Equity funds, e.g. management, other individuals, companies or institutions. It represents an estimated figure by Venture Economics for the total equity investment in the transaction (the estimated round total is approximately 30% higher for all Private Equity funds, 20% for buyout funds and 40% for Venture Capital funds than the sum of recorded fund equity investment data). Nevertheless, the chosen presentation can be considered to be the most accurate with respect to analyzing Private Equity transactions as it represents all equity funds flown into a deal.

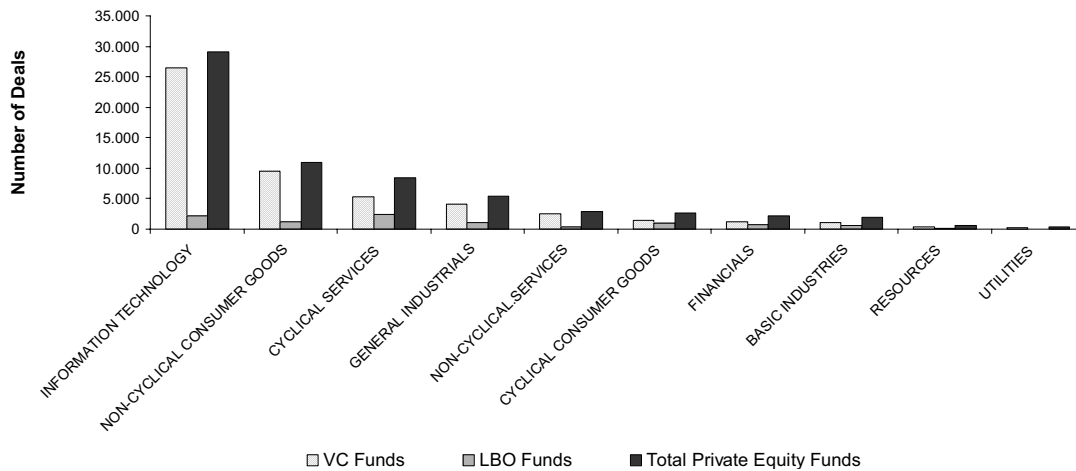
<sup>64</sup> Especially during the information technology boom between 1997 and 2000, buyout funds diversified their investments towards this non-traditional (i.e. with respect to their general focus on mature, stable companies) industry segment.



**Figure 18: Total Amount of Deal Investments (1980-2002) by Industry Sector (Level 3)**

Source: Venture Economics data, analyzed by author.

The number of investments according to industries generally tracks the trends found for invested capital, with 29,073 deals (45% of total) undertaken within the information technology sector, 10,972 deals in the non-cyclical consumer goods industry (17% of total) and 8,415 deals in the cyclical services industry.<sup>65</sup> For buyout funds, the most active industry sectors have been cyclical services (2,440 deals), information technology (2,112 deals), non-cyclical consumer goods (1,204 deals) as well as general industries (1,046 deals).

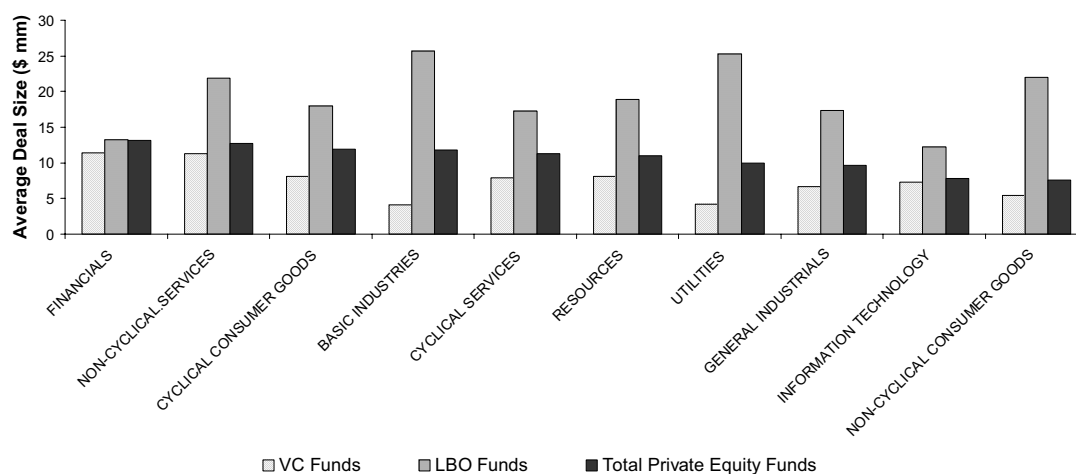


**Figure 19: Total Number of Deals (1980-2002) by Industry Sector (Level 3)**

Source: Venture Economics data, analyzed by author.

<sup>65</sup> The large number of deals in the information technology industry has to be interpreted with hindsight to the specific nature of Venture Capital funded start-up companies. In this categorization, each round of Private Equity financing, i.e. seed capital, first-, second-, third- and expansion-stage financings, counts as one transaction. Hence, the number of deals is correctly presented; however, the actual number of different companies involved is significantly lower.

The average deal size varies significantly between industries. The highest average deal size (and with the lowest variance) can be observed in the financial services sector with an average deal size of US\$ 13.2 million for all Private Equity funds. Given the high number of investments in the information technology sector, the average deal size is much lower at US\$ 7.8 million. Across all industry sectors, buyout deals are considerably larger than Venture Capital deals. The highest average deal size of buyout funds is in basic industries (US\$ 25.7 million), utilities (US\$ 25.2 million), non-cyclical consumer goods (US\$ 22.0 million) and non-cyclical services (US\$ 21.8 million). The high average investment amount in the basic industry and utility sector is likely to be driven by relatively high asset prices of these acquisitions. Also, the high average deal amount in both the non-cyclical consumer goods and non-cyclical services sectors (compared to the cyclical counterparts) points to the fact that buyout funds, acknowledging the lower risk of cyclical downturns, are willing to put more capital at risk in these industry sectors.



**Figure 20: Average Deal Size (1980-2002) by Industry Sector (Level 3)**

Source: Venture Economics data, analyzed by author.

The average deal size by industry has to be put into context of the overall development of average deal size among buyout and Venture Capital funds. Overall, average deal sizes have grown from US\$ 1.4 million in 1980 to US\$ 16.5 million in 2002 among all Private Equity funds. The average deal sizes grew rapidly during the 1980s, reaching a preliminary maximum in 1989 with US\$ 5.3 million and – after a period of more conservative investment behavior between 1990 and 1991 – continued to grow progressively to US\$ 15.9 million in 2000. The average deal size growth among buyout funds was even stronger, yet also more volatile. Surprisingly, the low maturity of the buyout industry in the early 1980s, between 1980 and 1984, is exemplified by the fact that the average deal size of buyout deals was consistently lower than Venture Capital deals, which they first surpassed in 1985 with US\$ 3.6 million. Supported by various mega-buyout deals, including the takeover of RJR Nabisco by Kohlberg Kravis Roberts & Co. in 1989, which involved a record equity injection of approximately US\$ 3.7 billion, led to an upsurge in average deal sizes to US\$ 25 million by 1990. After a period of consolidation between 1991 and 1994, average deal sizes of leveraged buyout transactions grew to US\$ 24.5 million in 1999. The lower average level of deal

sizes in 2000 and 2001 was a result of (i) more conservative investment climate due to the economic downturn, and (ii) significantly lower asset prices following the falloff in global stock markets. Average deal sizes more than doubled between 2001 and 2002, reaching US\$ 35 million. The record average deal sizes are (i) a clear indicator that buyout funds were expecting an economic recovery and seeking to take full advantage by buying large assets cheaply in advance, and (ii) provide evidence of the large amounts of un-invested capital among buyout funds.<sup>66</sup>

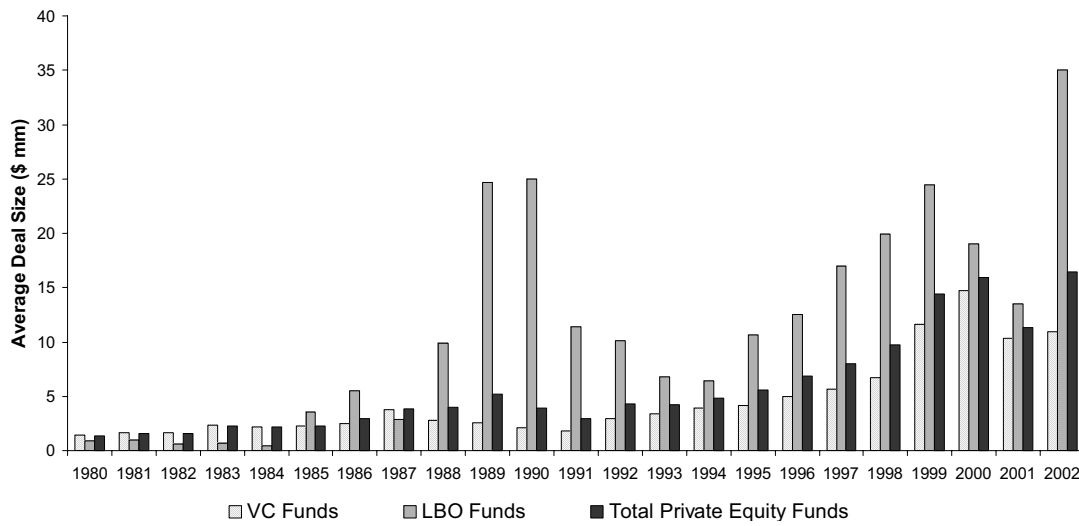


Figure 21: Average Private Equity Deal Sizes (1980-2002) by Year

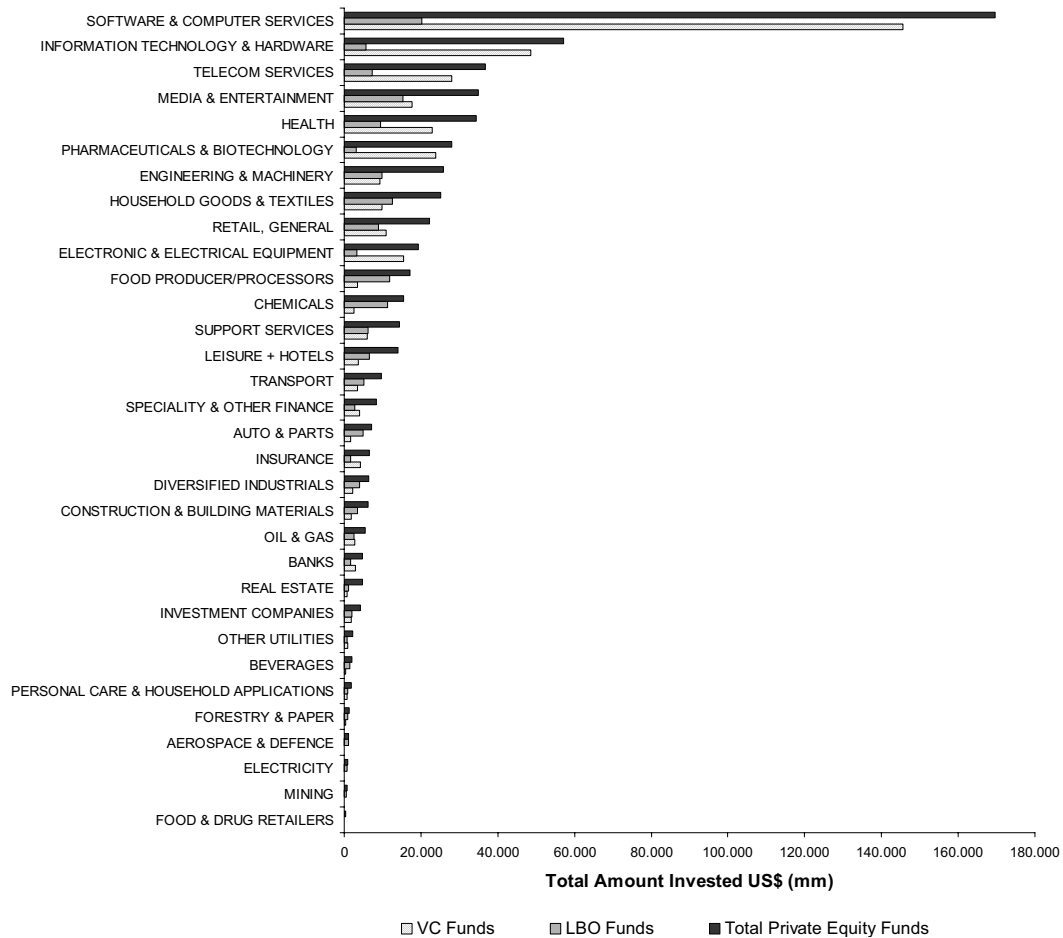
Source: Venture Economics data, analyzed by author.

#### 4.2.1.3.2. Level 4 Industry Classification

The industry classification on a less aggregated level<sup>67</sup>, allows for deeper insights into the attractiveness for investment of particular industries. It should be pointed out though that the lower aggregation level on the one side does offer greater depth, however, at the same time is accompanied by lower average frequencies among the individual categories, which adds volatility to returns. This to some extent should be taken into account for the interpretation of results.

<sup>66</sup> The year 2002 saw a range of mega-deals both in Europe and the US, including the €4.9 billion buyout of Legrand, the €3.2 billion public to private transaction of Jefferson Smurfit and the €1.7 billion buyout of DEMAG in Europe as well as the US\$ 7.1 billion buyout of Qwest in the US.

<sup>67</sup> Datastream Level 4 industry categorization consists of 35 industries. Datastream Level 6, which includes 96 different industry categorizations, has been omitted here for brevity of presentation.



**Figure 22: Total Amount of Deal Investments (1980-2002) by Industry Sector (Level 4)**

Source: Venture Economics data, analyzed by author.

First, the results of this analysis, which are logically linked to the results shown for Level 3, provide further clarification of the most heavily invested industry – the information technology sector. Deals in the software and computer services sector, totaling US\$ 170 billion of total Private Equity investment (US\$ 20 billion of buyout and US\$ 146 billion of Venture Capital investment) by far outweighs the information technology and hardware sector with US\$ 57 billion of total Private Equity investment (US\$ 6 billion of buyout and US\$ 49 billion of Venture Capital investment). In line with the above (Level 3) findings on the attractiveness of the general service sector(s), Private Equity funds appear to avoid the risk of rapid technological change in the hardware sector, directing the majority of investment towards the more “adaptive” software and services sector.

With regard to buyout funds, other key focus industry sectors include the media & entertainment sector (US\$ 15 billion), the household goods & textiles industries (US\$ 12 billion), the food producer and processor sector (US\$ 12 billion), the chemicals industry (US\$ 11 billion), the engineering and machinery sector (US\$ 10 billion) as well as healthcare and general retail sectors



(US\$ 9 billion of investments each). The attractiveness of these industry sectors are based on various aspects, e.g. non-cyclical nature (household goods, food, healthcare), high margin or high growth businesses (media, general retail) or highly cash generative (chemicals, engineering and machinery). Other potential aspects include level of deal flow and the potential for value creation of buyout funds in the acquired businesses.

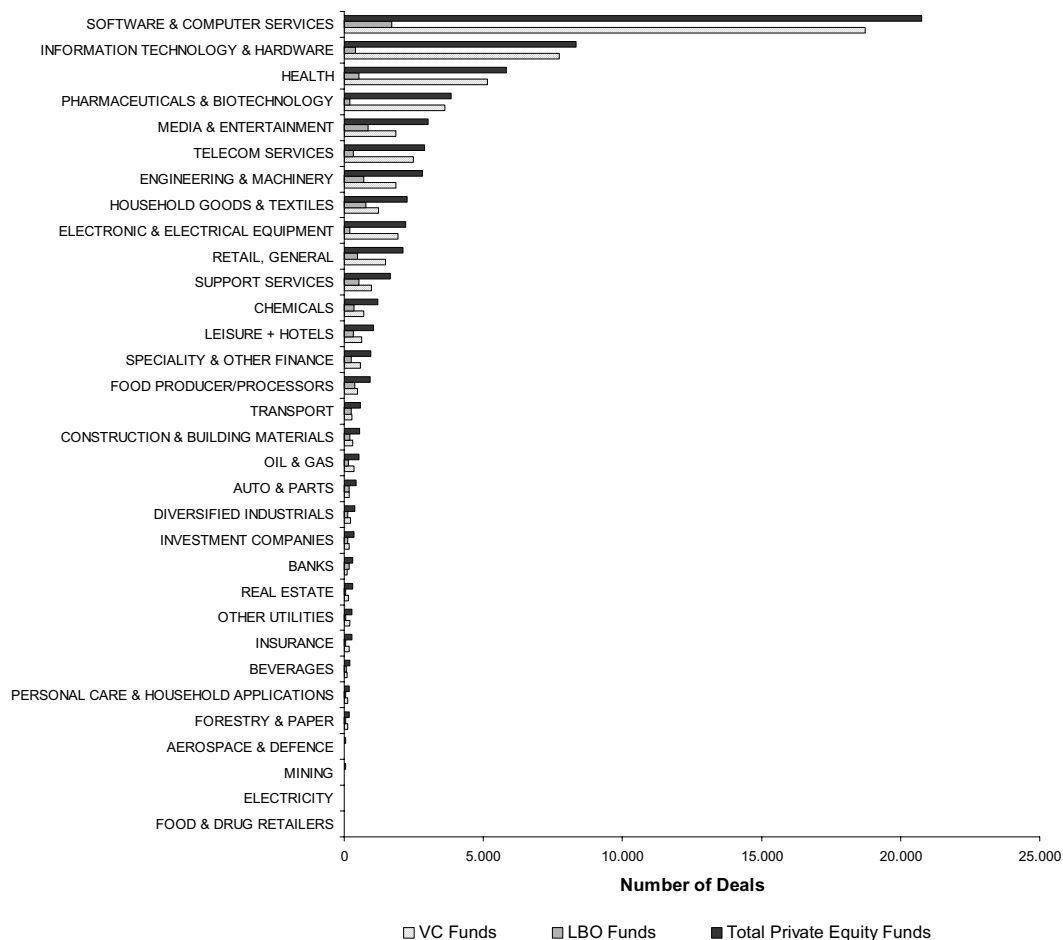
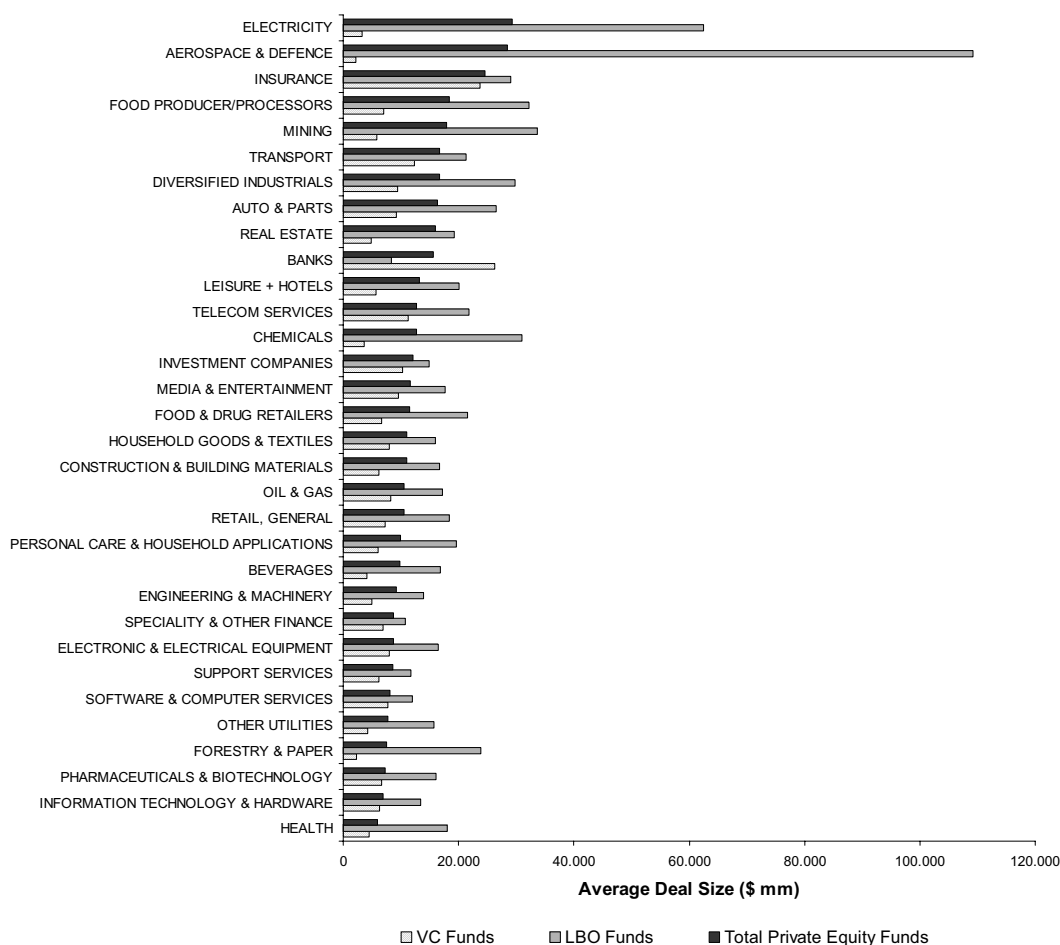


Figure 23: Total Number of Deals (1980-2002) by Industry Sector (Level 4)

Source: Venture Economics data, analyzed by author.

The software and computer services industry also clearly dominates with the highest number of transactions (20,751 total Private Equity investments, of which 18,725 are Venture Capital and 1,698 are buyout fund investments). The related healthcare (5,822 total Private Equity investments, of which 5,149 are Venture Capital and 519 are buyout fund investments) and pharmaceuticals and biotechnology (3,846 total Private Equity investments, of which 3,603 are Venture Capital and 189 are buyout fund investments) rank particularly high. These results can likely be attributed to the strongly growing number of investments in the biotechnology and life sciences industries.



**Figure 24: Average Deal Size (1980-2002) by Industry Sector (Level 4)**

Source: Venture Economics data, analyzed by author.

An analysis of the average deal size on the Level 4 industry classification produces significantly dissimilar, yet surprising results compared to the above findings.<sup>68</sup> The aerospace and defense sector, in which only 41 Private Equity transactions (10 buyout fund and 29 Venture Capital fund transactions) have been executed between 1980-2002, by far shows the top average deal size among buyout funds of US\$ 110 million. On the one hand, this result may be related to the scarcity of deals in this sector. On the other hand, the substantial visibility of future cash flows in this industry sector, driven by the long-term and often government-backed nature of its revenue stream, reduces investment risk and allows for large equity fund investments.<sup>69</sup> Large average deal sizes of buyout funds in other industry sectors, such as electricity (US\$ 63 million), mining (US\$ 34 million), food producers and processors (US\$ 32 million), chemicals (US\$ 31 million), diversified industries (US\$ 30 million) or insurance (US\$ 29 million) are to some extent based on relatively high enterprise values, i.e. acquisition prices, for investments in these sectors. These sectors are

<sup>68</sup> The average deal size of industry sectors is broadly defined through buyout fund activity.

<sup>69</sup> Private Equity firm Carlyle is the leading Private Equity investor in this sector (compare footnotes 14, 18).

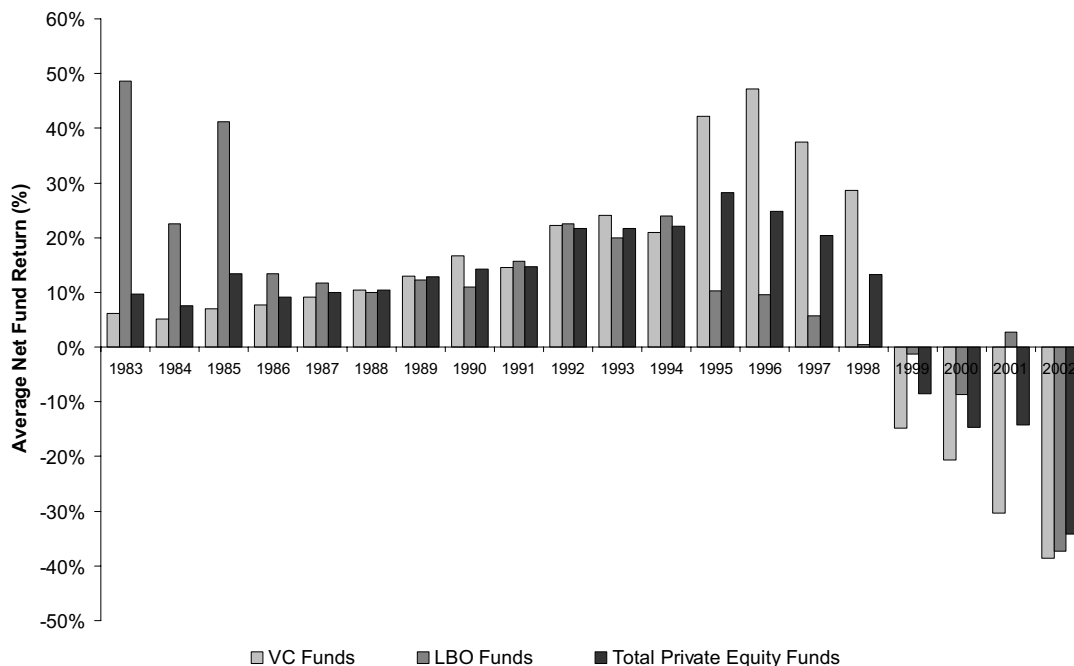
either relatively consolidated (electricity, mining) or exceptionally asset- and capital-intensive (chemicals, diversified industries, insurance).

#### 4.2.1.4. Summary of Findings

This first section has provided an overview of the historical development and accompanying dynamics of Private Equity fundraising activity. The growth in Private Equity fundraising has been enormous since the early 1980s, growing from US\$ 3.6 billion in 1983 to a record US\$ 126.7 billion in 2000. Among the total Private Equity investment asset class, buyout focused funds grew from US\$ 1.1 billion in 1983 (five funds) to US\$ 82.6 billion (76 funds) in 2000. The Private Equity industry's average fund size also grew consistently, except for a slowdown in the late 1980s following several high profile bankruptcies, triggered by the stock and junk bond markets' crash. The most active jurisdiction for fundraising has historically been the U.S., followed by the United Kingdom. The majority of total Private Equity fundraising was invested in the information technology sector, specifically in the software and computer services segment. Buyout funds heavily invested in sectors such as the cyclical services sector, non-cyclical consumer goods or general industrials. The average deal sizes also varied considerably according to industry sector: the asset and/or capital intensive basic industries and utility sectors showed high average investment levels. However, the non-cyclical segments of both consumer goods and services also allowed buyout funds to invest greater sums, potentially due to the lower (perceived) risk profiles.

#### 4.2.2. Private Equity, Venture Capital and Buyout Market Historical Fund Performance

The expected level of return to fund investors of Private Equity as an investment asset class, its specific return characteristics as well as developments across time and industries are critical to understand drivers and mechanisms for value creation. Private Equity investments are highly illiquid and represent a volatile, risky investment asset class. Its specific risk profile and corresponding low correlation with other asset classes makes it attractive for portfolio diversification (Bance 2002). Several authors have shown that in order to compensate for risk and illiquidity, investors anticipate to receive an illiquidity premium on their investment, compared to public market investments (Gottschalg, Phalippou et al. 2003; Kaplan and Schoar 2003; Ljungqvist and Richardson 2003). Overall performance was found to be slightly above or similar to public market performance. Results in section 4.2.1. have shown that commitment to Private Equity funds – most notably to buyout funds – had increased strongly during the 1980s and late 1990s. This section presents results of the analysis on performance of Private Equity funds from 1980 to 2002, emphasizing the level of returns generated by buyout funds.

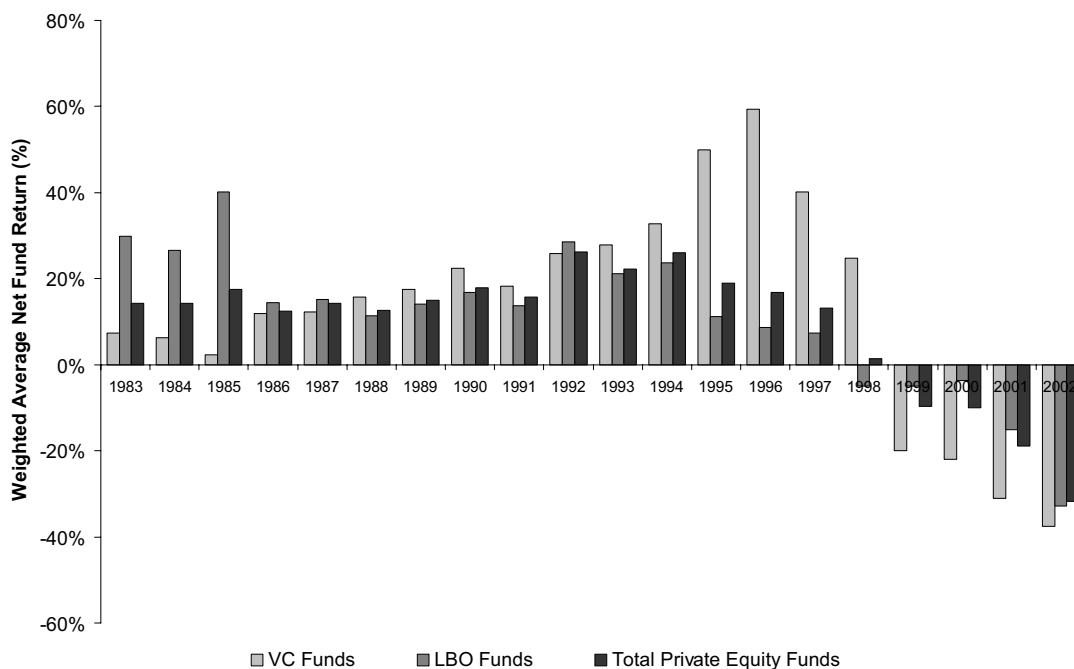


**Figure 25: Non-weighted Average Net Fund Returns by Year and by Fund Type (1983-2002)**

Source: Venture Economics data, analyzed by author.

#### 4.2.2.1. Overall Private Equity Fund Performance

The interpretation of the return profile leads to surprising results. Average net fund returns of Private Equity funds have almost constantly been increasing between 1983 (average net fund IRR of 9.7%) and 1995 (average net fund IRR of 28.2%). This trend stagnated only briefly for funds raised in 1990 and 1991, which were exposed to an adverse capital market and financing environment (post the 1989 market turmoil) and a recessionary environment. Post 1995, the high degree of unrealized investments through the “J-curve effect”<sup>70</sup> leads to a deterioration of overall fund returns, which decline to -14.7% and -34.1% average net fund IRR for Private Equity Funds raised in 2000 and 2002 respectively. Despite the fact that this negative return profile was to be expected of these recently raised funds, which have significant amounts of capital uninvested or only recently invested (cash outflows), it is questionable whether the expected gains will overcompensate these upfront cash outflows over the life of most funds in a similar way as traditionally. The economic downturn characterized by very low growth between 2000 and 2003 and the historically high amounts of outstanding uninvested fund capital may affect the traditional J-curve by shifting cash inflows further into the future and lowering expected net fund returns. In essence, this chart could be an indication of a halt of the historic trend of growing Private Equity returns.



**Figure 26: Weighted Average Net Fund Returns by Year and by Fund Type (1980-2003)**

Source: Venture Economics data, analyzed by author.

<sup>70</sup> The curve realized by plotting the returns generated by a Private Equity fund against time (from inception to termination). The common practice of paying the investment, start-up and management fee costs out of the first draw-down does not produce an equivalent book value. As a result, a Private Equity fund will initially show (at times highly) negative returns. When the first realizations are made, the fund returns start to rise quite steeply. After about three to five years, the interim IRR will give a reasonable indication of the definitive IRR. This period is generally longer for buyout funds than for early-stage and expansion funds. See Chambers (1998), Bance (2002) or the case study by Chaplinsky and Perry (2004) for details.

#### 4.2.2.2. Buyout Fund Performance

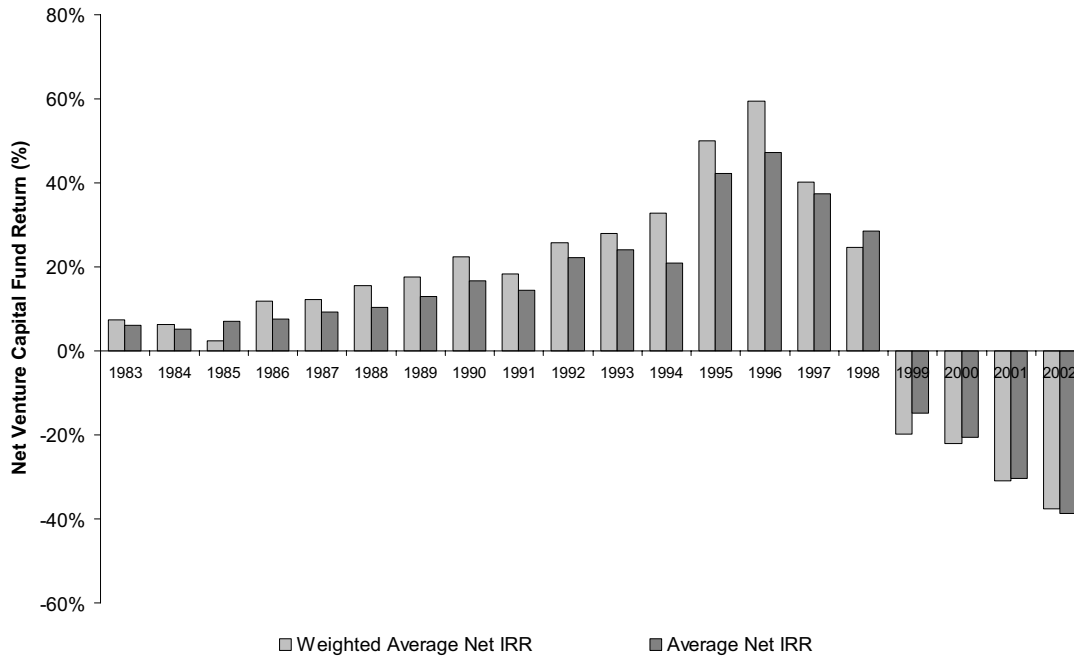
Buyout fund performance was particularly high in the early eighties with weighted average net fund returns of 29.9% in 1983, 26.6% in 1984 and a record 40.2% in 1985. This can be attributed to (i) low amounts of Private Equity capital raised in the early 1980s, which kept competition for transactions low, (ii) the favorable changes to the legal system and regulatory reforms and tax incentives (SBA 1977; Fenn, Liang et al. 1996; Gompers and Lerner 2002) and (iii) advantageous investment timing due to low asset prices in the early 1980s with a subsequent steep economic recovery. The latter effect can also be confirmed for other years of relative economic weakness, such as 1990 following the stock market crash (16.8% weighted average net fund return) or 1992 following the 1<sup>st</sup> Iraq war (28.6% weighted average net fund return). The early 1980s also offered the greatest opportunities for corporate change, efficiency gains and in turn improved financial performance through (i) the application of standard cost and cash management tools and business rationalization initiatives, and (ii) the introduction of strong managerial incentives (Jensen and Meckling 1976; Baker and Wruck 1989; Muscarella and Vetsuypens 1990; Fenn, Liang et al. 1996; Weir and Laing 1998; Cotter and Peck 2001; Rosen and Rodrick 2001; Frisch 2002).

Buyout fund returns were depressed until 1988, declining to 11.4% weighted average net IRR, as new capital inflows into buyout funds grew rapidly between 1986 and 1989. Furthermore, rising valuation levels as well as structural and managerial changes in corporations, which more effectively defended themselves against the threat of hostile takeovers through balance sheet and corporate restructurings, brought about change in terms of type and number of available buyout fund investment opportunities. The early 1990s intensified this change, as the managerial focus shifted towards enabling technology-driven efficiency gains, cash flow generation and shareholder-oriented balance sheet management, including capital structure optimization. Consequently, operational focus also became the key determining element to create value in buyouts. Moreover, the structural change in the economy during the 1990s, which was increasingly dominated by high technological product and service firms, e.g. telecommunications and information technology as well as professional services firms – often characterized by an absence of hard assets – narrowed the number of traditional buyout targets. Weighted returns for buyout funds raised between 1995 and 1997 ranged between 11.2% and 7.5% respectively. Due to low levels of cash inflows (J-curve effect) and adverse exit conditions for the less mature funds, buyout fund weighted IRRs declined to -5.0% in 1998, -3.8% in 2000 and -32.8% in 2002.

#### 4.2.2.3. Venture Capital Fund Performance

Venture Capital fund performance also increased consistently between the mid-1980s and the mid-1990s, with weighted average net Venture Capital fund returns growing from 11.9% in 1986 to 22.3% in 1990 and to stellar 50.0% and 59.4% in 1995 and 1996 respectively. Thereafter, returns constantly decreased and reached a low point with -37.5% in 2002. The enormous returns of Venture Capital funds raised between 1995 and 1997 must be interpreted to the extent that these funds were able to invest their fund capital rapidly and took full advantage of the stock market

boom to exit their investments between 1998 and 2000. Given the shorter average investment holding period in Venture Capital, the J-curve effect among Venture Capital funds has an average shorter maturity than among buyout funds.

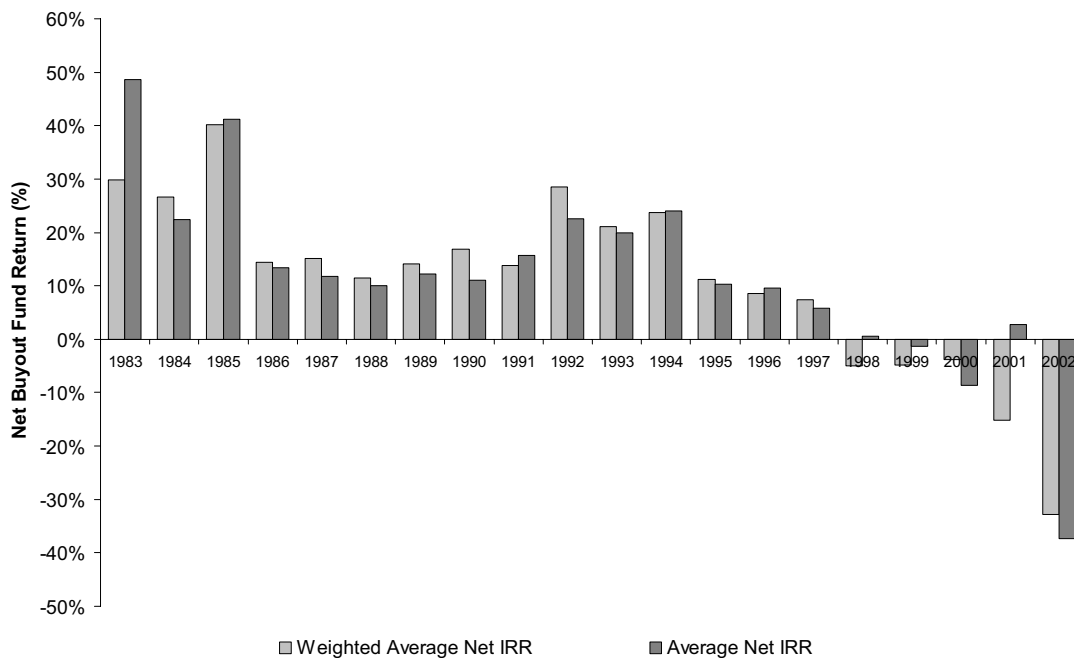


**Figure 27: Weighted and Unweighted Net Venture Capital Fund Returns by Year (1980-2003)**

Source: Venture Economics data, analyzed by author.

#### 4.2.2.4. Weighted and Unweighted IRR

Another surprising result becomes evident by comparing weighted and unweighted average net fund returns. Between 1983 and 2002, weighted returns are – with few exceptions – higher for nearly all fundraising years. As a consequence, it can be concluded that larger Private Equity funds are outperforming smaller funds. By comparing weighted and unweighted returns in buyout and Venture Capital funds in more detail, this finding becomes particularly visible among Venture Capital funds. Among Venture Capital funds, the spread between weighted and unweighted returns, i.e. between smaller and larger funds, ranges between 3-5% for most years, reaching up to 12% between 1994 and 1997. By comparison, among buyout funds, the spread ranges between 1-3% for most years, reaching up to 6% in 1990 and 1992.



**Figure 28: Weighted and Unweighted Net Buyout Fund Returns by Year (1980-2003)**

Source: Venture Economics data, analyzed by author.

This finding imparts far-reaching scope for interpretation. Among the key concerns of Private Equity investors nowadays are the ever-increasing average fund sizes. Naturally, more available capital must either lead to larger transactions or to higher deal frequency. The large-cap deal market is, however, considerably smaller than the small- and mid-cap deal markets, hence the investors' concern is that competition for large-cap deal eventually must deteriorate returns. This comparison at least to some extent may prove skeptics wrong, as the larger Private Equity funds appear to be more successful over time, i.e. generating higher returns, than their smaller counterparts. A sensible explanation could be a "survival of the fittest" theory<sup>71</sup> among Private Equity funds, which – when applied to Private Equity – would imply that those funds with the best (investment return) track record are also those that are able to attract the largest amounts of capital for their new funds and are in turn flexible to enlarge fund sizes as well as continue delivering out-performance accordingly.

#### 4.2.2.5. Private Equity Risk and Return Development

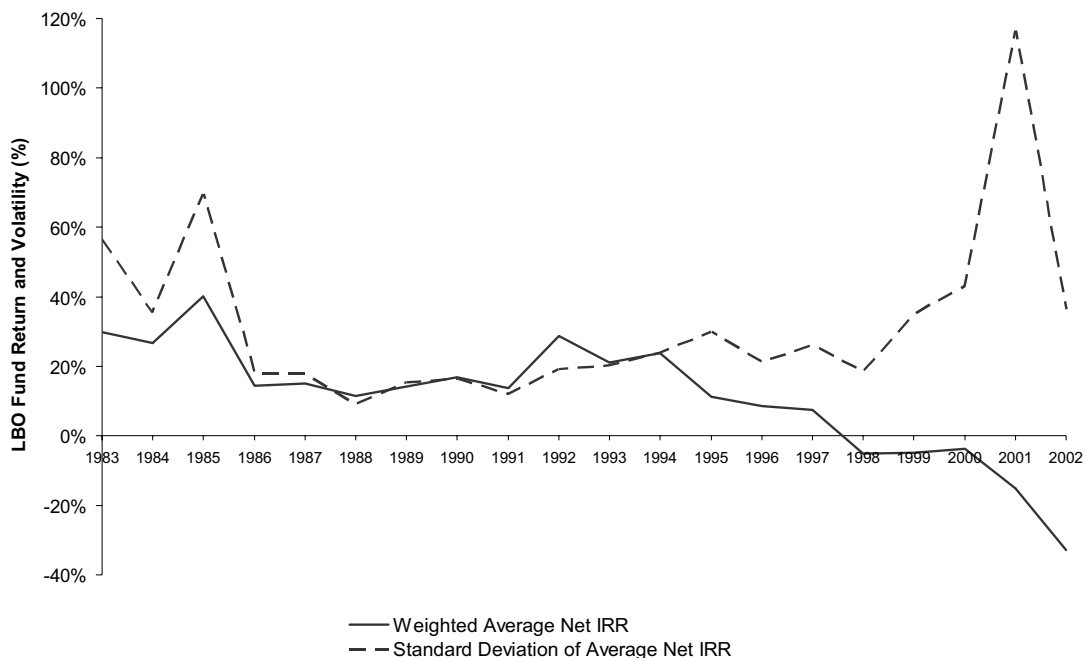
Acquisition performance per se is highly volatile and distribution of returns wide<sup>72</sup>, so is Private Equity fund performance. The diversification effect through a balanced portfolio of companies already levels a fund's overall return, but extraordinarily successful deals as well as large investment write-offs can affect fund returns significantly. Consequently, Private Equity fund

<sup>71</sup> After Darwin (1859).

<sup>72</sup> See section 2.6. for discussion.



returns between 1983 and 2002 were at times characterized by high levels of volatility, measured as standard deviation of average net fund returns (see figures 29 and 30). The high returns of buyout funds observed between 1983 and 1985 were also associated with high levels of volatility, which can be interpreted as either risky investment environment, or seen as “pioneer years”, i.e. showing a high dispersion of either extremely successful or failing funds. By contrast, despite slightly elevated volatility, Venture Capital fund returns were minimal at 2.4% of average net IRR, compared to 40.2% among buyout funds. Between 1986 and 1991 Private Equity fund raising and investment rose sharply, while both returns and volatility remained almost constant, ranging around 10% to 15% average net IRR. This homogeneous risk and return profile supports the learning hypothesis, i.e. that General Partners seem to have adopted similar acquisition techniques. Also, the fact that neither “lemons” are able to raise new funds nor “highflyers” are able to outperform competition substantiates the idea of a developing sophistication among the Private Equity industry and its investors.



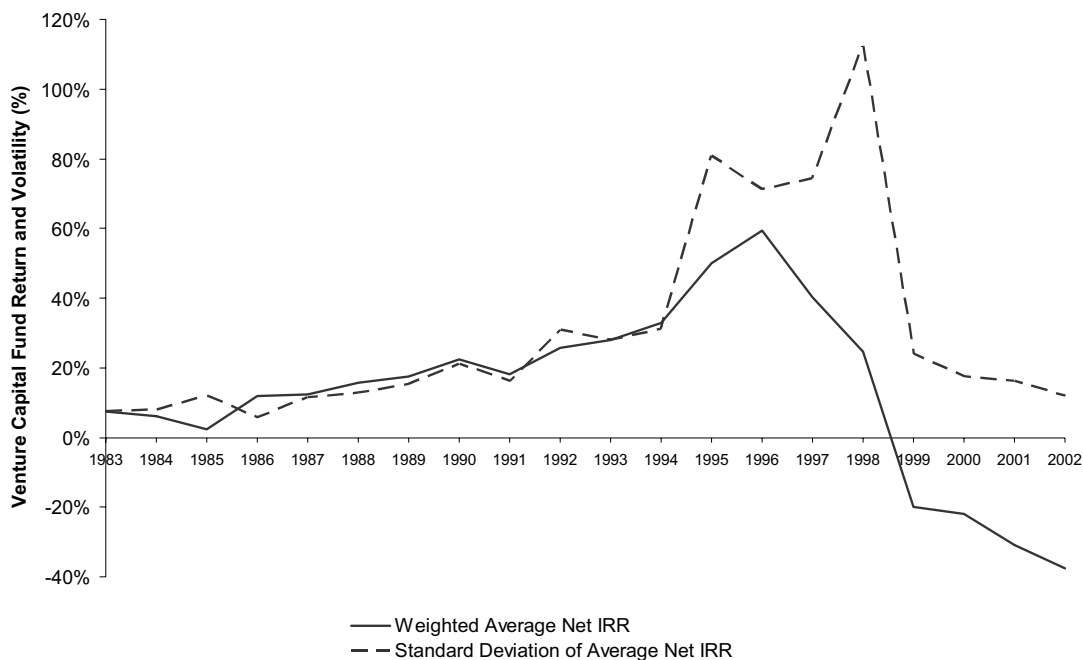
**Figure 29: Weighted Net Buyout Fund Returns and Volatility by Year (1980-2003)**

Source: Venture Economics data, analyzed by author.

Between 1992 and 1995, volatility of buyout returns increased constantly and had doubled to 29.8% compared to the prior reference period. There are two explanations for this phenomenon. First, fundraising activity in the buyout industry rose sharply from 1992 onwards, with higher total capital raised, number of new funds and average deal size. Furthermore, the early 1990s saw an increasing specialization of buyout funds according to geographical<sup>73</sup> and sector specific criteria

<sup>73</sup> In addition to its Pan-European funds, Private Equity firm Apax Capital Partners for instance raised 23 country-specific funds between 1980 and 2000, including funds in Germany, U.K., France, Israel, the United States and Japan.

(Raschle 2001; Bance 2002). As a consequence, the standard deviation increased consistently alongside. Secondly, the specialization within the buyout industry was a reaction to bigger competition and the above mentioned structural changes in the economy. These posed new challenges for buyout funds to clearly identify areas for value creation in leveraged buyout transactions. Between 1999 and 2001, volatility rose sharply from 35.0% to 116.4% respectively. The interpretation of these recent results can be only immature as the majority of investments made by buyout funds during this time are unrealized investments. However, the high volatility between positive and negative returns is likely to depend to some extent on the amount of investments made by buyout funds in the information technology sector (and thus the number of portfolio company write-downs or exits).



**Figure 30: Weighted Net Venture Capital Fund Returns and Volatility by Year (1980-2003)**

Source: Venture Economics data, analyzed by author.

By comparison, the risk and return profile of the Venture Capital industry is characterized by virtually constantly increasing volatility and returns between 1986 and 1994, followed by the “internet boom”, which saw standard deviation peaking at 112.5% in 1998. The steady increase in volatility was to a much lesser extent driven by increases in fund size, number of funds – which remained roughly equal between 1986 and 1996 – and average fund sizes. The risk and return profile is therefore more likely to be linked to the constantly gaining pace of development in the information technology and communication sector and the increasing gap of success in commercialization of these new products and services. A curious result is that despite Venture Capital investments continued heavily until after the decline in stock market valuations in 2000, the standard deviation of average net Venture Capital fund IRR already dropped significantly, by 88.5%, to 24.0% in 1999. In essence, the volatility of returns was low as it was more certain that

the vast majority of Venture Capital funds would be losing money on their investments from 1999 onwards.

#### 4.2.2.6. Performance Trends by Industry Sector

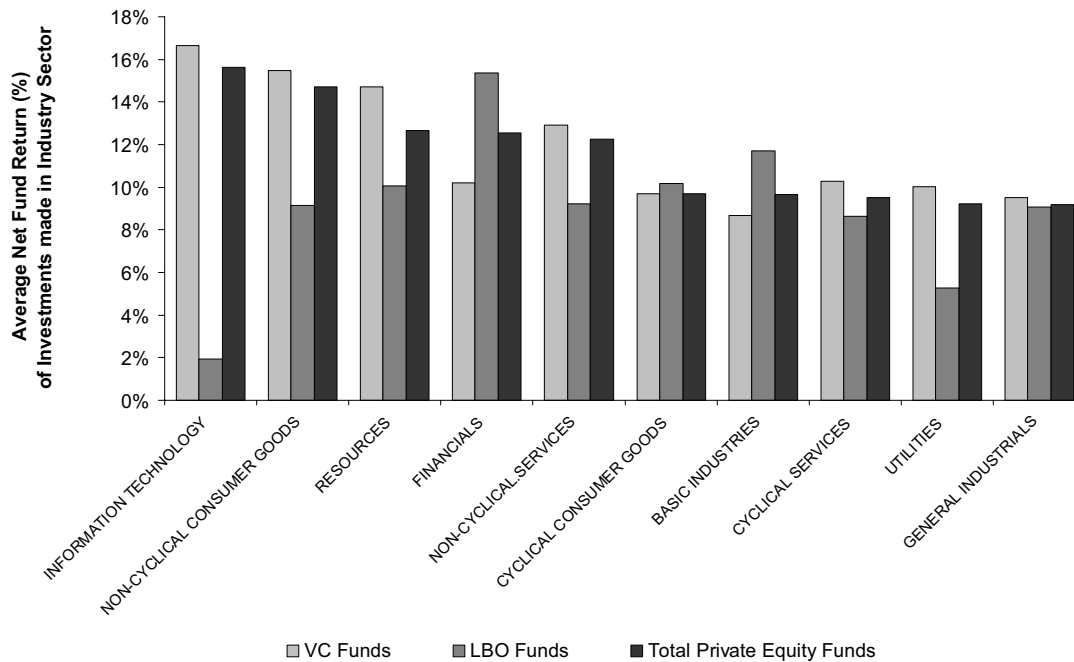
##### 4.2.2.6.1. *Level 3 Industry Classification*

From a practitioner's point of view, it is crucial to understand which industry sectors of Private Equity investment have in the past – and may also in the future – lead to superior returns. The presented data has been calculated based on Venture Economics' fund performance data. In the ideal case, the average returns would be calculated on a deal basis, but this data is not available. Instead, each deal's return was analyzed according to which fund it belonged to. Therefore, the respective fund return serves as a proxy for the deal's performance. The justification is that (i) although each deal only impacts overall fund returns marginally through the diversification effect, it does have a directional impact, and (ii) given the high amount of 36,117 deals, of which this proxy performance data has been calculated, the results at least serve as a valid trend indicator.<sup>74</sup>

The results in figure 31 show that on average for all Private Equity funds, the information technology sector has produced the highest average net fund returns of 15.6%, followed by non-cyclical consumer goods with 14.7% as well as resources, financial services (12.6% each) and non-cyclical services (12.3%). These results are in line with the above findings that the information technology sector has also received the highest amount of funding (and the non-cyclical consumer goods sector the third highest amount of funding). Conversely, it is imperative to make a distinction between buyout and Venture Capital funds. Among buyout funds, the information technology was the third heaviest invested sector, but average returns of buyout funds that invested in this industry were low at only 1.9%, which stands in sharp contrast to the 16.6% average IRR generated by Venture Capital funds. Even if this low result is influenced by the fact that to some extent buyout funds primarily invested in information technology deals during the height of the technology boom (1998-2000) and hence these funds have low maturities and low average returns (J-curve effect), it supports the hypothesis that buyout funds should avoid investing in the information technology industry sector.

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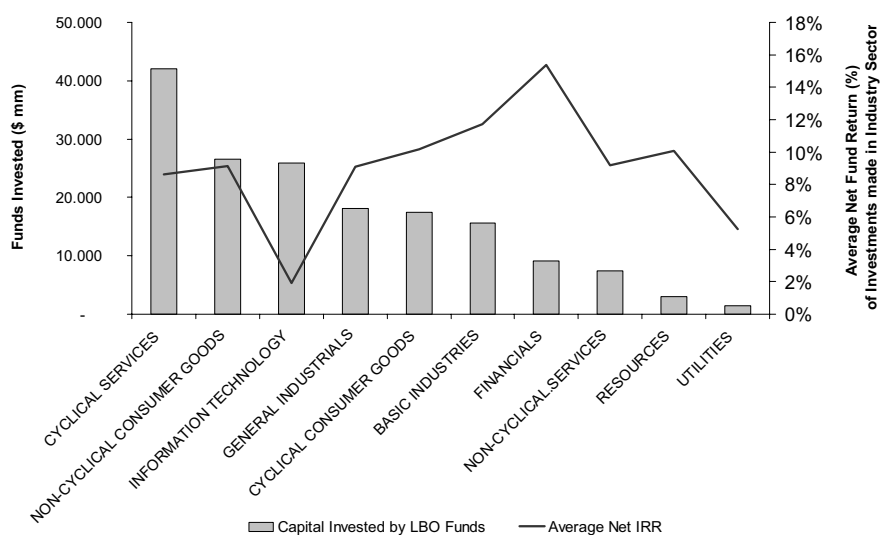
<sup>74</sup> The total amount of deals in the underlying Venture Economics database as of December 31, 2002, is 64,490. However, fund performance data has not been available for all transactions, hence the lower size of the sub-sample is 36,117 deals.



**Figure 31: Average Net Fund Return of Investments made (1983-2003) by Level 3 Industry Sector (Proxy Trend)**

Source: Venture Economics data, analyzed by author.

As illustrated in figure 31, the highest average buyout fund returns are resulting from investments in the financial service industry (15.4% average net fund return), basic industries (11.7% average net fund return), cyclical consumer goods (10.2% average net fund return), resources (10.1% average net fund return) as well as non-cyclical services and consumer goods (9.2% average net fund return each). The utilities sector has proven to be less attractive with only 5.3% average net fund return. The attractiveness of the financial services industry is surprising, as the deal flow in this industry is relatively limited (due to national interests and regulatory hurdles few investment opportunities have become available in the past). The same fact is true for basic industries and resources – both show strong performance, but even lower deal flow than the financial sector. The interpretation of this result is that either there is a scarcity of deals in these attractive sectors or buyout fund manager have given these sectors lower attention than deserved from a return perspective.

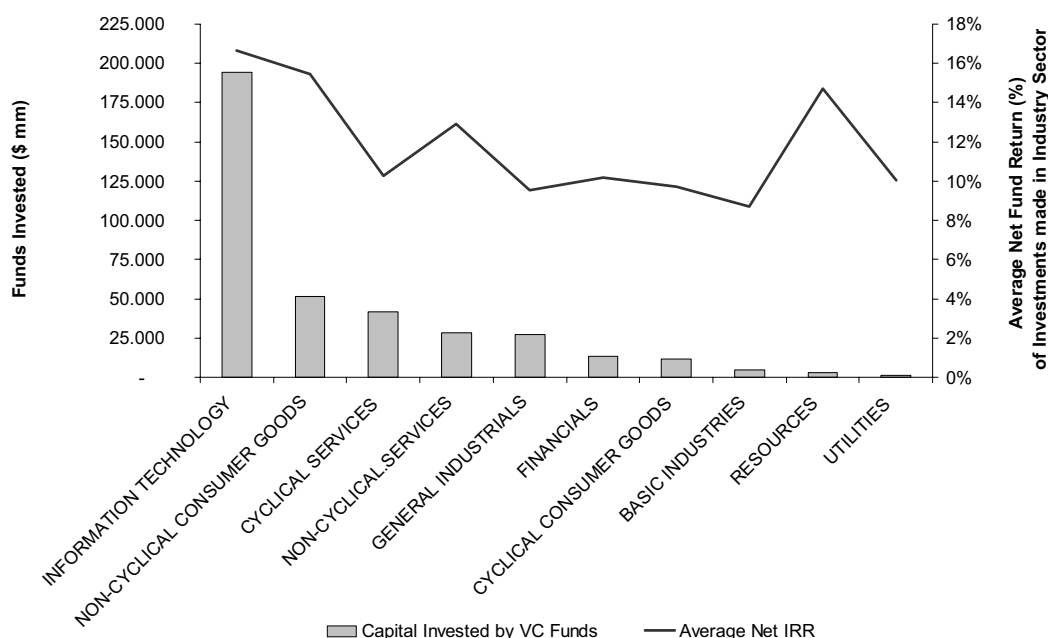


**Figure 32: Average Net Buyout Fund Return of Investments made (1983-2003) by Industry Sector (Proxy Trend) vs. Total Amount of Deal Investments (1980-2002) by Industry Sector (Level 3)**

Source: Venture Economics data, analyzed by author.

Among Venture Capital funds, average net fund returns for investments in the information technology sector, the key area of investment, have resulted into 16.6% average net IRR. The second highest average returns have been generated in the non-cyclical consumer goods sector (15.5% average net fund return), followed by resources (14.7% average net fund return) and non-cyclical services (12.9% average net fund return). A significant result from this analysis is that with the exception of non-cyclical services and resources (potential scarcity of deals), the Venture Capital return profile reflects the amount of capital invested in all industry sectors. In other words, capital allocation within the Venture Capital industry appears to be more efficient compared to the buyout sector, as Venture Capital managers are more proficient to identify sectors with the best investment opportunities and predict expected returns. One explanation for this phenomenon is likely to be linked to the nature of Venture Capital investing, in which investment opportunities are evaluated at an early stage of the investment target's life cycle. Venture capitalists can take a shorter view on the target's potential for commercial success compared to buyout investment managers, thus potentially increasing their level of predictability.<sup>75</sup>

<sup>75</sup> On the contrary, Venture Capital investments and fund returns have demonstrated to have a higher volatility of returns.

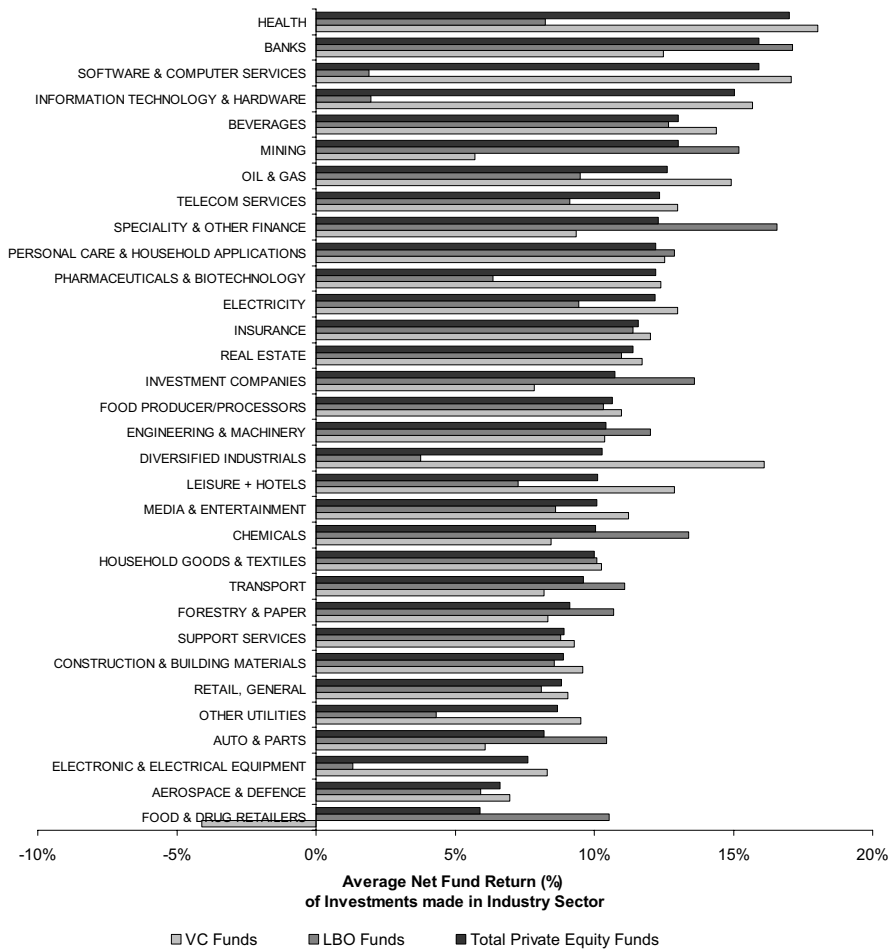


**Figure 33: Average Net Venture Capital Fund Return of Investments made (1983-2003) by Industry Sector (Proxy Trend) vs. Total Amount of Deal Investments (1980-2002) by Industry Sector (Level 3)**

Source: Venture Economics data, analyzed by author.

#### 4.2.2.6.2. Level 4 Industry Classification

Results of the return analysis of the Level 4 industry classification offer deeper insights into the attractiveness of various industry subsectors. The most profitable investment area of total Private Equity funds has been the health sector, with an average net fund IRR of 17.0%. This high return was primarily enhanced by successful investments of Venture Capital funds, which achieved an average net fund IRR of 18.0% in this segment. The healthcare sector has thus demonstrated to have favorable long-term industry dynamics. It has traditionally been a stable and growing industry, driven for example by constantly increasing levels of healthcare spending in the major developed economies and the advancements in the medical field. The second most attractive subsector has been banks, with an average net fund IRR of 15.9%. Also, average net fund returns for the specialty and other finance subsector were 12.3%. Despite a low level of deal flow in these subsectors, based on these findings the financial services industry in general should be given higher attention by the Private Equity community in the search for investment opportunities. Other attractive returns can be registered for funds that invested in software and computer services (15.9% average net fund IRR), information technology and hardware (15.0% average net fund IRR), beverages and mining (each 13.0% average net fund IRR) and the oil and gas subsector (12.6% average net fund IRR).



**Figure 34: Average Net Fund Return of Investments made (1983-2003) by Level 4 Industry Sector (Proxy Trend)**  
 Source: Venture Economics data, analyzed by author.

Among buyout funds, the most attractive industry subsectors were banks (17.1% average net fund IRR), specialty and other finance (16.6% average net fund IRR), mining (15.2% average net fund IRR), investment companies (13.6% average net fund IRR), chemicals (13.4% average net fund IRR), personal care and other household applications (12.9% average net fund IRR), beverages (12.7% average net fund IRR), engineering and machinery (12.0% average net fund IRR) as well as insurance (11.4% average net fund IRR). Again, the more detailed Level 4 industry analysis confirms that the financial services sector proves to be the most attractive from an overall return perspective among buyout funds.

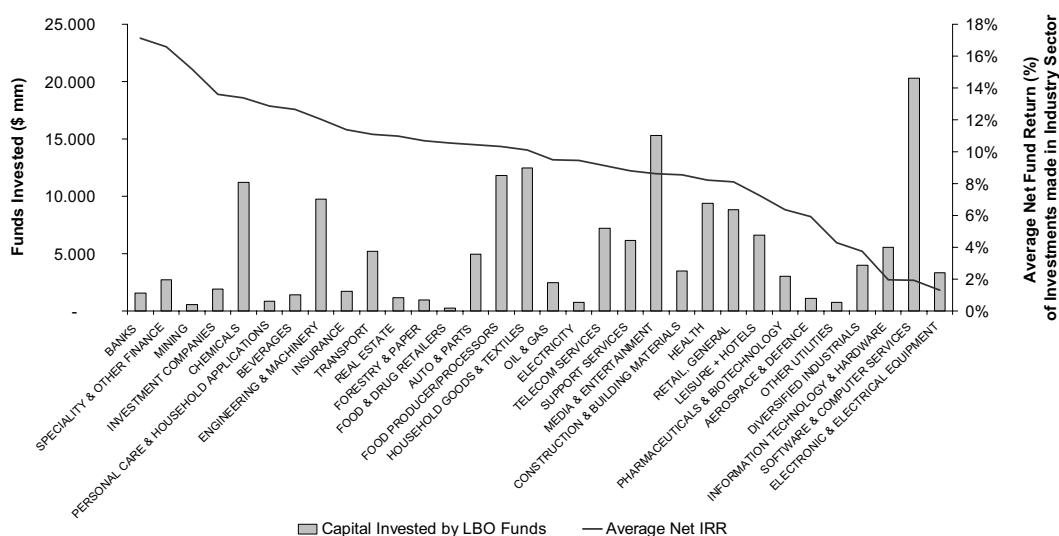


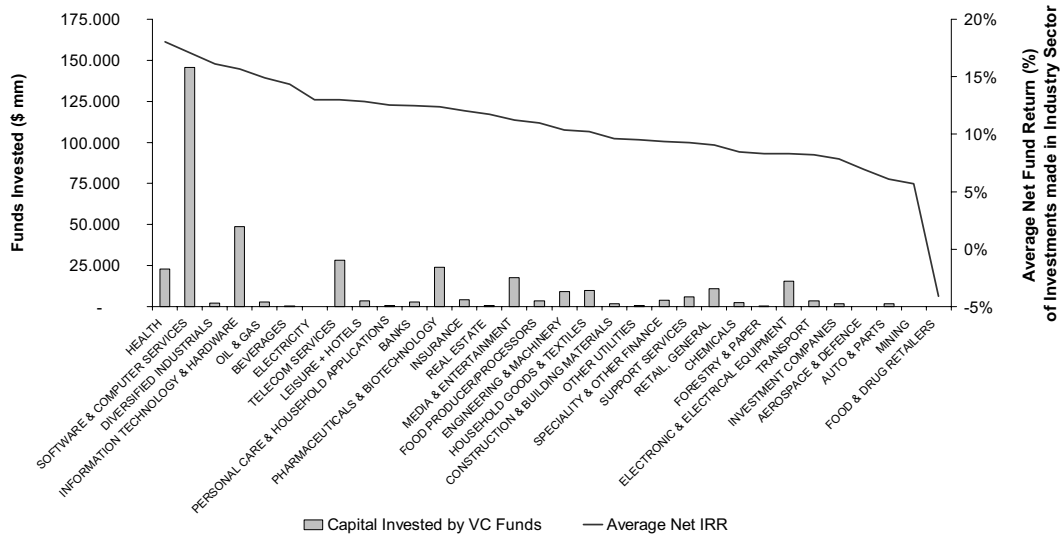
Figure 35: Average Net Buyout Fund Return of Investments made (1983-2003) by Industry Sector (Proxy Trend) vs. Total Amount of Deal Investments (1980-2002) by Industry Sector (Level 4)

Source: Venture Economics data, analyzed by author.

The above findings that average returns of buyout funds that invested in the information technology sector are dismal, finds further evidence. Electronic and electrical equipment (1.3% average net fund IRR), software and computer services (1.9% average net fund IRR) and information technology and hardware (2.0% average net fund IRR) confirm that buyout fund investment in these areas should be avoided. Investments in the diversified industry subsector only returned 3.8% average net fund IRR. This result is surprising, because diversified industries have traditionally been preferred takeover targets of buyout funds as they offered scope to eliminate conglomerate discounts by selling off individual divisions. This result is even more puzzling if the average net fund IRR of 16.1% achieved by Venture Capital funds in diversified industrial groups is considered. On average, venture investments therefore appear to be more successful in this subsector.

Among Venture Capital funds, the health (18.0% average net fund IRR), software and computer services (17.1% average net fund IRR), diversified industrials (16.1% average net fund IRR), information technology and hardware (15.7% average net fund IRR), oil and gas (14.9% average net fund IRR), beverages (14.4% average net fund IRR) and electricity (13.0% average net fund IRR) subsectors post the highest returns. Again, the more detailed Level 4 industry analysis confirms that Venture Capital funds are more efficient than buyout funds with respect to capital allocation to industries with high return perspectives (see figure 36).



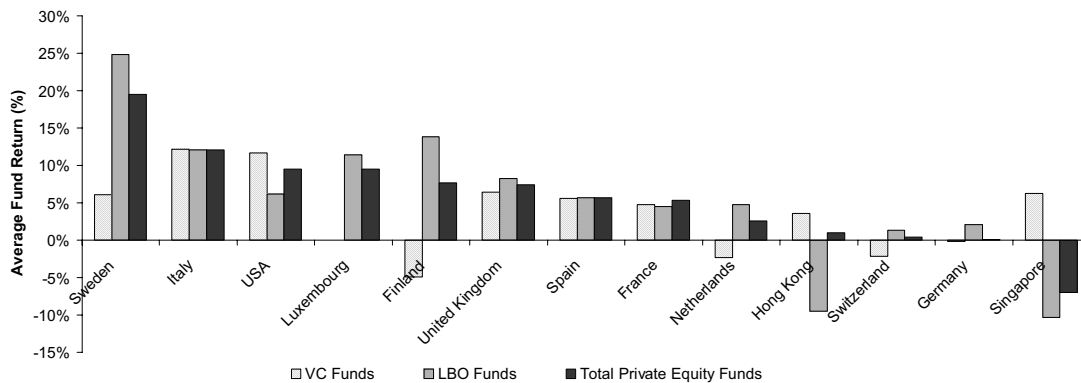


**Figure 36: Average Net Venture Capital Fund Return of Investments made (1983-2002) by Industry Sector (Proxy Trend) vs. Total Amount of Deal Investments (1980-2002) by Industry Sector (Level 4)**

Source: Venture Economics data, analyzed by author.

4.2.2.7. Private Equity Returns across Countries

Due to the highly mature Private Equity market in the U.S., attention of Private Equity investment has progressively shifted towards Europe in recent years as fierce competition among Private Equity funds is eroding overall returns. The results of average fund returns of Private Equity funds on a country basis show that two European countries illustrate that this trend is valid. Average Private Equity returns for Sweden are 19.5%, followed by Italy (12.1% average fund return). The U.S. and Luxembourg rank third with 9.5% average fund return, with lower average fund returns for Finland (7.6% average fund return) and the United Kingdom (7.4% average fund return).



**Figure 37: Average Net Fund Returns (1983-2002) by Country**

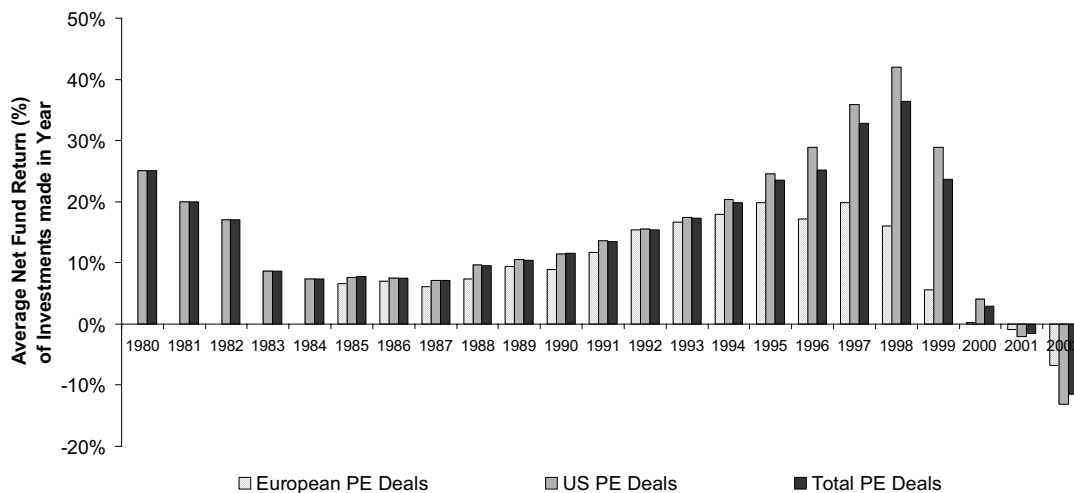
Source: Venture Economics data, analyzed by author.

Due to the fact that the data is to some extent biased by the number, mix and maturity of underlying funds, the results of this analysis do not provide sufficient evidence for significant European

dominance among Private Equity fund returns. This result will be presented in the next section by comparing U.S. and European returns across years. Amongst buyout funds, the Scandinavian countries exhibit peak buyout fund performance with Sweden (24.8% average fund return) and Finland (13.9% average fund return), while Italy (12.1% average fund return) and Luxembourg (11.4% average fund return) are also strong buyout markets. Average fund returns in other central European key buyout markets Germany (2.1% average fund return), France (4.5% average fund return) and the United Kingdom (8.2% average fund return) are bleak.<sup>76</sup> Also, the immaturity of the European Venture Capital market is underlined by the overall low returns.

#### 4.2.2.8. Private Equity Returns by Geography

As mentioned above, the analysis across countries is somewhat biased by the incomparable number, mix and maturity of investments and their underlying funds. The following three figures reveal the performance of investments according to geography, made by buyout funds, Venture Capital funds as well as all Private Equity funds.<sup>77</sup>



**Figure 38: Average Net Private Equity Fund Returns (1980-2002) of Investments made by Year and by Region (Fund's jurisdiction)**

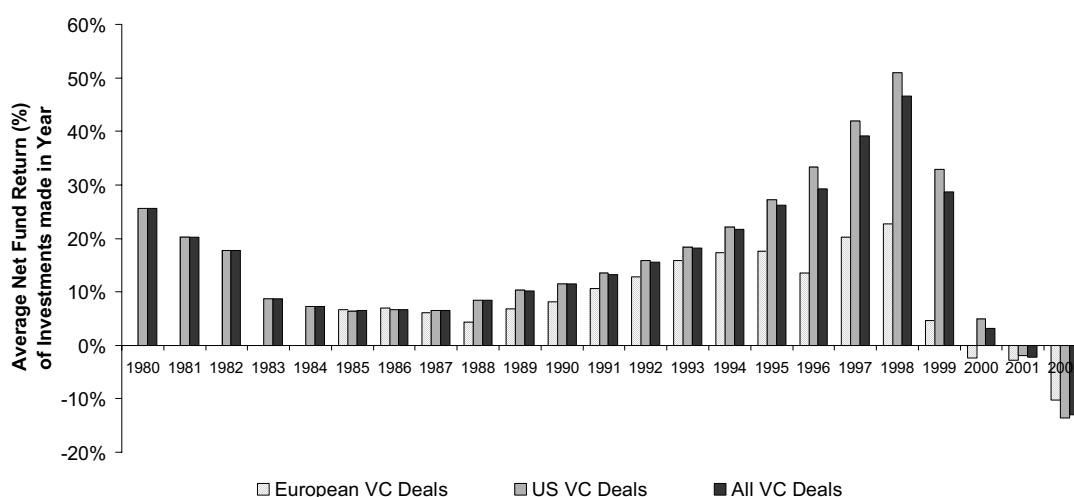
Source: Venture Economics data, analyzed by author.

However, the large number of Venture Capital deals in this sub-sample skews the results for average net fund IRRs by year for the total of all Private Equity deals towards the results of the Venture Capital deals.

<sup>76</sup> It should be noted that in Europe, a large number of Private Equity firms (especially US funds) operate out of the United Kingdom, where they may also raise funds, and invest across Europe. Hence, average fund returns by country do not necessarily reflect the geographical investment focus of Private Equity firms.

<sup>77</sup> Transactions are categorized as "US" region, if the investing fund is raised in the US or Canada, and categorized "European" if the investing fund is raised in the United Kingdom, Germany, France, Italy, Spain, Switzerland, Luxembourg, Belgium, the Netherlands, Ireland, Denmark, Finland, Norway or Sweden.

Figure 39 shows average net fund returns of Venture Capital funds raised either in the U.S. or Europe.<sup>78</sup> The results highlight the major trends in Venture Capital fund returns since 1980. The early 1980s are characterized by high average net fund returns that ranged between 25.6% in 1980 to 17.8% in 1982. Between 1983 and 1987, Venture Capital returns fell sharply to 6.6% in 1987. From 1988, the rise of information technology and telecommunication investments led to a consistent growth of average returns to Venture Capital funds, reaching 46.5% in 1998 at the height of the technology and internet boom. The most significant finding of these results is that European Venture Capital returns have been consistently lower than in the U.S. This gap has been in the range of 2-3 percentage points between 1988 and 1993, but has widened substantially by 1998, when average fund returns of U.S. investments were more than twice as high (50.9%) than European investments (22.6%). Therefore, if this clear historic trend remains valid, Private Equity fund investors on average should generate higher returns with U.S. Venture Capital funds. This result may also support the fact that the European Venture Capital industry is by far more underdeveloped compared to the U.S.



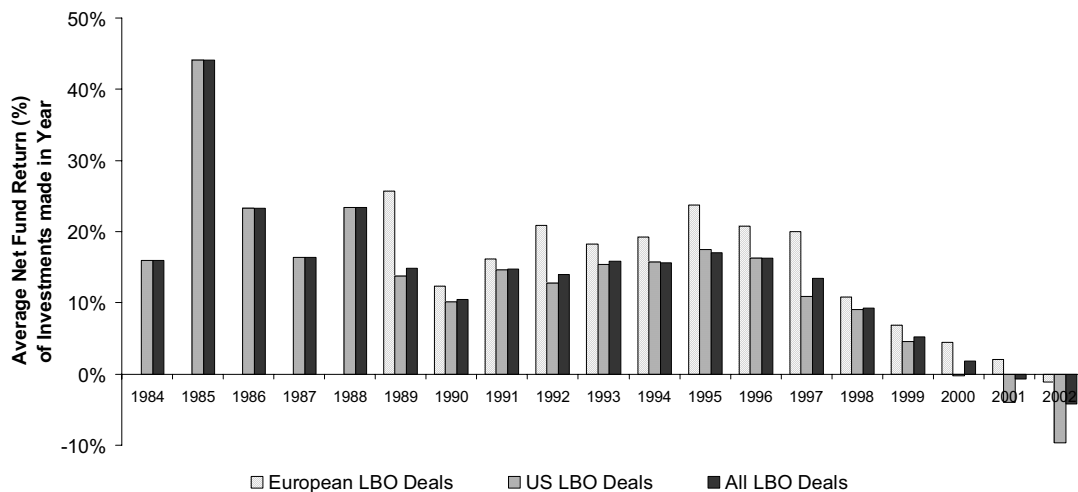
**Figure 39: Average Net Venture Capital Fund Returns (1980-2002) of Investments made by Year and by Region (Fund's jurisdiction)**

Source: Venture Economics data, analyzed by author.

By contrast, average fund returns of investments made by European buyout funds have consistently been higher than in the U.S., with spreads in the range of 5% and up to 10% in single years. In 1989, European funds appear to have been less affected by the stock market shock, yielding average net fund returns on investments in this year of 25.7% compared to U.S. average returns of 13.8%. The apparent higher resistance to external shocks, e.g. fall in stock markets or economic downturns, is also confirmed in 1992, when average net funds returns on European investments were 20.9% compared to 12.8% in the U.S., as well as more recently in 2002, when average net funds returns on European investments were -1.1% compared to -9.6% in the U.S. The results of

<sup>78</sup> It is assumed here that the majority of investments across all funds are also made in the country (region) of the fund's jurisdiction, i.e. a fund raised in the US is on average investing in the US.

this analysis give strong support for the rationale of strong growth of the European buyout industry during the 1990s until today. Fund investors on average should expect higher returns on their investments in European buyout funds compared to the U.S. There are several potential explanations for the consistently higher returns. First, the European market has traditionally been less competitive than the U.S., with a lower number of active Private Equity players. Second, structural and cultural differences between U.S. and European firms, e.g. different corporate government systems with less shareholder value orientation, could provide higher opportunities to create value in European buyout targets.

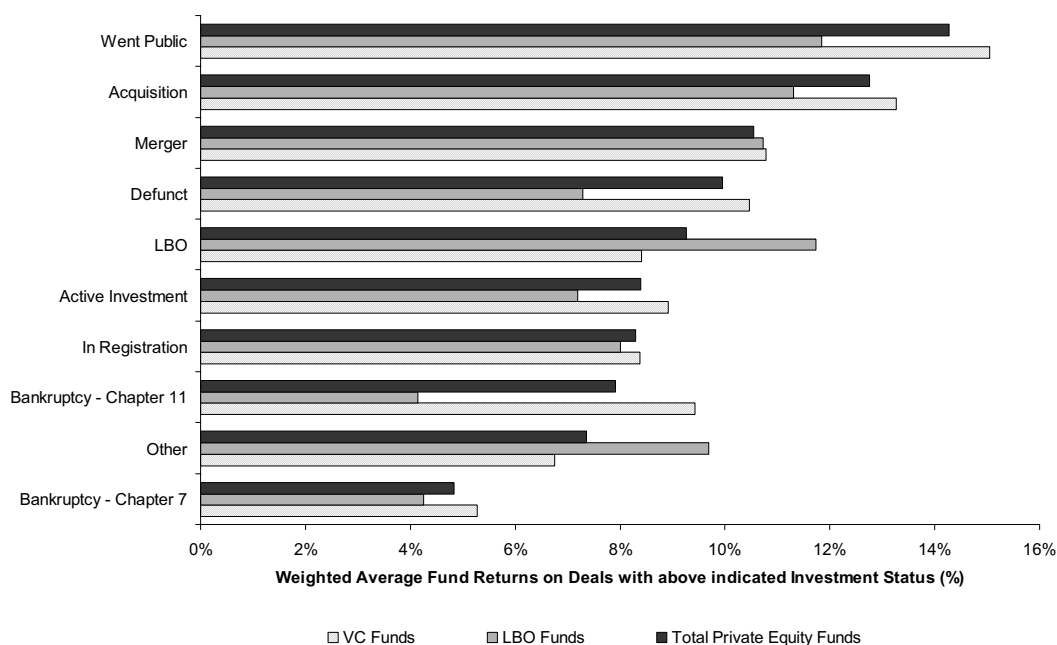


**Figure 40: Average Net Buyout Fund Returns (1980-2002) of Investments made by Year and by Region (Fund's jurisdiction)**

Source: Venture Economics data, analyzed by author.

#### 4.2.2.9. Performance by Exit Mode of Private Equity Investments

The classification of the investment status of deals in the Venture Economics database allows for an indirect interpretation of performance with respect to its exit mode. Not surprisingly, average funds returns were adversely affected when underlying investments went into registration/bankruptcy. Average fund returns with considerable active investments outstanding, i.e. unrealized deals of non-closed funds, yield a return of 8.4 per cent for all Private Equity transactions, 7.2 per cent for buyout transactions and 8.9 per cent for Venture Capital transactions. Regarding the exit mode returns, average fund returns of investments that underwent an initial public offering yields the highest return of all exit routes with 14.3 per cent for all Private Equity transactions, 11.8 per cent for buyout transactions and 15.1 per cent for Venture Capital transactions, emphasizing the importance of this preferred exit route to both buyout and Venture Capital funds.



**Figure 41: Weighted Average Net Fund Returns of Funds based on Investment Status**

Source: Venture Economics data, analyzed by author.

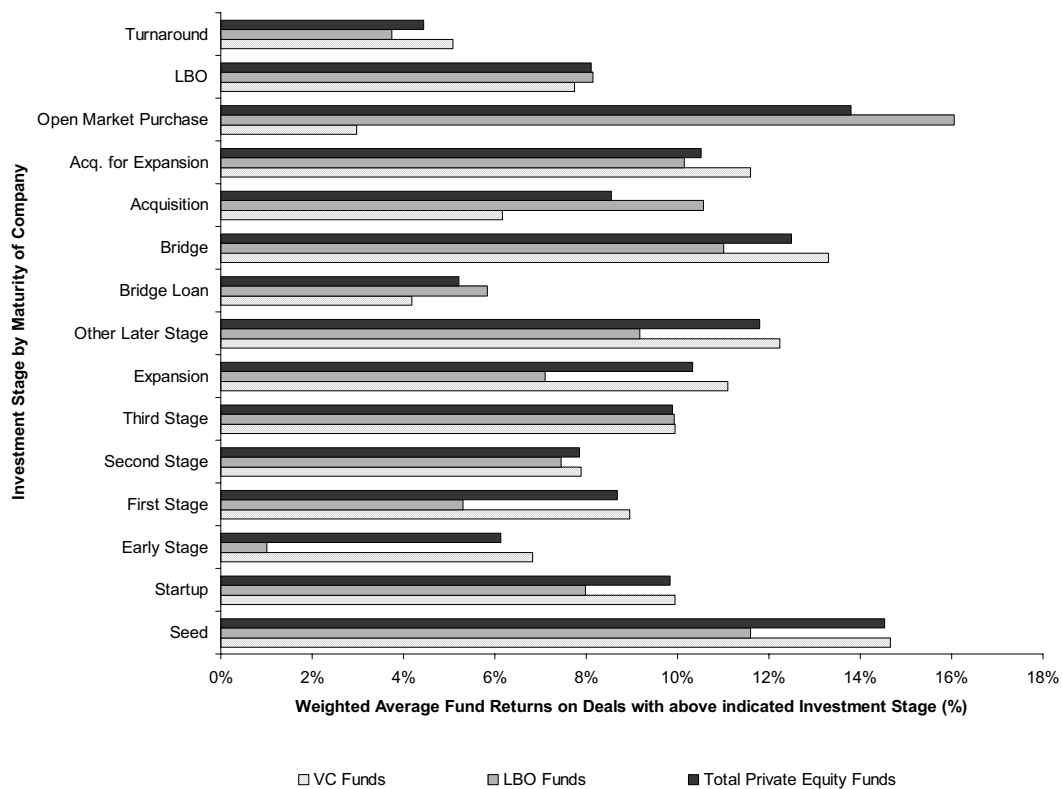
With respect to non-public market exit routes, strategic acquisitions follow the public market route as the most attractive exit mode. Average fund returns on strategic acquisitions are 12.8 per cent for all Private Equity transactions, 11.3 per cent for buyout transactions and 13.3 per cent for Venture Capital transactions. The apparently high average purchase price paid by strategic acquirers to the funds points to potentially attractive perceived synergies in these deals. As a consequence, potential synergies in merger transactions are more equally shared between acquirer and seller (the fund), which leads to average fund returns of investments that underwent mergers to be in the lower at approximately 10.5 per cent.

The (secondary) leveraged buyout as an exit route of an investment on average ranks behind both the public market as well as the other corporate acquisition modes, yielding 9.3 per cent of average fund return on these transactions. However, for buyout funds, this exit route is significantly higher, yielding 11.7 per cent of average fund returns, which is comparable to the most attractive exit via an initial public offering. This underscores that buyout funds are able to create considerably higher value from secondary buyouts than other Private Equity funds (i.e. Venture Capital funds). One possible explanation could be seen in the extensive experience of buyout firms with this type of transaction. Through in-depth insider knowledge of the investment, the ability to evaluate the investment company's debt capacity coupled with a negotiation advantage over the acquiring fund, the buyout firm appears to make a correct and informed judgment in such a way that by choosing a secondary buyout as exit mode it extracts the maximum possible value from the disposal. This supports similar evidence of an experience effect in leveraged buyout transactions.<sup>79</sup>

<sup>79</sup> Compare analysis in section 5.3. in the second empirical chapter.

4.2.2.10. Performance by Investment Stage of Private Equity Investments

The classification of the investment stage or financing round of deals in the Venture Economics database allows for an indirect interpretation of performance with respect to optimal timing of investment during the lifetime of a company. The overall picture shows no dominant trend with respect to favorable investment timing. Against often cited opposing statements in the Private Equity industry, seed (14.5% average fund IRR) and startup (9.8% average fund IRR) financing display very solid average fund returns. The high returns for the seed and startup stages must be considered, however, as the investor’s compensation for an extremely high level of risk involved in these initial funding rounds. Returns on early stage (6.1% average fund IRR), first (8.7% average fund IRR) and second (7.9% average fund IRR) round financing are less attractive than later financing stages in the maturity of a company such as third stage (9.9% average fund IRR), expansion (9.9% average fund IRR) and other later stage (10.3% average fund IRR) financing. Bridge loan profits (5.2% average fund IRR) are lower than (equity) bridges (12.5% average fund IRR) due to the lower level of risk.<sup>80</sup>



**Figure 42: Weighted Average Net Fund Returns of Funds based on Investment Stage**  
 Source: Venture Economics data, analyzed by author.

<sup>80</sup> In general, bridge loans are secured with share pledges and asset collateral. They can therefore be almost considered as a debt financing instrument.

Open market purchase transactions (13.8% average fund IRR), especially executed by buyout funds, (16.8% average fund IRR), exhibit very high average returns. These deals generally involve buying a controlling stake in underpriced publicly listed companies and forcing management to implement radical changes. LBO deals, which on average returned 8.1% to funds, show the lowest variance between Venture Capital and buyout funds. The average fund return of turnaround investments is low (4.4% of average IRR) and – given the high level of risk involved in these transactions – does not reflect an adequate compensation for risk. Interestingly, Venture Capital funds are more successful (5.1% of average IRR) than buyout funds (3.7% of average IRR). This could potentially be interpreted in such a way that the more entrepreneurial or operationally weighted skill set of Venture Capitalists provides a higher rate of success in turnaround situations.

#### 4.2.2.11. Summary of Findings

This section has provided detailed Private Equity, Buyout and Venture Capital fund performance information based on the secondary control population dataset from Venture Economics. From a historical perspective, buyout funds that were raised in the early “golden years” of the 1980s, i.e. between 1983 and 1985, performed exceptionally well. Funds raised between 1986 and 1991 performed more volatile, with conditions improving notably between 1992 to 1994. From 1995 onwards, the j-curve effect led to a natural decline in average buyout fund returns. One key finding from the dataset was the fact that weighted returns were consistently higher than non-weighted returns, which effectively means that larger funds always performed better. This result proves skeptics of the ever-increasing Private Equity fund sizes wrong and supports a theory of “survival of the fittest” (i.e. largest) among Private Equity firms. The high observed historical returns have been accompanied by equally high, varying levels of risk, measured as standard deviation of fund returns. This could especially be detected for funds raised in the early 1980s, which could be interpreted as a time of “professionalization” and early consolidation of the industry. Not surprisingly given the equity market conditions, fund return volatility between 1999 and 2002 was also exceptionally high, but on average complemented with low levels of return. With respect to most attractive industry sectors for investment, the fund approximation of investment returns showed that the information technology sector produced the highest overall returns. However, buyout funds investing in this sector were found to perform substantially worse than Venture Capital funds, which led to the conclusion that buyout funds should not diversify into early stage investments. By contrast, buyout funds were successful investors in industries such as financial services and basic industries. However, while Venture Capital funds directed most of their capital into industry sectors that produced high returns for them, especially into IT, buyout funds directed most of their capital ill-fated, i.e. without a logical expected ROI pattern.

The comparison of Private Equity returns between countries showed two distinctive trends: first, Venture Capital investing in Europe was dismal, while performing strongly in the U.S.; secondly, buyout fund investing in Europe, by contrast, was significantly more attractive from a return perspective than in the U.S., which supports theories of Europe as a less competitive buyout

investment landscape. Among individual countries, Scandinavia (Sweden and Finland), Italy, the United Kingdom and Luxembourg proved to reward buyout funds raised in these jurisdictions with above average (and above U.S.) returns. Finally, the analysis of exit methods of investments in the Venture Economics database exhibited that initial public offerings had the most beneficial impact on fund returns, followed by strategic sales. On the entry side, public-to-private transactions undertaken by buyout funds demonstrated to be highly lucrative, while Venture Capital investment showed exceptional returns on the seed capital and later-stage financing events for their investing funds.



### 4.3. Leveraged Buyout Deal Performance

The performance of Private Equity as an investment asset class has historically been an under-researched field, mainly because of a general lack of access to data of these private transactions. Several authors have contributed more recently to lift some of the mystery around cash flow, return and risk characteristics. Kaplan and Schoar (2003) using a data set of individual fund returns collected from Venture Economics, the Private Equity industry information provider, investigate performance of Private Equity partnerships and find that average returns net of fees approximately equal the S&P 500 performance over the sample period, although there is a large degree of heterogeneity. By contrast, Ljungqvist and Richardson (2003) using actual cash flow information show that Private Equity generates excess returns on the order of five plus per cent per annum relative to the aggregate public equity market, which they interpret as a compensation to investors for holding a 10-year highly illiquid investment.

However, despite these new insights in the return dynamics of Private Equity investment, both papers focus on net fund level returns to Limited Partners. They lack the critical link to each underlying portfolio company and their respective performance and gross contribution to the fund. Moreover, no information has been available for them to analyze, what the actual drivers of value creation (or value destruction) had been for each individual investment. On the fund level, they have not provided important descriptive information about return characteristics of certain industry segments and across time. Therefore, based on the primary sample, the following sections of the first empirical part of this study seek to provide more in-depth answers to the following questions:

1. *Do Private Equity Funds, especially LBO Funds, and in particular individual LBO transactions create value, i.e. do they provide (market-adjusted)<sup>81</sup> abnormal returns for investors? If so, how does this performance compare to performance of public market indices in the exact same industries over the exact same time horizon?*
2. *How do we explain this performance on the LBO deal-level? Which intrinsic and extrinsic factors are driving the underlying value creation mechanisms that determine the observed performance?*

This first section will study buyout deal performance on the company level and focus on question two of the above by examining some of the market and acquisition related value drivers in detail. The subsequent section will then compare buyouts to public market performance and explores industry financial drivers in more detail.

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<sup>81</sup> Market-adjusted means returns after deducting returns achieved by comparable investments in public market securities (stocks, indices) over the same time period. Note that the return comparison is not risk-adjusted.

### 4.3.1. Test Setting

The results from the control group analysis in section 4.2. have provided a first illustration that there is a range of general trends in buyout returns across time and industries. In order to make these trends more explicit as well as to control for these effects and other market and acquisition related effects throughout this study, each of these trends and potential impacts is being tested for statistical significance with respect to buyout returns. The groups of variables tested in this section include:

- Realized vs. Unrealized buyout deals
- U.S. vs. European buyout deals
- Buyout deals by country of origin
- Buyout deals by industry classification
- Buyout deals by percentage of ownership stake acquired
- Buyout deals by deal size
- Buyout deals by investment holding period
- Buyout deals by entry mode
- Buyout deals by exit mode
- Buyout deals by entry type
- Buyout deals by exit type
- Buyout deals by General Partner

Descriptive results on the primary sample according to these dimensions will be presented in a similar way as for the control group sample of Venture Economics data. In addition, each group of variables is tested through multivariate regression models. The test section ends with a combined regression among all of the above outlined variables in order to illustrate the combined explanatory power of these “control” variables.

#### 4.3.1.1. Tested Variables and Hypotheses

In the following, several testable hypotheses for the above outlined variable groups are presented, based on (i) findings from the control group, (ii) literature findings, and (iii) pre-study industry expert interviews.

The *investment status* of the buyout target under review is likely to determine the average level of reported gross performance. As observed in section 4.2.2.1. of the control sample analysis, the J-curve effect necessarily leads to low return characteristics of recently, non-exited investments. It is therefore expected that

- H1.) Gross buyout deal performance of unrealized transactions is lower than for realized buyout deals.*

As observed in section 4.2.2.2. of the VE dataset, there have been exceptionally high returns for some **transaction years**, especially in the early 1980s and during the information technology boom (and accompanying stock market rally). Accordingly, it is expected that

*H2.) Gross buyout deal performance for transactions undertaken during the early 1980s as well as during the internet boom and stock market rally between 1997 and 2000 is higher than for other years under review.*

As observed in the control sample in figure 38 in section 4.2.2.8., the **geographic location** seems to have an impact on buyout fund return. European buyout funds have performed significantly better than their comparable U.S. funds. From an industry point of view, this is supported by the overall trend of U.S. funds to set foot in Europe and/or to invest in European transactions. In line with the results for buyout funds, it is expected that

*H3.) Gross buyout deal performance of European transactions is higher than for U.S. target companies.*

The **country/region of the buyout target** might have an effect on performance due to country-specific (tax) laws and regulation or volatility and growth of GDP. The results for buyout net fund returns according to country in section 4.2.2.7. underlined the above finding that funds based on European jurisdictions, e.g. Scandinavia, have been more successful than their U.S. counterparts. Accordingly, it is also expected that

*H4.) Gross buyout deal performance for transactions undertaken in European nations are by and large higher than for U.S. target companies.*

The **industry of the buyout target** might affect buyout performance, as each industry relies on its specific growth dynamics, business cycles, competition, etc. Less volatile industries, e.g. utilities, food & beverage, commodities offer greater stability, but also less growth potential, which may determine the success of the buyout. The VE dataset analysis revealed that several industries, including the financial services and information technology sector have demonstrated attractive returns overall, but investments by buyout funds in the information technology sector have been dismal. However, these results have been based on a proxy measure of fund return. Based on the primary sample of LBOs, this trend will therefore be verified. It is therefore expected that

*H5.) Gross buyout deal performance for investments undertaken in the information technology sector has been lower than in other industries.*

The **percentage of ownership stake** acquired is to some extent directly impacting the level of influence of the acquiring General Partner and its ability to exercise control over management decisions. La Porta, Lopez de Silanes et al. (1999) in their analysis of corporate ownership around the world found that minority shareholders are systematically expropriated. The dynamics in the private market for buyouts may be similar, i.e. minority investments of buyout firms are dependent on decisions of the majority control holders. It is therefore expected that

*H6.) Gross buyout deal performance for minority investments in buyout targets is lower than transactions, in which the General Partner has majority control (defined as more than 75%).*

The size of the buyout target might be an indicator for buyout performance. However, as financial information is only available for a smaller sample of buyouts, the **amount of capital invested** serves as a proxy for the size of the business. An acquisition of a smaller target could have advantages for faster deal execution and implementation of value enhancing strategies. Section 4.2.2.6.1. has shown that capital allocation by Venture Capital funds was more efficient across industries than buyout funds. However, section 4.2.1. provided initial evidence that the rise in average fund sizes could be related to the fact that larger funds (with therefore larger investments) achieved higher returns, i.e. outperform. Based on the LBO deal sample, it is therefore expected that

*H7.) Gross buyout deal performance for larger investments in buyout targets is higher than for transactions with low investment.*

Based on the theoretical computation of the IRR formula (see section 3.5.3.), the longer the time between investment into the company and exit, i.e. **the investment's holding period**, the higher must be the gain at the time of exit to generate meaningful IRRs. The exit is conditional on the speed with which the sponsor is able to implement its value creation strategy and to some extent on capital market conditions. It is therefore expected that

*H8.) Gross buyout deal performance is lower the longer the holding period of the investment is.*

As mentioned above, the entry and exit conditions of buyout transactions are expected to be important explanatory variables of performance. The **entry mode** into the buyout company can have several different forms for the buyout firm. Possible entry modes include (i) an outright acquisition of the target by the sponsor or through a third party (i.e. resulting into a minority investment in the latter case), (ii) a participation in an acquisition financing, i.e. either through investment in equity, preferred equity or a high yielding debt instrument by the sponsor, (iii) growth capital, in which a buyout fund either participates in a venture-type financing or supports a buyout's growth strategy at a later stage than at the time of the original acquisition, and (iv) a recapitalization of the company, in which the target is being re-levered with debt to allow a special dividend to the sponsor. The former two options are therefore investments at the time of the initial buyout, while the latter two at a later stage. It is therefore expected that

*H9.) Gross buyout deal performance is higher for initial acquisitions than for later stage financing injections as the potential for value creation is likely to be higher at the time of the original buyout.*

Section 4.2.2.9. of the VE control sample has established that the public market **exit mode** has performed better than private market exits, i.e. strategic sale or secondary LBO. Especially in

favorable equity market conditions, buyout firms may be able to generate a premium from initial public offerings of their portfolio companies. It is therefore expected that

*H10.) Gross buyout deal performance is higher for transactions exited through initial public offerings than through private exit transactions.*

Not only may the entry and exit mode from a capital market condition point of view affect buyout performance, but also the surrounding negotiations at entry and exit of the investment. There are several **entry type** options to gain control over a buyout target: a negotiated sale between target shareholders and buyout firm through direct engagement, a “brokered” deal through a buy-side intermediary, such as an investment bank or business broker, or through an auction process initiated by the shareholders of the buyout target. In general, the less competitive the bidding process is, the higher the probability to negotiate an attractively low entry premium for the target. Hence, the negotiated sale should be preferred to brokered deals and competitive auctions. It is therefore expected that

*H11.) Gross buyout deal performance is higher for transactions with less competitive entry types.*

Conversely, the **exit type** alternatives equally include a negotiated sale, a brokered deal through a sell-side intermediary, a competitive auction process or – an initial public offering. The commonly more competitive of the available exit types, i.e. the auction and public offering (effectively a type of auction), should on average guarantee a higher payoff to the sponsor. It is therefore expected that

*H12.) Gross buyout deal performance is higher for transactions with more competitive exit types.*

Although less a market than an acquisition related variable, the **General Partner** seeking to purchase a buyout target may be a direct determinant of the buyout’s success. Efficient market theory would suggest that no investor (here: General Partner) should be able to generate abnormal returns on a consistent basis. In other words, statistical analysis should demonstrate that buyout firms cannot be an explanatory variable to describe buyout returns. However, the goal of this study is to examine whether there is a “GP effect” in leveraged buyouts, based on the GP’s experience profile and investment track record. Should this hypothesis be rejected, there will be some first evidence to further study the “GP effect” in buyouts:

*H13.) Gross buyout deal performance is not significantly better or worse for any individual buyout firm, based on efficient market theory.*

#### 4.3.1.2. Methodology and Data

Data in this study from this section onwards are based on a new primary dataset (“Limited Partners’ data”), gathered by the author, based on 3,009 leveraged buyout transactions undertaken by 84 General Partners and drawn from 252 funds between 1973 and 2003 that were collected from due diligence material and Private Purchasing Memoranda (PPMs) from several large institutional

investors (Limited Partners). However, the dataset is highly heterogeneous with respect to depth of data for each individual buyout transaction, as General Partners differ in their reporting approach. In spite of this, the data offers several distinct advantages: (i) the analysis focuses on deal level gross performance, while the above presented secondary data from Venture Economics is based on net fund performance<sup>82</sup>, which has been used as a proxy for deal level analysis, (ii) the broad underlying information permits that more aspects of individual transactions (i.e. variables) than for the uniform Venture Economics data can be defined. However, the various variables are overall based on lower sample (and subsample) size compared to the Venture Economics data, which implies higher variance in results.<sup>83</sup> Therefore, the following tests of the above defined variable groups had to be run on different sample sizes. Nevertheless, due to the large initial sample size, each test overall ensures that the sub-sample also carries a sufficient number of transactions in order to make reasonable generalizations and to draw meaningful conclusions.

When interpreting the presented data, it is essential to analyze the statistical significance of both the variables under examination (as well as control variables in later tests). The statistical analysis is intended to substantiate the interpretation and validity of the presented descriptive primary data and therefore adds to the level of detail from observation of the VE dataset. For those variables under review, which are found to be statistically significant, theory-building can be supported through an affirmed acceptance or rejection of the above outlined operational variable and general hypotheses. First, descriptive statistics, Pearson's correlations and linear regression for each variable under consideration will be reported. Some of these variables may later represent control variables that will subsequently be utilized in advanced regressions. Secondly, multivariate regression models will estimate the combined explanatory power of (the significant) variables towards the variance in the dependent variable gross IRR performance.

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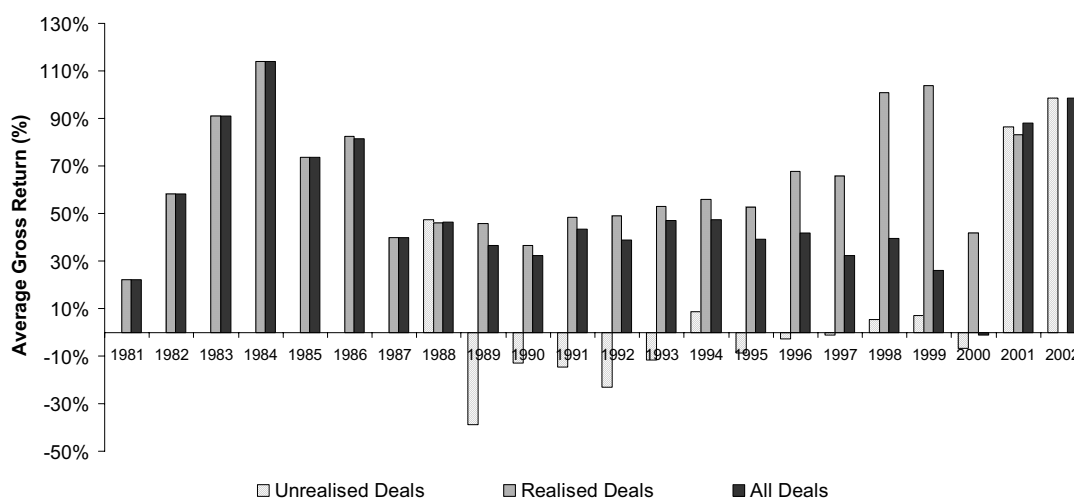
<sup>82</sup> "Gross" deal performance is defined as absolute return on invested (fund) capital, after fees and expenses, but before carried interest. In other words, it represents the true underlying performance of the particular buyout investment. This view is critical for any analysis of value creation in leveraged buyouts, as the focus is on the target's performance and its drivers rather than net returns to fund investors (Limited Partners). By contrast, net fund performance is defined as actual net cash inflows received by the Limited Partner from the General Partner for each realized investment (unrealized investments may be valued at market prices), after deduction of fees, expenses and carried interest. Consequently, gross performance in this presentation will always be higher than net performance. When interpreting gross IRR data, it should also be kept in mind that the required minimum target IRR for investments considered by buyout firms ranges between 25-35%. Also, the sample does not contain first time funds, which results in an indirect survivorship bias towards the more successful buyout funds (see section 3.6.4. for detail). Finally, in several instances, the analysis focuses on realized transactions, which naturally post higher returns compared to unrealized deals.

<sup>83</sup> In general, results are based on a minimum sample size of ten transactions (mainly in empirical part 3 – strategy), with few exceptions, to allow for diversification of individual transaction performances and validity and generalizability of results. This section generally tests several hundred buyouts for each variable.

### 4.3.2. Buyout Performance by Year

#### 4.3.2.1. Overview of Buyout Performance by Year

Overall gross deal performance of the Limited Partners' data shows a similar trend as the Venture Economics data (see section 4.2.2.2.). Buyout performance of the Limited Partners sample reached record levels in the early 1980s, growing from 22.3% average gross IRR in 1981 to an average gross IRR of 114.1% in 1984.<sup>84</sup> Increasing competition among buyout firms already led to slightly lower returns in 1985 and 1986 of approximately 75% average gross IRR, but dropped to a much larger extent when fundraising activity accelerated in 1987 (compare section 4.2.1.). Between 1987 and 1996, average gross IRRs among all buyout deals balanced out between more modest 40-45% with the exception of a smaller setback in 1989 and 1990, following the stock market crash and weaker economic environment. Between 1997 and 1999, returns began to fall from 32.3% to 26.0% average gross IRR, reaching -1.2% average gross IRR in 2000.



**Figure 43: Average Gross Returns of Buyout Deals by Investment Status and by Year (1981-2002)**

Source: INSEAD Buyout Database, analyzed by author (Deal N=3,051).

#### 4.3.2.2. Realized vs. Unrealized Buyout Performance by Year

These results have to be interpreted with respect to the differentiation of realized and unrealized transactions<sup>85</sup>, and their (valuation) influence on total average performance. In 1989, the year after the stock market crash, the average IRR of unrealized deals plummeted to -38.7% on the back of a range of buyout bankruptcies, which led to considerable fund portfolio write-offs.<sup>86</sup> In other instances, these underperforming transactions were carried along in the General Partner's portfolios

<sup>84</sup> Note that only realized transactions have been reported and recorded for the years between 1981 to 1987.

<sup>85</sup> Note to the reader: the presentation of performance results on all Limited Partner data from this section onwards will generally be according to two major splits, between (i) realized, unrealized and across all transactions, and/or (ii) between US, European and transactions across both (all) geographies.

<sup>86</sup> Treated as an internal rate of return of -100% for the respective buyout in the database.

for a prolonged period, as no attractive exit opportunities at justifiable valuations were available. This trend of substantially underperforming unrealized deals, albeit at a lower level than in 1989, continued throughout the adverse and volatile investment period between 1989 and 1993 (global recession and 1<sup>st</sup> Iraq war). The period from 1996 to 1999 was characterized by increasingly strong returns for realized buyout deals, reaching 103.8% average gross IRR in 1999. The high returns were enhanced by an exceptionally favorable stock market environment, resulting in high exit valuations. Despite sharply declining stock markets from March 2000 onwards, General Partners were still able to exit a range of investments at attractive valuations, confirmed by an average gross realized deal IRR of 41.9% for the year.

In 2001, only six transactions in our sample were exited (hence low scope for generalizability), yet at a high average gross realized deal IRR of 83.2%. Despite this low number of realized deals in 2001 and although there have not been any realized deals in 2002, the high average valuation of 87.9% for 2001 and 98.5% for 2002 of average gross deal IRR is a unexpected result, when compared to the broader average fund performance in the VE dataset in section 4.2.2.2. This result has to be scrutinized with respect to potentially overstated or over-optimistic performance expectations by General Partners at that time. It is largely driven by unrealized transactions and may root in the accounting and valuation policy of the respective buyout funds. In most cases and according to market practice, General Partners hold their unrealized investments at cost for up to ca. 18 months, which may either under- or overstate actual performance of the underlying investment. Buyout funds that were disclosing their Private Purchasing Memoranda between 2000 and 2003, which have been included in this sample, may have chosen not to keep unrealized investments at cost and valued them at market prices (or above with a view on fundraising marketing purposes). The high valuations attributed to 2002 (and the negative cash flow-based fund return profile for this period derived from the VE dataset) raise serious doubts that these expected unrealized investment returns will eventually materialize. One supporting argument though for these high expected returns could be seen in the attractively low asset valuations, at which buyout funds were able to execute acquisitions in 2001 and 2002.

#### 4.3.2.3. European vs. U.S. Buyout Performance by Year

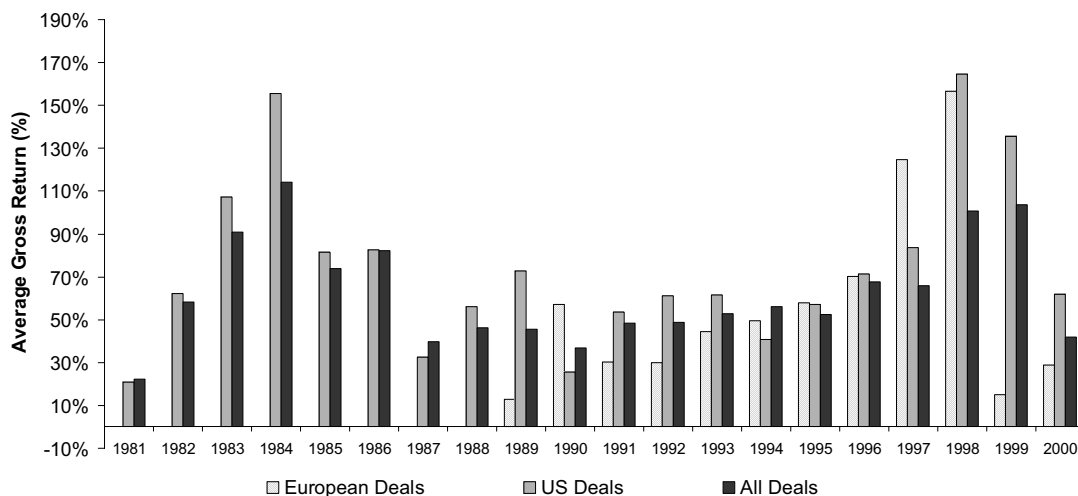
The sample distribution results for realized gross deal performances by geographic region U.S. vs. Europe illustrate an analogous picture of the overall performance by year, characterized by strong performance in the early 1980s and late 1990s.<sup>87</sup> However, in contrast to the results of the Venture Economics dataset in section 4.2.2.8. (figure 40), showing consistently stronger returns for European funds, the deal level data presents mixed outcomes with respect to geographic region:

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<sup>87</sup> Note with respect to correct graphical interpretation that not all deals in the INSEAD buyout database could be assigned to a geographic region, hence the average IRR of all deals includes US deals, European deals and non-assigned deals, which are either based in one of the former or in the rest of the world. Data for (European) transaction years with less than eight transactions per year has been omitted, i.e. prior to 1989.



average European deal performance is only higher in four of the twelve comparable years. The contradiction in favor of the U.S. especially holds true for 1989, with average gross realized IRR of 12.9% for European deals and 72.7% for U.S. deals, as well as 1992, with average gross realized IRR of 30.0% and 61.3% respectively. The Venture Economics fund performance data had shown that European deals led to higher results in these “external shock” years. Between 1994 and 1998, performance among European deals was higher or broadly similar to U.S. deals. Also, on the contrary to the Venture Economics data, European gross buyout deal performance was significantly lower in 1999 and 2000 compared to U.S. deals, even when using weighted average returns. One possible explanation could be that exit conditions in Europe have been more volatile and deteriorated earlier than in the U.S.



**Figure 44: Average Gross Returns of Realized Buyout Deals by Region and by Year (1981-2002)**

Source: INSEAD Buyout Database, analyzed by author (Deal N=1,679).

#### 4.3.2.4. Regression Results

As reflected in the above trends, the entry (exit) year of the buyout transaction may affect the value creation potential, i.e. the performance of the dependent variable IRR, through various external factors, e.g. (i) industry financial performance and growth expectations, (ii) stock market performance and asset valuations, (iii) investment climate, changes in the regulatory environment or legislation.

##### 4.3.2.4.1. Descriptive Statistics

The descriptive statistics on the sample of 1,746 realized buyouts shows that three entry years – 1984, 1998 and 1999 – are significantly positively correlated at the 0.01 level (2-tailed) with the dependent variable IRR. Among exit years, the years 1988 and 1989 are positively correlated at the 0.01 level (2-tailed), and the exit year 1987 is positively correlated at the 0.05 level (2-tailed). Also, the exit year 2001 is negatively correlated with acquisition performance at the 0.01 level (2-tailed).

Descriptive and Correlation Statistics								
Variable (Dummy Tested)	N <sup>(1)</sup>	Minimum	Maximum	Sum <sup>(2)</sup>	Mean	Std. Deviation	Pearson Correlation	Sig. (2-tailed)
Entry Year 1980	1746	0	1	3	0	0,041	-0,028	0,249
Entry Year 1981	1746	0	1	12	0,01	0,083	-0,026	0,27
Entry Year 1982	1746	0	1	12	0,01	0,083	0,025	0,304
Entry Year 1983	1746	0	1	19	0,01	0,104	0,005	0,825
Entry Year 1984	1746	0	1	27	0,02	0,123	0,088**	0
Entry Year 1985	1746	0	1	33	0,02	0,136	0,015	0,527
Entry Year 1986	1746	0	1	64	0,04	0,188	0,046	0,055
Entry Year 1987	1746	0	1	58	0,03	0,179	-0,025	0,299
Entry Year 1988	1746	0	1	83	0,05	0,213	-0,015	0,54
Entry Year 1989	1746	0	1	59	0,03	0,181	-0,036	0,133
Entry Year 1990	1746	0	1	92	0,05	0,223	-0,043	0,07
Entry Year 1991	1746	0	1	105	0,06	0,238	-0,032	0,175
Entry Year 1992	1746	0	1	103	0,06	0,236	-0,044	0,068
Entry Year 1993	1746	0	1	145	0,08	0,276	-0,046	0,054
Entry Year 1994	1746	0	1	151	0,09	0,281	-0,042	0,081
Entry Year 1995	1746	0	1	176	0,1	0,301	-0,031	0,188
Entry Year 1996	1746	0	1	159	0,09	0,288	-0,003	0,891
Entry Year 1997	1746	0	1	166	0,1	0,293	0,025	0,298
Entry Year 1998	1746	0	1	117	0,07	0,25	0,072**	0,003
Entry Year 1999	1746	0	1	89	0,05	0,22	0,103**	0
Entry Year 2000	1746	0	1	44	0,03	0,157	0,041	0,086
Entry Year 2001	1746	0	1	7	0	0,063	0,045	0,059
Entry Year 2002	1746	0	0	0	0	0		
Exit Year 1985	1746	0	1	7	0	0,063	-0,003	0,914
Exit Year 1986	1746	0	1	25	0,01	0,119	0,029	0,233
Exit Year 1987	1746	0	1	23	0,01	0,114	0,054*	0,025
Exit Year 1988	1746	0	1	37	0,02	0,144	0,119**	0
Exit Year 1989	1746	0	1	29	0,02	0,128	0,084**	0
Exit Year 1990	1746	0	1	23	0,01	0,114	0,017	0,468
Exit Year 1991	1746	0	1	43	0,02	0,155	0,011	0,642
Exit Year 1992	1746	0	1	45	0,03	0,159	-0,005	0,847
Exit Year 1993	1746	0	1	88	0,05	0,219	-0,017	0,488
Exit Year 1994	1746	0	1	83	0,05	0,213	0,001	0,951
Exit Year 1995	1746	0	1	108	0,06	0,241	-0,02	0,414
Exit Year 1996	1746	0	1	127	0,07	0,26	-0,02	0,393
Exit Year 1997	1746	0	1	159	0,09	0,288	-0,01	0,664
Exit Year 1998	1746	0	1	190	0,11	0,312	-0,012	0,629
Exit Year 1999	1746	0	1	169	0,1	0,296	0,021	0,373
Exit Year 2000	1746	0	1	320	0,18	0,387	0,031	0,199
Exit Year 2001	1746	0	1	127	0,07	0,26	-0,075**	0,002
Exit Year 2002	1746	0	1	59	0,03	0,181	0,004	0,88
Exit Year 2003	1746	0	1	12	0,01	0,083	0,039	0,103
Valid N (listwise)	1746							

(1) Total sample size of tested cases (all realized transactions). Includes years not specified.

(2) Number of cases where dummy variable = 1, i.e. number of transactions per year.

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

**Table 11: Descriptive and Correlation Statistics on Entry and Exit Years**

The positive correlations indicate that those years were characterized by very favorable entry and exit conditions. Exits from buyout transactions in 2001, in the midst of the technology bubble burst, were significantly unprofitable. The following two tables summarize the entry and exit year descriptive, correlation, coefficient and collinearity statistics.

Model		Coefficients <sup>(a)</sup>						
		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	,605	,391		1,545	,123		
	Entry Year 1980	-1,031	1,130	-,023	-,912	,362	,882	1,134
	Entry Year 1981	-,382	,659	-,017	-,580	,562	,652	1,535
	Entry Year 1982	,761	,659	,034	1,155	,248	,652	1,535
	Entry Year 1983	,304	,575	,017	,528	,597	,542	1,843
	Entry Year 1984	1,520	,527	,101	2,884	,004	,456	2,193
	Entry Year 1985	,413	,505	,030	,818	,414	,408	2,453
	Entry Year 1986	,649	,454	,065	1,430	,153	,266	3,766
	Entry Year 1987	-,040	,460	-,004	-,088	,930	,284	3,516
	Entry Year 1988	,087	,440	,010	,198	,843	,220	4,546
	Entry Year 1989	-,149	,459	-,014	-,324	,746	,281	3,557
	Entry Year 1990	-,133	,436	-,016	-,305	,760	,204	4,909
	Entry Year 1991	-,029	,430	-,004	-,068	,945	,184	5,426
	Entry Year 1992	-,116	,431	-,015	-,269	,788	,187	5,347
	Entry Year 1993	-,076	,420	-,011	-,181	,857	,144	6,961
	Entry Year 1994	-,043	,419	-,007	-,103	,918	,139	7,184
	Entry Year 1995	,034	,415	,006	,083	,934	,124	8,093
	Entry Year 1996	,190	,418	,029	,456	,648	,134	7,478
	Entry Year 1997	,353	,417	,056	,848	,397	,129	7,733
	Entry Year 1998	,710	,427	,095	1,665	,096	,170	5,895
	Entry Year 1999	1,037	,437	,122	2,374	,018	,209	4,788
Entry Year 2000	,686	,479	,058	1,431	,153	,342	2,924	
Entry Year 2001	1,537	,797	,052	1,930	,054	,762	1,313	
2	(Constant)	-,215	,216		-,999	,318		
	Exit Year 1985	,954	,725	,032	1,316	,188	,915	1,093
	Exit Year 1986	1,471	,425	,094	3,463	,001	,753	1,328
	Exit Year 1987	1,895	,438	,116	4,323	,000	,768	1,302
	Exit Year 1988	2,531	,370	,196	6,839	,000	,675	1,482
	Exit Year 1989	2,241	,402	,154	5,567	,000	,725	1,379
	Exit Year 1990	1,310	,438	,080	2,989	,003	,768	1,302
	Exit Year 1991	1,160	,353	,096	3,289	,001	,642	1,558
	Exit Year 1992	,977	,348	,083	2,809	,005	,632	1,583
	Exit Year 1993	,895	,291	,105	3,079	,002	,474	2,110
	Exit Year 1994	1,042	,295	,119	3,535	,000	,488	2,050
	Exit Year 1995	,888	,278	,115	3,188	,001	,426	2,345
	Exit Year 1996	,894	,270	,125	3,310	,001	,390	2,563
	Exit Year 1997	,968	,260	,150	3,725	,000	,343	2,916
	Exit Year 1998	,968	,253	,162	3,822	,000	,308	3,243
	Exit Year 1999	1,151	,258	,183	4,469	,000	,331	3,023
	Exit Year 2000	1,151	,239	,239	4,820	,000	,225	4,447
	Exit Year 2001	,529	,270	,074	1,960	,050	,390	2,563
	Exit Year 2002	1,066	,321	,103	3,316	,001	,569	1,758
	Exit Year 2003	1,905	,571	,084	3,338	,001	,863	1,159

(a) Dependent Variable: Gross IRR Performance

Table 12: Coefficients and Collinearity Statistics on Entry and Exit Years

The collinearity statistics on entry years, and especially exit years, show several elevated variance inflation factors (VIF), which could indicate potential multicollinearity problems between variables (here: years). According to Neter, Wasserman et al. (1985), the appropriate rule of thumb for an acceptable level of tolerance of multicollinearity in applied linear regression models – depending on the test setting – represents a maximum VIF factor of 10, before serious multicollinearity problems occur and interpretation of results could be directionally wrong to a severe extent. This study follows this general guideline, nevertheless at all times endeavoring to keep VIF factors as low as possible in any of the presented regression models through an elimination of variables with high collinearity.

#### 4.3.2.4.2. Regression Model

The linear regression models on entry and exit years illustrate the explanatory power of these obvious market related control variables. Entry years generate an adjusted R square of 3.0% and exit years produce an adjusted R square of 3.6%. Both regression models show a significant F change. In other words, entry and exit years will represent important control variables for more advanced regression models.

Linear Regression Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.206(a)	.042	.030	1,835706	.042	3,465	22	1723	.000
2	.216(b)	.047	.036	1,830001	.047	4,445	19	1726	.000

(a) Predictors: (Constant), 2001, 1980, 1982, 1981, 1983, 1984, 1985, 2000, 1987, 1989, 1986, 1988, 1999, 1990, 1992, 1991, 1998, 1993, 1994, 1996, 1997, 1995

(b) Predictors: (Constant), X2003, X1985, X1990, X1987, X1986, X1989, X1988, X1991, X1992, X2002, X1994, X1993, X1995, X2001, X1996, X1997, X1999, X1998, X2000

**Table 13: Linear Regression Model on Entry and Exit Year Dummy Variables**

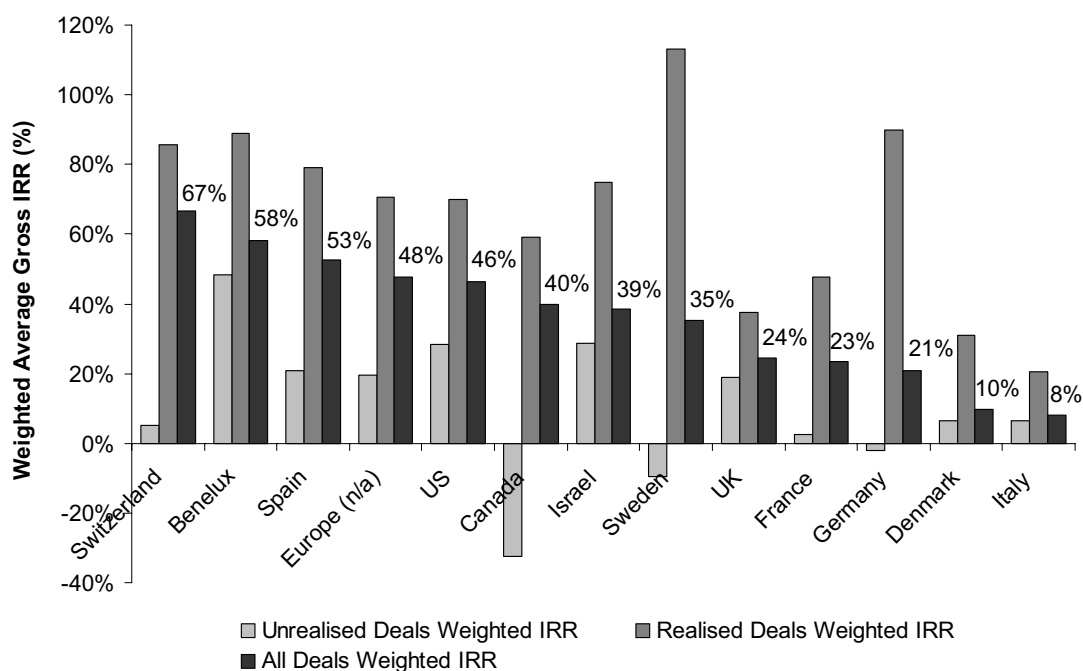
#### 4.3.2.5. Summary of Findings

The year of entry and exit of buyout transactions has been identified as an important value driver. The linear regression model confirmed that these variables are adding explanatory strength to the analysis of buyouts with up to 3.6% of R square for the exit year. Variable hypotheses H1 and H2 can be accepted. Unrealized transactions as expected performed worse than realized deals.<sup>88</sup> Also, with a high significance at the 0.01 level, it can be stated that buyouts undertaken in the years 1984, 1998 and 1999 were anticipated to demonstrate exceptionally high performance from the outset according to the Limited Partners' dataset.

<sup>88</sup> As demonstrated by the graphical description. Statistical proof omitted here.

### 4.3.3. Buyout Performance across Countries

The initial findings in section 4.3.2.3. above showed that the U.S. on average performed better than Europe as a whole in eight out of twelve years under consideration. However, a more detailed analysis of buyout returns across countries, independent of year of acquisition, reveals a different picture. Based on the Limited Partners' data, several European countries dominate with Switzerland achieving the highest weighted average gross IRR of 67% on all transactions undertaken, followed by the Benelux countries (58% IRR), Spain (53% IRR) and a sample of non-country classified Western European country deals (48% IRR). Nevertheless, surprisingly the largest European countries and most active buyout markets in Europe Germany (21% IRR), France (23% IRR) and the UK (24% IRR) show significantly worse performance. However, Germany shows the highest weighted average gross IRR of 90% on realized transactions in central Europe, followed by 89% IRR for Benelux countries and 86% for Switzerland. Germany's overall return is therefore affected by a low valuation of unrealized transactions, which may be an indication of (country-specific) highly prudent accounting under German GAAP. These findings show a mixed picture on European buyout performance, but highlight that European buyouts in some countries have clearly been outperforming the U.S./Canada. Sweden's high realized returns of 113% IRR can be attributed to several very highly successful technology company exits, undertaken by buyout funds, in addition to an overall strong buyout performance.



**Figure 45: Average Gross Returns of Realized Buyout Deals by Country**

Source: INSEAD Buyout Database, analyzed by author (Deal N= 1,985).

#### 4.3.3.1. Regression Results

As reflected in the above trends, the country of origin of the focal buyout transaction may affect the value creation potential, i.e. the performance of the dependent variable IRR, through various external factors, e.g. (i) state of the economy, e.g. GDP growth and interest rate environment, (ii) favorable jurisdiction, tax and regulatory environment, (iii) pool of resources, level of education and relative strength of some industries.

##### 4.3.3.1.1. Descriptive Statistics

The correlation statistics for the country groupings show that only the “U.S./Canada” country variable is (positively and) significantly correlated at the 0.01 level (2-tailed) with the dependent variable IRR. Among other countries, Scandinavia is significant only at the 0.1 level (2-tailed), with a positive Pearson correlation. France has a negative correlation, however, is only significant at the 0.15 level (2-tailed). Overall, these results are unsatisfying for European LBO transactions, as it cannot be statistically validated that there is superiority of returns for some of the European countries.<sup>89</sup> Instead, the U.S./Canada region statistically performs better in the Limited Partners sample.<sup>90</sup>

Descriptive and Correlation Statistics								
Variable (Dummy Tested)	N <sup>(1)</sup>	Minimum	Maximum	Sum <sup>(2)</sup>	Mean	Std. Deviation	Pearson Correlation	Sig. (2-tailed)
<i>Countries/Regions</i>								
Germany/Austria/Switzerland	1746	0	1	16	,01	,095	,022	,357
France	1746	0	1	50	,03	,167	-,034	,150
Rest Of Europe	1746	0	1	231	,13	,339	,014	,546
Rest Of World	1746	0	1	10	,01	,075	,000	,999
Scandinavia	1746	0	1	44	,03	,157	,044	,065
UK/Ireland	1746	0	1	35	,02	,140	-,028	,238
U.S./Canada	1746	0	1	748	,43	,495	,074(**)	,002
Valid N (listwise)	1746							

(1) Total sample size of tested cases (all realized transactions). Includes countries not specified.

(2) Number of cases where dummy variable = 1, i.e. number of transactions per year.

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

**Table 14: Descriptive and Correlation Statistics on Country Variables**

The relatively high standardized coefficient Betas for the U.S./Canada prove that on average doing deals in this region has a positive impact on buyout returns. Although coefficients are not significant, doing deals in France and the UK/Ireland on average has directionally an adverse effect on performance. Undertaking transactions in the rest of Europe, Scandinavia and Germany/Austria/Switzerland does create value for investors, although only validated by slightly lower confidence intervals (Scandinavia at the 0.05 level, Rest of Europe at the 0.1 level). The collinearity statistics show very high tolerances (i.e. very modest variance inflation factors); hence

<sup>89</sup> Please note that for sampling reasons the categorization was aggregated for some countries. Also note the significantly higher sample size of deals classified “U.S./Canada”.

<sup>90</sup> It should be highlighted that the sample overall includes more deals from the US/Canada, especially for the early 1980s, where only few European deals were recorded.

multicollinearity does not appear to be a problem among country variables in this bivariate model context, i.e. transactions in different countries are statistically independent.

		Coefficients <sup>(a)</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	<i>Countries</i>							
	(Constant)	,577	,127		4,554	,000		
	Germany/Austria/Switzerland	,665	,481	,034	1,381	,167	,939	1,065
	France	-,137	,292	-,012	-,469	,639	,835	1,197
	Rest Of Europe	,307	,176	,056	1,743	,082	,556	1,800
	Rest Of World	,238	,601	,010	,397	,692	,961	1,041
	Scandinavia	,749	,307	,063	2,439	,015	,852	1,174
	UK/Ireland	-,130	,338	-,010	-,385	,701	,878	1,139
	U.S./Canada	,396	,144	,105	2,755	,006	,391	2,560

(a) Dependent Variable: Gross IRR Performance

Table 15: Coefficients and Collinearity Statistics on Country Variables

#### 4.3.3.1.2. Regression Model

The linear regression model describing the explanatory strength of the industry classification variables is fairly weak and an expression of the low significance levels found for the individual countries/regions. The adjusted R square is 0.8%. The F value for the model's fit is 2.708 and is highly significant ( $p < .01$ ). The result overall shows that buyout deal making across countries is similar, and that the difference in buyout performance is not country driven. A considerably higher sample size (than the already sizeable 1,134 buyout country sample), especially with more recorded transactions outside of North America (currently 66% of country variables) may in the future allow a more in-depth country comparison. Likewise, an even higher sample size could lead to an increase in significance levels for European countries and could therefore affirm their (descriptively) observed superior performance.

Linear Regression Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Statistics				
					R Square	F Value	df1	df2	Sig. F
1	,111(a)	,012	,008	1,856754	,012	2,708	8	1737	,006

(a) Predictors: (Constant), U.S./Canada, Rest Of World, Germany/Austria/Switzerland, United Kingdom/Ireland, Scandinavia, France, Rest Of Europe

Table 16: Linear Regression Model on Country Variables

#### 4.3.3.2. Summary of Findings

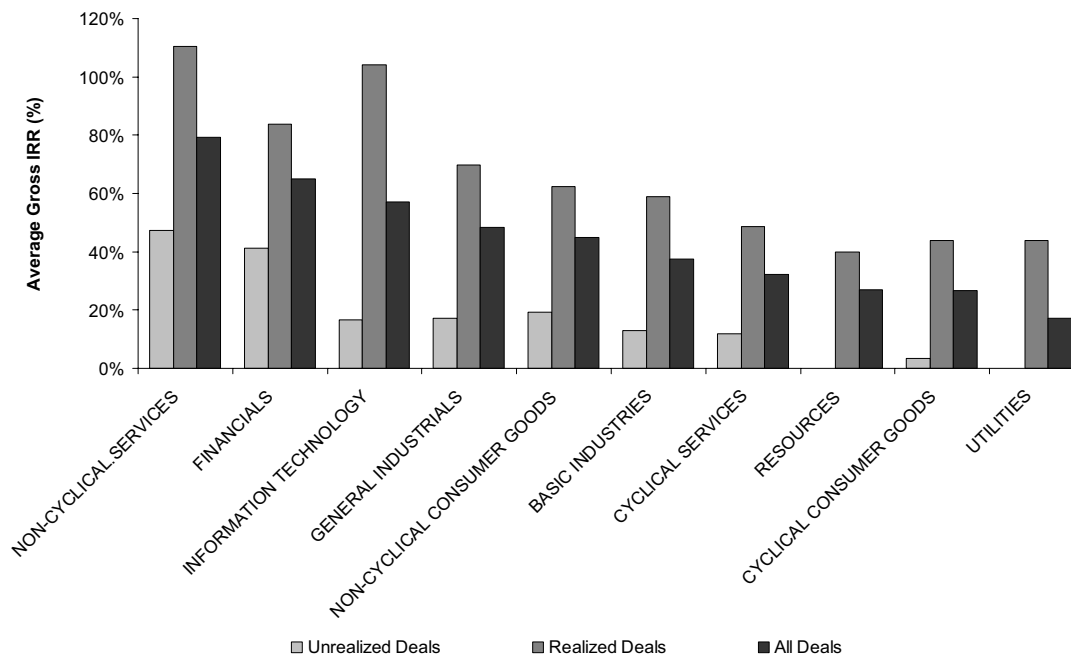
The country of origin of buyout transactions has overall not been identified as an important value driver. The linear regression model has confirmed that these variables are adding minor explanatory strength to the analysis of buyouts with up to 0.8% of R square on the sample on review. Variable hypotheses H3 and H4 cannot be accepted, as although realized returns of some European countries descriptively appear higher, they lack statistical significance to confirm

generalizability. In fact, it was established that deals undertaken in the U.S./Canada (also highest sub-sample size) statistically outperform with significance at the 0.01 level and a strong positive standardized Beta coefficient.

#### 4.3.4. Buyout Performance by Industry Sector

##### 4.3.4.1. Level 3 Industry Classification

The classification of transactions in the INSEAD Buyout database generally has been carried out according the Datastream industry classification on Level 6 (see overview in section 3.6.5.). This classification in sequence allows for an automatic aggregation of gross buyout performance on Level 3, which is presented below.<sup>91</sup>



**Figure 46: Average Gross Returns of Buyout Deals by Industry Sector and Investment Status (1980-2002)**

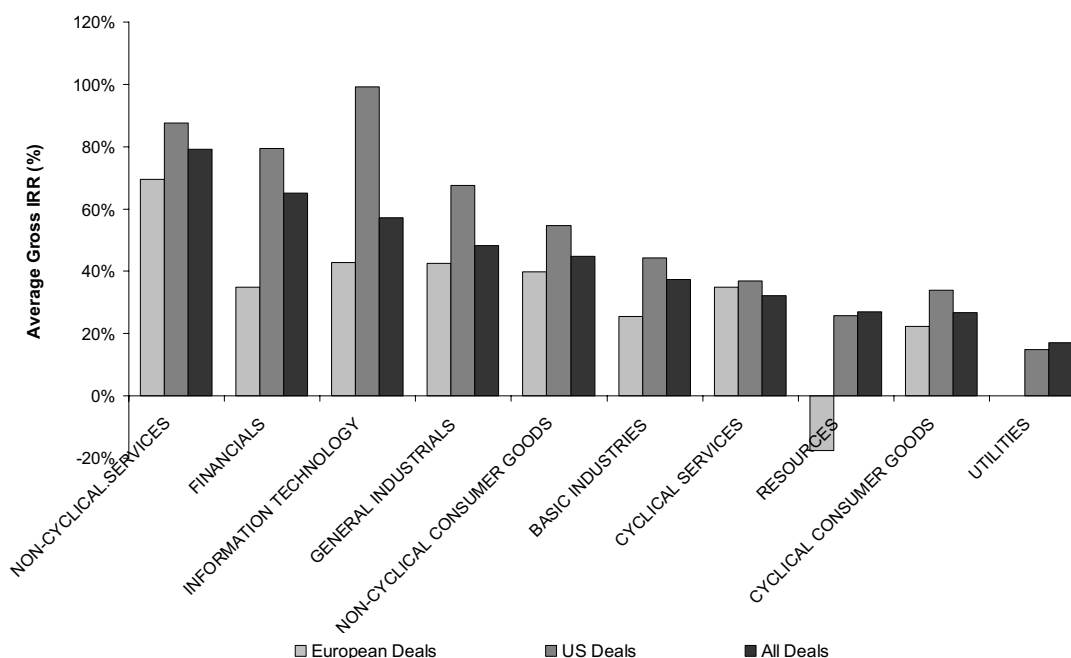
Source: INSEAD Buyout Database, analyzed by author (Deal N=2,348)

The most attractive industry sector in the Limited Partners' data sample has been the non-cyclical services industry with 79.3% average gross IRR, followed by the financial services industry (65.1% average gross IRR), information technology (57.1% average gross IRR) and general industrials (48.4% average gross IRR). These results show both similarities and differences when compared to the Venture Economics control population. In both samples, the financial services

<sup>91</sup> The presentation of Level 3 and Level 4 results is based on a minimum underlying industry sample size of ten transactions (exception: utilities sample size of only six transactions), and sub-sample size of five-seven transactions to allow for a minimum degree of diversification and generalizability of results.



industry ranks very high. However, information technology deals in the Limited Partners sample have performed substantially better than in the Venture Economics sample, where buyout funds clearly demonstrated poor performance in this sector. Utilities (17.1% average gross IRR) demonstrate to be an unattractive industry sector in both samples.



**Figure 47: Average Gross Returns of Buyout Deals by Industry Sector and by Region (1980-2002)**

Source: INSEAD Buyout Database, analyzed by author (Deals N=2,348).

The split according to region of geographic investment focus – U.S. or Europe – confirms above findings that average gross performance of European buyout targets on average lacks behind their U.S. counterparts in this study’s sample.<sup>92</sup> The difference is particularly stark in the information technology industry, where U.S. deals averaged 99.1% gross return against only 42.9% for European deals. In line with prior findings on the VE control population data (see section 4.2.2.8.) on the return dominance of U.S. Venture Capital, this result further confirms that this phenomenon is also valid on the basis of deal level performance<sup>93</sup>. Moreover, European average gross deal performance in the financial services industry significantly lacks behind U.S. deals, with 79.5% and 34.8% of average gross IRR respectively. There could be several explanations for this phenomenon, including (i) the European financial services industry is considerably more fragmented, hence lacking economies of scale when compared to the U.S. and consequently operates less efficient, (ii) nationalistic interests and other barriers to entry inhibit pan-European consolidation and/or build-up strategies.

<sup>92</sup> The results remain unchanged when only considering realized deals in the US and Europe.

<sup>93</sup> The assumption is made that the majority of Venture Capital investments are made in the information technology sector, which appears legitimate when considering number of deals and invested capital in this industry based on the Venture Economics data.

#### 4.3.4.2. Level 4 Industry Classification

The analysis of average gross IRR performance on the more detailed level 4 industry classification reveals the dominance of three sectors. First, the new technologies sector – with information technology and hardware (81.7% average gross IRR), telecom services (91.5% average gross IRR), software and computer services (58.4% average gross IRR) and electronic and electrical equipment (60.5% average gross IRR) – dominate the ranking of industries with most attractive returns.

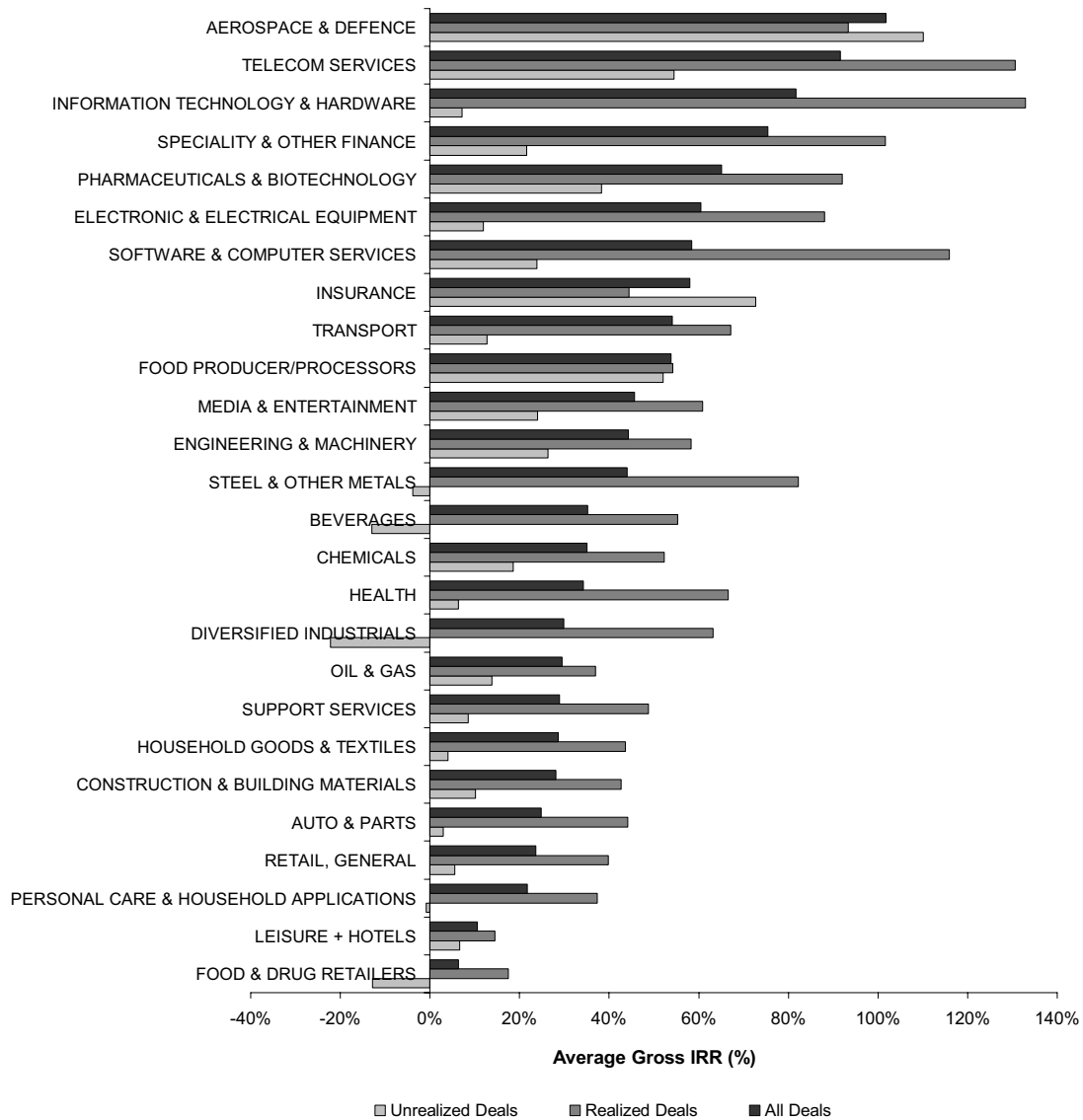
Despite an average sample size per sub-sector of 103 deals, this result is enhanced by several particularly strong IRR performances in these industries. As mentioned for the Level 3 analysis, this result is in contrast to the Venture Economics finding of a general unattractiveness of the information technology sector for buyout funds. However, while the Limited Partners sample contains only ca. 44% of unrealized deals, the Venture Economics sample contains ca. 60% of such active investments. Given that large parts of transactions in the information technology have been carried out between 1997 and 2000, the average buyout fund returns calculated with the Venture Economics data are still depressed by the J-curve effect. Consequently, based on these actual results on deal gross performances, the data could suggest that buyout fund investments in the information technology sector could prove (considering some of the latest buyout fund maturities to be in ca. 2010) to have been more successful than initially anticipated by interpreting the fund return data from Venture Economics, which was based on proxy returns (see section 4.2.2.6.). Nevertheless, this is to a large extent driven by successful realized transactions.

Secondly, the financial services sector, consisting of specialty and other finance (75.4% average gross IRR), insurance (58.1% average gross IRR), investment companies (49.4% average gross IRR) as well as banks (20.4% average gross IRR)<sup>94</sup>, performs equally strong as found for the Venture Economics data sample. Thirdly, the aerospace and defense sector displays the highest overall average gross performance with an IRR of 101.8%<sup>95</sup>. Among the Venture Economics fund data, this industry sub-sector had only shown a mediocre 5.9% of average net fund IRR. This result confirms the attractiveness of the aerospace and defense industry, which is characterized by (i) stable long-term growth due to increasing passenger numbers in the global aerospace industry, especially in Asia, (ii) constantly high U.S. aerospace and defense spending and (iii) high visibility of cash flows due to long-term nature of aerospace and defense contracts.

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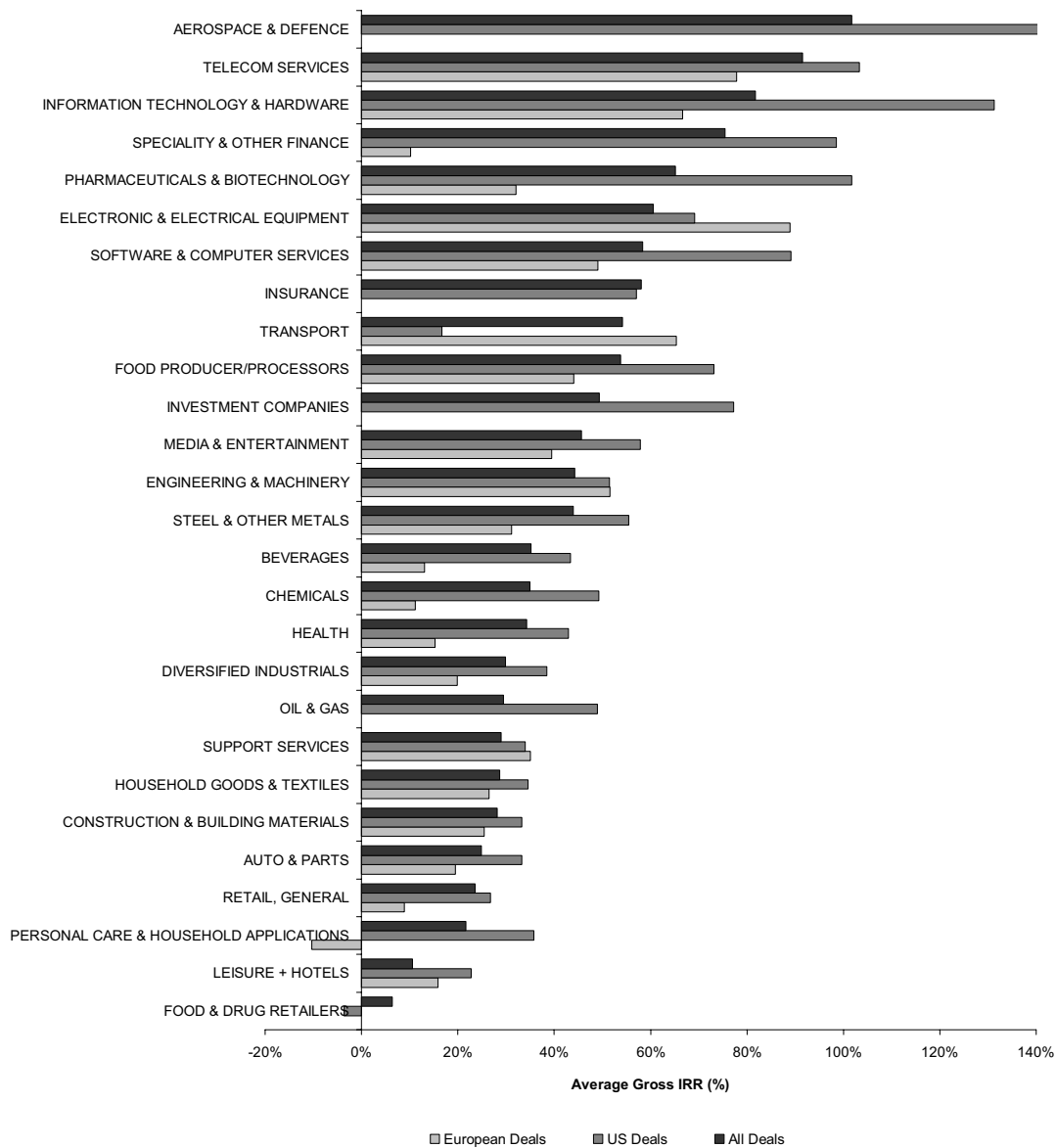
<sup>94</sup> Omitted in the graphical presentation due to sub-sample size of only four transactions.

<sup>95</sup> Based on 20 transactions (ten realized, ten unrealized).



**Figure 48: Average Gross Returns of Buyout Deals by Industry Sector (Level 4) and Investment Status (1980-2002)**  
 Source: INSEAD Buyout Database, analyzed by author (Deals N=2,131).

The comparison between U.S. and European deals on Level 4 verifies the Level 3 findings that on average, U.S. deals considerably outperform European deals in the Limited Partners sample. According to this data, European deals only perform better in the electronic and electrical equipment (88.9% and 69.2% average industry IRR for European and U.S. deals respectively), transport (65.3% and 16.6% respectively), and about equal in the engineering (51.5% and 51.4% respectively) and machinery and support services (35.1% and 33.9% respectively) industries.



**Figure 49: Average Gross Returns of Buyout Deals by Industry Sector (Level 4) and Region (1980-2002)**  
 Source: INSEAD Buyout Database, analyzed by author (Deals N=2,143).

#### 4.3.4.3. Regression Results

As reflected in the above trends, the industry of the focal buyout transaction to a significant degree appears to affect the value creation potential, i.e. the performance of the dependent variable IRR. This could be the result of various factors, e.g. (i) an industry’s specific customer demand or high growth dynamics, as observed in the information technology sector in the late 1990s, (ii) maturity and (global) competitiveness of an industry, which affects profitability and cash flow generation potential, (iii) cyclicity and business cycle of an industry, and (iv) regulatory environment.

#### 4.3.4.3.1. Descriptive Statistics

The classification of industries allowed a sharp comparison of buyout performance and its respective industry performance. It was established in the descriptive analysis section that certain industries performed exceptionally well, but others underperformed on average compared to the focal buyout deal. This section analyzes (i) the combined impact that industry performance has on buyout performance, and (ii) which industries are performing better or worse based on statistical significance. With respect to the latter analysis, we find that on industry classification Level 3, two industries are performing significantly better (at the 0.01 level; 2-tailed): the information technology sector as well as the non-cyclical services industry. Surprisingly, the cyclical services industry, which posted strong returns among the VE dataset, performs worse than the rest of the sample, with significance at the 0.05 level (2-tailed). These results support the descriptive findings presented in section 4.3.4.1., i.e. that non-cyclical services and information technology show highest performances. The strong performance of the financial services industry is non-significant. The adverse indication about correlation of IRR with the cyclical services sector comes albeit a positive average performance for this industry. Combined with the findings from the VE data, this interpretation would generally recommend buyout firms to focus on the service sector due to its highly attractive returns, but strictly to invest in non-cyclical service companies to avoid an adverse return profile.

Descriptive and Correlation Statistics									
Variable (Dummy) Tested	N <sup>(1)</sup>	Minimum	Maximum	Sum <sup>(2)</sup>	Mean	Std. Deviation	Pearson Correlation	Sig. (2- tailed)	
<i>Level 3 Industries</i>									
CYSER	1746	0	1	306	,18	,380	-,058(*)	0,015	
ITECH	1746	0	1	131	,08	,264	,161(**)	0	
NCYSR	1746	0	1	71	,04	,198	,087(**)	0	
<i>Level 4 Industries</i>									
LESUR	1746	0	1	39	,02	,148	-,054(*)	0,023	
SFTCS	1746	0	1	71	,04	,198	,149(**)	0	
TELCM	1746	0	1	59	,03	,181	,109(**)	0	
<i>Level 6 Industries</i>									
CMPSV	1746	0	1	13	,01	,086	,053(*)	0,026	
COMMV	1746	0	1	3	,00	,041	,059(*)	0,013	
ENGFA	1746	0	1	27	,02	,123	,053(*)	0,028	
ERETL	1746	0	1	2	,00	,034	,077(**)	0,001	
SOFTW	1746	0	1	41	,02	,151	,153(**)	0	
TEFL	1746	0	1	14	,01	,089	,072(**)	0,003	
TELWR	1746	0	1	36	,02	,142	,055(*)	0,022	
Valid N (listwise)	1746								

(1) Total sample size of tested cases (all realized transactions). Includes industries not specified.

(2) Number of cases where dummy variable = 1, i.e. number of transactions per year.

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

**Table 17: Descriptive and Correlation Statistics on (significant) Industries**

Among Level 4 industries, the software services and telecom services industries are positively correlated to the dependent variable IRR (significant at the 0.01 level; 2-tailed). Investments in the leisure and hotel industry are accompanied with negative returns to buyout investors (significant at the 0.05 level). These correlation statistics support the previous findings on IRR by descriptive

comparison. Among Level 6 industries, the results of the more aggregated industries are further specified: the computer services, commercial vehicle, engineering fabricators, wireless telecom services, fixed line telecom services, software and e-commerce retailers are positively correlated with buyout performance (significant at the 0.01 level for the latter three industries, and at the 0.05 level for the former four).

		Coefficients <sup>(a)</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	<i>Level 3 Industries</i>							
	CYSER	-,096	,139	-,019	-,687	,492	,688	1,453
	ITECH	1,191	,184	,168	6,461	,000	,815	1,226
	NCYSR	,930	,236	,099	3,944	,000	,886	1,129
	<i>Level 4 Industries</i>							
	LESUR	-,581	,304	-,046	-1,910	,056	,953	1,050
	SFTCS	1,434	,232	,152	6,189	,000	,919	1,088
	TELCM	1,169	,252	,113	4,646	,000	,931	1,074
	<i>Level 6 Industries</i>							
	CMPV	1,216	,516	,056	2,355	,019	,985	1,015
	COMMV	2,738	1,065	,061	2,570	,010	,997	1,003
	ENGFA	,851	,362	,056	2,349	,019	,970	1,031
	ERETL	4,296	1,304	,078	3,295	,001	,998	1,002
	SOFTW	1,911	,298	,155	6,422	,000	,956	1,046
	TEFL	1,556	,498	,074	3,125	,002	,984	1,016
	TELWR	,773	,316	,059	2,446	,015	,961	1,041

(a) Dependent Variable: Gross IRR Performance

**Table 18: Coefficients and Collinearity Statistics on Combined Entry and Exit Dummy Variables**

The analysis of coefficient statistics on Level 3 underlines the return dominance of the information technology sector with a standardized Beta coefficient of 0.168. This sector also shows the highest t-value and is highly significant, while the negative performance of the cyclical services, i.e. this industry's standardized Beta, is not. The greater detail on Level 4 and Level 6 reveals that the strong performance of the information technology sector on Level 3 is driven by software and computer services (Level 4), and specifically by software (Level 6). The performance and t-test is highly significant on all levels. In contrast to findings on the VE data (section 4.2.2.6.), this shows that investments by buyout funds in software developing firms have generated considerable value, driven by a range of highly successful exits. On Level 6, we find that besides the TMT (telecom, media and technology) sector, also sub-sectors of the old economy may significantly outperform the universe of buyout industries represented by engineering fabricators and commercial vehicle fabricators. The collinearity statistics demonstrate very high tolerances (very modest variance inflation factors). Hence, multicollinearity does not appear to be a problem among industries (variables), which substantially supports the overall classification effort in this study.

#### 4.3.4.3.2. Regression Model

The linear regression model describing the explanatory strength of the industry classification variables is strong and – in line with expectations – increasing with the level of classification detail.

Model 1 represents the most aggregated industry classification on Level 3, showing an adjusted R square of 3.3%. The F value for the model's fit is 7.037 and is highly significant ( $p < .001$ ). Model 2 summarizes the "medium detail" industry classification on Level 4, exhibiting a slightly lower adjusted R square of 3.2%. The F value for the model's fit is 2.736 and is highly significant ( $p < .001$ ). Model 3 captures the most detailed industry classification on Level 6, displaying an adjusted R square of 2.5%. The F value for the model's fit is 1.494 and is highly significant ( $p < .01$ ). The decrease of adjusted R square is on first view not satisfactory, as a greater level of detail would be expected to lead to higher explanatory power. The explanation for this effect is twofold. First, this industry dummy variable analysis does not control for country or region of transaction origin, i.e. whether the deal is from the U.S. or Europe. Due to the fact that European and U.S. industries may not perform equally well, this may balance returns observed in either region. Secondly, the number of observed cases per industry sub-sectors declines with increased degree of detail and the increased number of (industry) variables decreases the degrees of freedom.

Linear Regression Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Statistics				
					R Square	F Value	df1	df2	Sig. F
1	,197(a)	,039	,033	1,832578	,039	7,037	10	1735	,000
2	,224(b)	,050	,032	1,834152	,050	2,736	33	1712	,000
3	,276(c)	,076	,025	1,840467	,076	1,494	91	1654	,002
4	,216(d)	,047	,032	1,834052	,047	3,128	27	1718	,000
5	,277(e)	,077	,037	1,829363	,077	1,927	72	1673	,000
6	,370(f)	,137	,045	1,821583	,137	1,489	168	1577	,000

- (a) Predictors: (Constant), All generic Level 3 Industries  
 (b) Predictors: (Constant), All generic Level 4 Industries  
 (c) Predictors: (Constant), All generic Level 6 Industries  
 (d) Predictors: (Constant), All Level 3 Industries for U.S., EU, and n/a countries  
 (e) Predictors: (Constant), All Level 4 Industries for U.S., EU, and n/a countries  
 (f) Predictors: (Constant), All Level 6 Industries for U.S., EU, and n/a countries

Table 19: Linear Regression Model on Industries Level 3, 4 and 6

Accordingly, models 4-6 replicate the above industry analysis, controlling for deal origin.<sup>96</sup> The adjusted R square of these three highly significant (at the 0.001 level; 2-tailed) models increases from 3.2% for the Level 3, to 3.7% for the Level 4 and 4.5% for the Level 6 industry classification. The increase in adjusted R square between the three industry classification levels, when controlling for geographic deal origin, does provide the required evidence for the importance of industry sharp comparisons of buyout transaction and market performance. In summary, the clear impact of industry performance on success or failure of buyouts – in particular highly significant industries – makes it obligatory to control for the industry effect in subsequent analysis.<sup>97</sup>

<sup>96</sup> Categories are Europe, US, or not announced. Due to the fact that the number of observed industry variables triples in this sub-analysis, further descriptive, correlation and coefficient statistics have been omitted.

<sup>97</sup> As most subsequent analysis will relate to Level 4, only the highlighted industries on this aggregation level will be controlled for on a generic basis (i.e. no geographic control), unless otherwise stated.

#### 4.3.4.4. Summary of Findings

The industry of buyout transactions has been identified to be a very important value driver. The above linear regression models have confirmed that industry classification variables are adding extensive explanatory strength to the analysis of buyouts with up to 4.5% of R square on the Limited Partners sample. Some of the key findings include that buyout funds in this sample have successfully invested in the information technology sector. Among this broad sector, the software sector has been identified – with very high statistical certainty – to produce the highest returns. Although not a traditional (mature) area of investment for buyout firms, these results could support a new approach. In addition, the service sector has also proven to be very attractive, but buyout firms should focus on non-cyclical service investments. Based on these findings, variable hypothesis H6 has to be rejected, as buyout funds in the Limited Partners' dataset have performed well with information technology investments. As a consequence, the VE dataset, which calculated returns based on fund returns may not be a good indicator of actual performance of buyout funds in this sector. This could be explained through (i) the high density of deals in this sector in recent years, and (ii) the VE approach to assign very negative, cash flow driven returns to these transactions on a fund basis, while the Limited Partners' data assigns market values or keeps investments at cost.

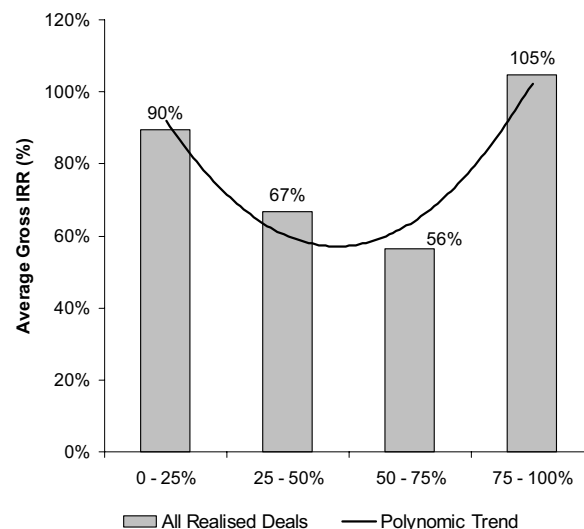
#### 4.3.5. Ownership and Buyout Performance

The impact on performance of the level of ownership stake of management and/or the board in acquisitions has long been discussed in academic research. Although there generally hardly remains any doubt across most studies that a certain degree of managerial and board ownership enhances return, there is variance in findings with respect to the level of ownership stake percentages and board composition. Agrawal and Knoeber (1996) find that performance (Tobin's Q) increases significantly as insider ownership increases, but decreases significantly with board outsiders, leverage, and corporate control activity. With respect to the level of ownership percentages, Haiyang, Hexter et al. (1993) find that performance (Tobin's Q) increases for management ownership in the range [0-7%] and decreases in the range [7-12%]. Cho (1998) confirms this trend for the ranges [0-7%] and [7%- 38%], Holderness, Kroszner et al. (1999) for the ranges [0-7%] and [5-25%], Morck, Shleifer et al. (1988) for the ranges [0-5%] and [5-25%], respectively. The results unambiguously suggest a roof-shaped (concave) relationship between ownership and performance. However, there is also some evidence that beyond the [5-25%] ownership range, profitability is increasing again as acquirers gain majority and thereby firm control (Baker and Wruck 1989; Wruck 1989). Nonetheless, Holl (1975; 1977) had previously commented in this respect that performance does not necessarily rely on the question whether the firm is management- or ownership-controlled, but whether there exists an efficient market for corporate control at the target company.



Consequently, several authors find no difference in performance between majority controlled firms and minority investments, as well as widely and more narrowly held firms (Holderness and Sheehan 1988; Murali and Welch 1989; Denis and Denis 1994). More specific in relation to buyouts, Kaplan (1989b) finds a significant increase in performance measures as average pre- to post-buyout managerial ownership increases from 9% to 31%. Peck (1996b) finds that new investors, even if only through a minority investment, significantly improve performances in MBOs.

The analysis of the performance of investments of buyout firms according to the level of acquired ownership percentage (and hence their accompanying voting and board representation), based on the Limited Partners' data, are somewhat surprising. The highest average gross IRR of 105% can be found among control investments, i.e. in which buyout investors acquired between 75% and 100% of total equity (fourth quartile). Investments in the second and third quartile of ownership percentages returned significantly lower IRRs, with 67% and 56% respectively. The result for the second and third quartiles, when compared to the fourth, could suggest that the lack of majority control may inhibit strategic direction and managerial decision making, hence decreasing buyout returns.

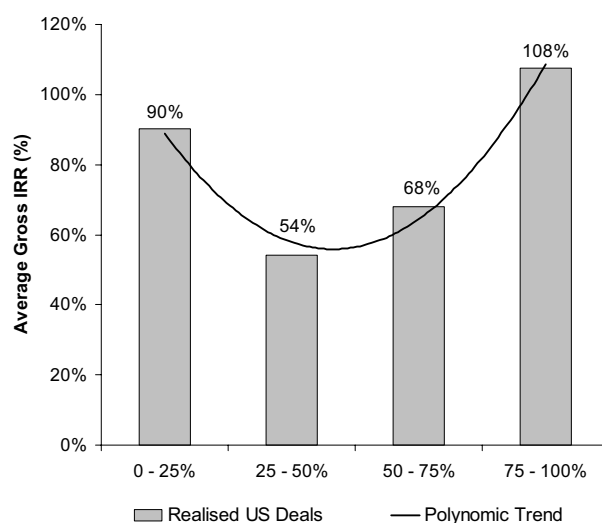


**Figure 50: Average Gross Returns of Realized Buyout Deals by Ownership Percentage Quartile**

Source: INSEAD Buyout Database, analyzed by author (Deal N=227)

However, the returns in the first quartile between 0% and 25% of ownership also show a surprisingly high, albeit lower than in the fourth quartile, average gross IRR of 90%. This is in contrast to the expectation from the above argument that minority investments would be the least attractive from a return perspective, as the ability of strategic and managerial influence on the buyout target through the General Partner is limited. There is a theoretical and practical explanation for this phenomenon. Firstly, the strong minority investment return could be seen as further evidence of the above discussed literature on managerial incentives and the merits of the market for

corporate control (Holl 1975; Jensen and Meckling 1976; Holl 1977), in which the introduction of a higher level of control through new ownership – even and in particular at low percentages – increases firm performance. Secondly, one possible practical explanation could be seen in the successful co-investment activity by buyout funds. The increasingly large size of buyout targets and individual fund’s restrictions with respect to size of individual investments require buyout funds to team up for individual large mega-deals.<sup>98</sup> Another frequent aspect for co-investment could be that the buyout firm’s specific expertise in an acquisition target’s industry is seen as value-add to the overall execution and value generation process.<sup>99</sup> As a result, despite the fact that minority control per se from a management control perspective may not be advantageous, co-investment activity represents a successful alternative to combine financial investment power with industry expertise. Moreover, the minority control has to be considered from a different angle in these cases, as the “group of buyout fund investors” actually may well have gained (majority) control over the target from prior shareholders. The positive performance points to positive collaboration among the investing funds.



**Figure 51: Average Gross Returns of Realized U.S. Buyout Deals by Ownership Percentage Quartile**

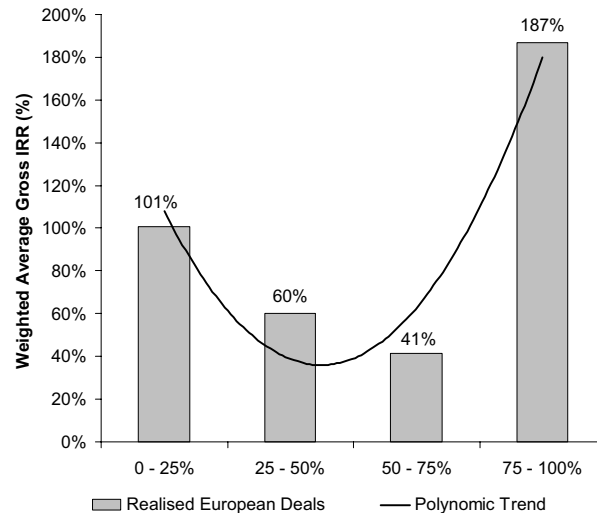
Source: INSEAD Buyout Database, analyzed by author (Deal N=164).

However, these overall findings emerge differently when compared across geographic regions. The trend in the U.S. mirrors the overall picture with the exception that the second quartile returns is less (54% average gross IRR) than the third (68% average gross IRR). Except for the minority

<sup>98</sup> Restrictions are outlined in the terms and conditions of the fund’s Private Purchase Memorandum and support diversification of risk. Despite heterogeneous rules across industry, buyout funds are generally not allowed to invest more than 10% of committed capital in any one single transaction. Also, there are often limits on concentration of investments in any specific type of industry (except for several niche funds that may specifically focus on such a specific segment).

<sup>99</sup> Expertise based co-investing is frequently observed in the information technology, telecommunications and media sector, where smaller specialized buyout funds team up with larger funds in their acquisitions.

investments (0-25%), this finding is more in line with the prior expected linear relationship between ownership stake and performance between 25% and 100% of ownership.



**Figure 52: Weighted Average Gross Returns of Realized European Buyout Deals by Ownership Percentage Quartile**

Source: INSEAD Buyout Database, analyzed by author (Deal N=33).

By contrast, European deals display inverse performance results for the second and third quartile compared to the U.S., with significantly lower returns in the third (sharply lower on normal average).<sup>100</sup> One explanation could be that the third quartile results into a “deadlock ownership quartile”, in which the buyout firm lacks enough voting power (i.e. 75%) to implement, for instance, radical restructuring programs. This could specifically be the case in Europe, in which former shareholders or employees through their voting rights could block those measures if the buyout fund fails to secure a controlling stake, which could in turn lead to a deterioration of returns. The high return of 187% IRR exhibited for the fourth quartile would suggest that gaining majority control in buyout investments in Europe is particularly necessary, or effective, in order to implement value creation strategies that lead to superior returns.

#### 4.3.5.1. Regression Model

A simple one-factor linear regression between gross IRR and ownership percentage does not provide significant results under the one, five or ten per cent confidence level. However, the significance level of 0.411 is directionally pointing towards a relationship between ownership stake and performance in leveraged buyouts. The overall result on significance is not surprising due to the convex relationship between ownership and return, as the sample distribution is not linear.

4.3.5.2. Summary of Findings

The ownership percentage acquired in buyout transactions has not been identified to be an important value driver. The above descriptive and brief regression results have demonstrated that there appears to be a convex relationship between ownership and buyout returns. Majority control investments do perform best, which leads to acceptance of variable hypothesis H7. However, the surprising finding on the Limited Partners sample is that minority investments, defined as less than 25%, to produce very attractive results, which could be explained through a successful co-investment behavior among buyout funds. The 2<sup>nd</sup> and 3<sup>rd</sup> quartiles exhibit weaker average performance.

4.3.6. Deal Size and Buyout Performance

The Private Equity industry’s, and especially the buyout industry’s, ongoing discussion regarding the merits of buyout fund investment focus on particular (niche) industries as well as certain deal size specialization (i.e. small-cap, mid-cap, large-cap) leads to the question about whether or not there exists an optimal deal size. Given the large sample size of the Limited Partners’ dataset and a normal distribution of returns, we should not expect a significant variance in returns.

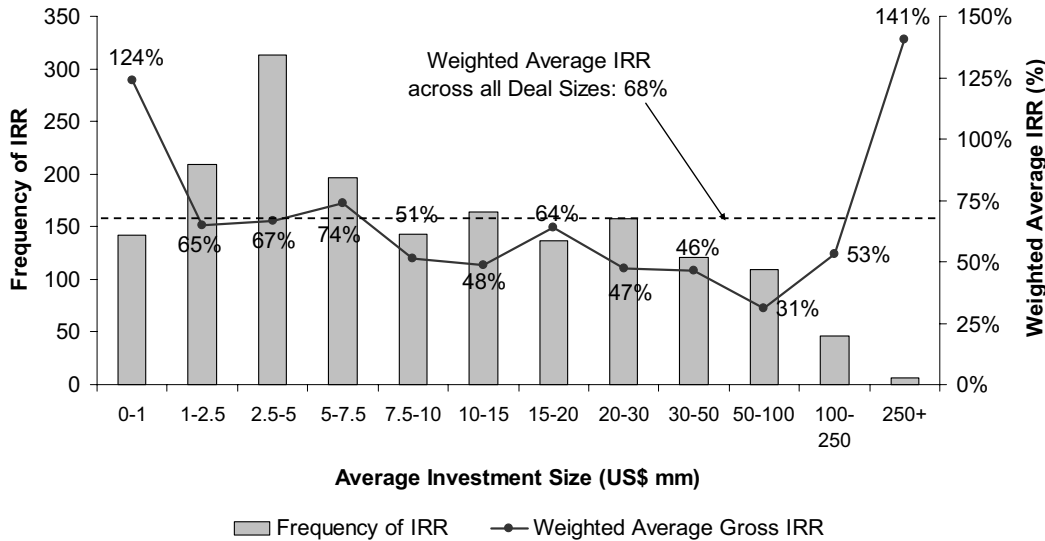


Figure 53: Weighted Average Gross Returns of Realized Buyout Deals by Average Investment Size Categories

Source: INSEAD Buyout Database, analyzed by author (Deal N=1,745).

However, the analysis of all realized LBO transactions illustrates that certain deal sizes on average do perform better (historically). Most notably, small transactions of up to US\$ 7.5 million, but

<sup>100</sup> Due to lower sample size for European deals compared to US, returns have been weighted by invested capital.

especially the smallest deals with up to US\$ 1 million of investment, perform exceptionally well with returns ranging between 124% and 74%. This could be interpreted as a result of (i) superior returns in the small-cap deal investment category, (ii) successful smaller co-investments of GPs in larger transactions, add-on or Venture Capital type investments (especially during the technology boom between 1997 and 2000), (iii) the time/return influence of historically high performing, small investment deals, e.g. undertaken during the positive investment environment of the early 1980s.

Furthermore, we find that mid-cap sized deals, with an equity investment size between US\$ 7.5 and US\$ 50 million on average perform weaker than small-cap deals at approximately 50% weighted average gross IRR across these deal size categories. The large-cap deal category shows a very diverse picture: deals with an equity investment of US\$ 50 to US\$ 100 million display the lowest return among all realized transaction size categories. One potential interpretation could be that the investment size represents a “stuck in the middle” investment size situation, which based on size between mid- and large-cap segment, does not yet guarantee that industry leading firms can commonly be acquired. The US\$ 100 to US\$ 250 million category of large-cap as well as the higher than US\$ 250 million investment category of “mega-deals” do support the hypothesis that large-cap deals can be highly attractive. Assuming a 3:1 debt to equity ratio, the mega deal category represents transactions of at least US\$ 1 billion. The strong performance is at odds with Private Equity industry experts’ view that large-cap transactions are those which attract the maximum competition, and thus on average must have limited returns. As potential explanation for the out-performance it could be stated that mega deals (i) are generally undertaken by the largest and most successful buyout funds that have had a long and solid track record of investments in smaller deal categories, (ii) most large transactions have been undertaken in recent years due to the significant growth in fund sizes, and a range of those large deals have also been successfully exited during a time that saw highly favorable market exit conditions (i.e. 1997 to 2000). It therefore remains to be seen from future realized mega deals’ returns whether the strong downturn in stock markets between March 2000 and October 2002 and the significantly less favorable exit environment during that time have had an adverse effect and will bring mega deal returns in the long run in line with the average return of 61% achieved across the other size categories (i.e. excluding the mega deals).

#### 4.3.6.1. Regression Results

As reflected in the above trends, the deal size of the focal buyout transaction appears to affect the value creation potential, i.e. the performance of the dependent variable IRR. The relatively superior performance of small investments could result from various factors, e.g. (i) superior returns in the small-cap deal investment category, (ii) successful co-investment activity, (iii) the time/return influence of historically high performing, small investment deals.

#### 4.3.6.1.1. Descriptive Statistics

The correlation statistics for the deal size point to a dominance of smaller transactions for high buyout returns. In fact, all Pearson correlation factors on realized deals that are larger than US\$ 3 million are negative. Deals in the US\$ 7 to 15 million and in the larger than US\$ 30 million category are negatively and significantly (at the 0.05 level; 2-tailed) correlated with buyout IRR. By contrast, deals smaller than US\$ 2 million are positively correlated and highly significant at the 0.01 level (2-tailed). The above descriptively observed strong performance of mega-deals does not contribute to a statistically validated positive performance of the larger than US\$ 30 million investment category. Therefore, mega deals are not found to be statistically better performing. On the contrary, small investment sums generate the highest returns in buyout transactions. The interpretation could be that small deals (i) are less competitive at entry and buyout funds therefore might negotiate on average better acquisition and selling prices, (ii) may to a larger extent relate to minority investments, which had been found highly profitable (see section 4.3.5.), (iii) may indicate higher value creation potential and superior returns in the small-cap segment than in the mid- and large-cap segments (i.e. improved management and strategies may have the greatest impact at small firms), (iv) may relate, due to growth in average deal sizes, to transactions undertaken in overall successful early years in the sample (early 1980s), or alternatively, (v) relate to small successful (Venture Capital like) investments in the information technology sector, which had also proven to be a dominating industry from a performance perspective (see section 4.3.4.).

Descriptive and Correlation Statistics								
Variable (Dummy) Tested	N <sup>(1)</sup>	Minimum	Maximum	Sum <sup>(2)</sup>	Mean	Std. Deviation	Pearson Correlation	Sig. (2- tailed)
<i>Deal Size Categories</i>								
below \$3 million	1746	0	1	413	,24	,425	,140(**)	,000
\$3 - \$7 millions	1746	0	1	390	,22	,417	-,008	,738
\$7 - \$15 millions	1746	0	1	361	,21	,405	-,049(*)	,041
\$15 - \$30 millions	1746	0	1	297	,17	,376	-,037	,118
above \$30 millions	1746	0	1	284	,16	,369	-,058(*)	,015
Valid N (listwise)	1746							

(1) Total sample size of tested cases (all realized transactions). Includes deal sizes not specified.

(2) Number of cases where dummy variable = 1, i.e. number of transactions per year.

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

**Table 20: Descriptive and Correlation Statistics on Deal Size Variables**

The analysis of standardized Beta coefficients, as indicator for performance contribution for the deal size categories, presents a decline in this factor as deal size increases. However, the t-test is non-significant for either category. Furthermore, the collinearity statistics demonstrate an exceptionally strong multicollinearity problem, i.e. the correlation between size categories is extremely high as they equally are able to explain the dependent variable IRR. As a consequence of the extremely low tolerances (i.e. extremely high variance inflation factors), this analysis can only be considered as illustrative and cannot be accepted from a statistical point of view. Deal size categories are therefore not useful to control for buyout performance. Alternatively, we should utilize deal size as a non-categorical, scaled variable in subsequent analysis.

Coefficients <sup>(a)</sup>								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	<i>Deal Size</i>							
	(Constant)	-1,000	1,847		-,542	,588		
	below \$3 million	2,282	1,849	,520	1,234	,217	,003	316,072
	\$3 - \$7 millions	1,786	1,849	,399	,966	,334	,003	303,663
	\$7 - \$15 millions	1,636	1,849	,356	,885	,376	,003	287,153
	\$15 - \$30 millions	1,660	1,850	,335	,897	,370	,004	247,309
	above \$30 millions	1,567	1,850	,310	,847	,397	,004	238,643

(a) Dependent Variable: Gross IRR Performance

**Table 21: Coefficients and Collinearity Statistics on Deal Size Variables**

#### 4.3.6.1.2. Regression Model

The linear regression model describing the explanatory strength of the deal size category variables is solid. The adjusted R square is 1.9%. The F value for the model's fit is very high at 7.615 and is highly significant ( $p < .001$ ), yet the high VIF factors have to be acknowledged as mentioned above. Overall, the result underlines that different deal sizes (categories) have a significant impact on explaining buyout performance for reasons hypothesized above. Due to multicollinearity issues, this effect will only be controlled for through a non-categorical deal size variable ("Initial Investment in USD") where applicable (a correlation/regression test of this variable with performance shows a negative, yet not highly significant correlation for realized buyout transactions).

Linear Regression Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Statistics				
					R Square	F Value	df1	df2	Sig. F
1	,146(a)	,021	,019	1,846590	,021	7,615	5	1740	,000

(a) Predictors: (Constant), below \$3 million, above \$30 millions, \$15 - \$30 millions, \$7 - \$15 millions, \$3 - \$7 millions

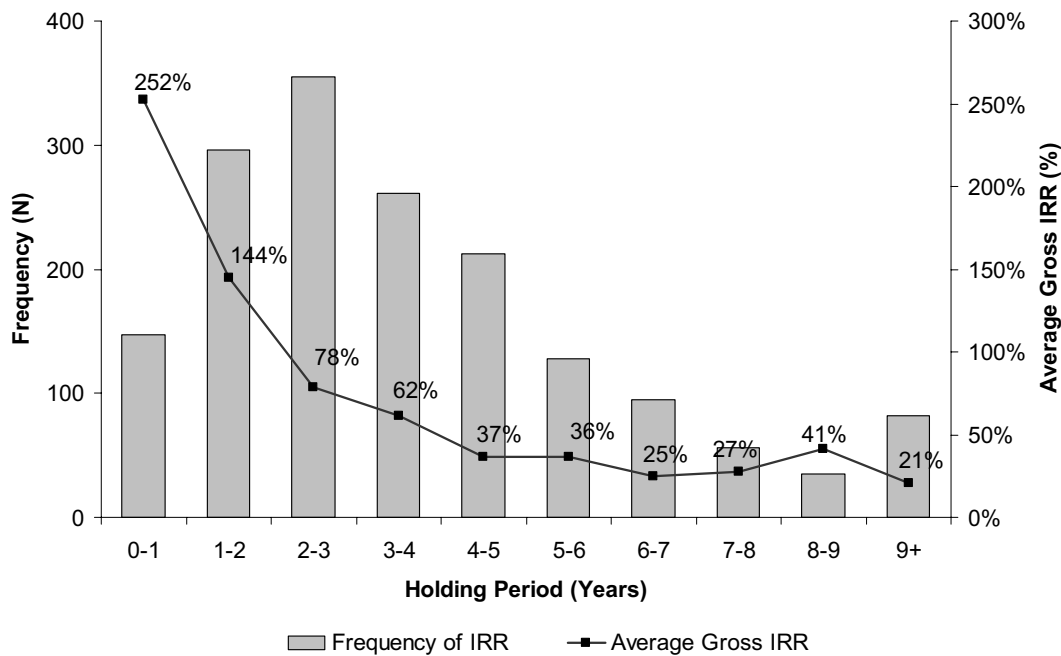
**Table 22: Linear Regression Model on Deal Size Variables**

#### 4.3.6.2. Summary of Findings

The amount of capital invested by the buyout firm in the transactions has been identified to be a valid value driver. The above descriptive and regression results exhibited that small transactions have been particularly successful from a return perspective. Mega buyouts show unexpectedly high returns, potentially based on several recent successful realizations, yet statistically this result cannot be confirmed. Hence, variable hypothesis H7 has to be rejected, as small transactions outperform. The test suffers from intense multicollinearity effects, which makes a final recommendation obsolete. Due to these multicollinearity issues, the deal size effect will only be controlled for through a non-categorical deal size variable ("Initial Investment in USD") where applicable.

### 4.3.7. Investment Holding Time and Buyout Performance

Buyout firms are frequently accused by skeptics of their short investment horizon. In essence, they are blamed to acquire firms to generate a “quick buck” on some drastic short-sighted restructuring measures, e.g. by reducing the workforce or slashing capital expenditures. These accusations are rejected and also do not hold stereotypically. However, LBO firms do have a clear incentive to create maximum value in the shortest possible period of time. The factor time is working against General Partners as buyout returns (IRR) are normally declining over prolonged periods of time, as a large amount of value creation at the target is often achieved shortly after the acquisition and/or cannot be sustained over time. Hence, the marginal long-term improvements generally do not justify holding on to the investment. In addition, a track record of fast payback benefits a fund’s position during renewed fundraising efforts.



**Figure 54: Average Gross Returns of Realized Buyout Deals by Holding Period**  
Source: INSEAD Buyout Database, analyzed by author (Deal N=1,684).

The descriptive results based on the Limited Partners’ data clearly indicate the negative relationship between holding period of the buyout investment and its return (IRR). In particular, investments that can be exited within the first or second year post acquisition exhibited very high returns of 252% and 144% average gross IRR respectively, constantly decreasing thereafter. The only noteworthy break in this declining trend is a relatively stronger performance for investments held between 8 and 9 years. One possible interpretation could be that despite the fact that buyout funds may generally opt for quick exits, they could keep a few target companies in their portfolio which consistently demonstrate a sustainable and high IRR. These consistent returns can be achieved through (i) high debt capacity of the target that allows frequent recapitalizations and large



equity dividends, (ii) extraordinary revenue and cash flow growth. Under these circumstances, high amounts of fund equity exposed to consistently high returns are beneficial to the extent that the opportunity cost of the exit are lower, and hence the exit decision is postponed as long as a certain threshold level of returns is accomplished. Due to the fact that the fund's commitment period is ten years in general, these profitable long-term investments are then exited before the fund's maturity, i.e. on average between years 8 and 9.

#### 4.3.7.1. Regression Results

As reflected in the above trends, the holding period of the focal buyout transaction appears to significantly affect the value creation potential, i.e. the performance of the dependent variable IRR. The consistent trend of falling performance over time is mainly linked to the mathematical calculation of the IRR formula and the impact of time, but also due to the marginally decreasing value creation potential at the target.

##### 4.3.7.1.1. Descriptive Statistics

The correlation statistics for the holding period year groupings with the dependent variable IRR demonstrate high levels of significance across most categories. The categories for 0-1 years, 1-2 years and 4-5 years are significant at the 0.001 level (2-tailed). Also, the first two categories are positively correlated with performance, while all categories beyond 2 years of investment holding period is negatively correlated with deal IRR. These results provide substantial support for the descriptive graphical results of a negative relationship between holding period and buyout return. Moreover, the change in Pearson correlation sign could suggest that buyout deals should preferably be exited within 2 years post acquisition by buyout funds.

Descriptive and Correlation Statistics									
Variable (Dummy) Tested	N <sup>(1)</sup>	Minimum	Maximum	Sum <sup>(2)</sup>	Mean	Std. Deviation	Pearson Correlation	Sig. (2- tailed)	
<i>Holding Period (Years)</i>									
0-1	1746	0	1	147	,08	,278	,278(**)	,000	
1-2	1746	0	1	296	,17	,375	,153(**)	,000	
2-3	1746	0	1	355	,20	,403	-,009	,722	
3-4	1746	0	1	261	,15	,357	-,045	,063	
4-5	1746	0	1	212	,12	,327	-,089(**)	,000	
5-6	1746	0	1	128	,07	,261	-,068(**)	,004	
6-7	1746	0	1	95	,05	,227	-,073(**)	,002	
7-8	1746	0	1	56	,03	,176	-,053(*)	,027	
8-9	1746	0	1	35	,02	,140	-,031	,198	
9+	1746	0	1	82	,05	,212	-,072(**)	,003	
Valid N (listwise)	1746								

(1) Total sample size of tested cases (all realized transactions). Includes holding periods not specified.

(2) Number of cases where dummy variable = 1, i.e. number of transactions per year.

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

**Table 23: Descriptive and Correlation Statistics on Holding Period Variables**

The analysis of standardized coefficients for the holding period categories compellingly verifies the observed trend. The standardized coefficient Beta is constantly decreasing from an extremely high

level of 0.395 for deals held up to one year to 0.038 for deals held more than nine years. It is noteworthy, however, that the Beta coefficient remains positive across time, i.e. the results from the bi-variate Pearson correlation are not maintained. The t-test values for the first three categories are very strong and significant at the 0.001 level. The continuity of the observed independent variable holding period is captured in the slightly elevated collinearity statistics with VIF factors increasing to levels above 4.0. This suggests that the adopted categorization of holding period may serve illustrational purposes, but that a single scaled variable “holding period” should be preferred to avoid unnecessary variance inflation in subsequent regression models.

Coefficients <sup>(a)</sup>								
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics		
	B	Std. Error	Beta			Tolerance	VIF	
1	<i> Holding Period (Years)</i>							
	0-1	2,648	,243	,395	10,876	,000	,382	2,620
	1-2	1,572	,221	,316	7,111	,000	,254	3,942
	2-3	,910	,217	,196	4,189	,000	,228	4,377
	3-4	,743	,224	,142	3,316	,001	,273	3,660
	4-5	,494	,230	,087	2,146	,032	,309	3,236
	5-6	,490	,250	,069	1,961	,050	,412	2,428
	6-7	,374	,266	,045	1,406	,160	,480	2,083
	7-8	,399	,305	,038	1,309	,191	,605	1,654
	8-9	,539	,354	,041	1,522	,128	,707	1,414
	9+	,335	,275	,038	1,216	,224	,515	1,942

(a) Dependent Variable: Gross IRR Performance

Table 24: Coefficients and Collinearity Statistics on Holding Period Variables

#### 4.3.7.1.2. Regression Model

As to be expected from the strong observed results above, the linear regression model describing the explanatory strength of the holding period category variables is extremely high. The adjusted R square is 12.3%. The F value for the model’s fit is equally strong at 25.537 and is decidedly significant ( $p < .001$ ). Overall, the result of this control variable test underlines that holding period is one of the key determinants of buyout returns; accordingly holding period must be controlled for in subsequent models.

Linear Regression Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Statistics				
					R Square	F Value	df1	df2	Sig. F
1	,358(a)	,128	,123	1,745335	,128	25,537	10	1735	,000

(b) Predictors: (Constant), 0-1, 1-2, 2-3, 3-4, 4-5, 5-6, 6-7, 7-8, 8-9, 9+

Table 25: Linear Regression Model on Holding Period Variables

#### 4.3.7.2. Summary of Findings

The holding period in leveraged buyouts has been confirmed to be a very critical value driver. The above descriptive and regression results confirmed that returns are the shorter the holding period of an investment, the higher the realized IRR. Variable hypothesis H7 can therefore be clearly

accepted. The statistical results do not support the slightly improved average performance for the sample of long-term investments between years 8 and 9, as exhibited in figure 54. The central takeaway for theory from this analysis should be that buyout firms should have a confirmed interest for a quick investment turnover, not least due to the fact that they will eventually be measured on their track record according to this dimension by their fund's investors. From a buyout fund practitioner perspective, investments with rather long-term value creation strategies should be disadvantaged when compared to short opportunistic investments.

### 4.3.8. Leveraged Buyout Performance according to Entry and Exit Modes

#### 4.3.8.1. Leveraged Buyout Performance according to Entry Mode

For a leveraged buyout fund, there are several options to invest in a target company from a transaction-mode perspective. The most frequent is the *outright acquisition* of the buyout target, which generally, but not necessarily, involves taking a majority stake and control. Other entry modes are considering the transaction more from an “attractive financing opportunity” angle. *Acquisition financing* captures transactions, in which the buyout fund has supported the deal by injecting (preferred) equity, high yielding debt facilities (in- or excluding warrants on the equity) or a hybrid of both. This type of mezzanine investing is particularly widespread in small- and mid-cap transactions, which are financed privately without approaching capital markets or banks. In general, buyout funds – along with the yield on the equity/debt products – receive sizeable amounts of warrants that are converted into considerable equity stakes if the buyout succeeds.<sup>101</sup>

*Growth capital* either relates to additional equity financing into a buyout fund target for (external or internal) expansion purposes, or alternatively, relates to a buyout fund's early stage equity (co)investments in venture-type deals. *Recapitalizations* are a financing event, in which an existing buyout target is re-leveraged with the intention to (i) take out equity from the target through a special dividend to the shareholders by substituting it in the capital structure with debt, (ii) (re)increase the expected IRR. Recapitalizations commonly involve highly successful buyout targets, which have generated significant cash to de-leverage the initial transaction debt financing. Buyout funds may either recapitalize their own portfolio company or participate in another fund's recapitalization (e.g. through an above described debt instrument).

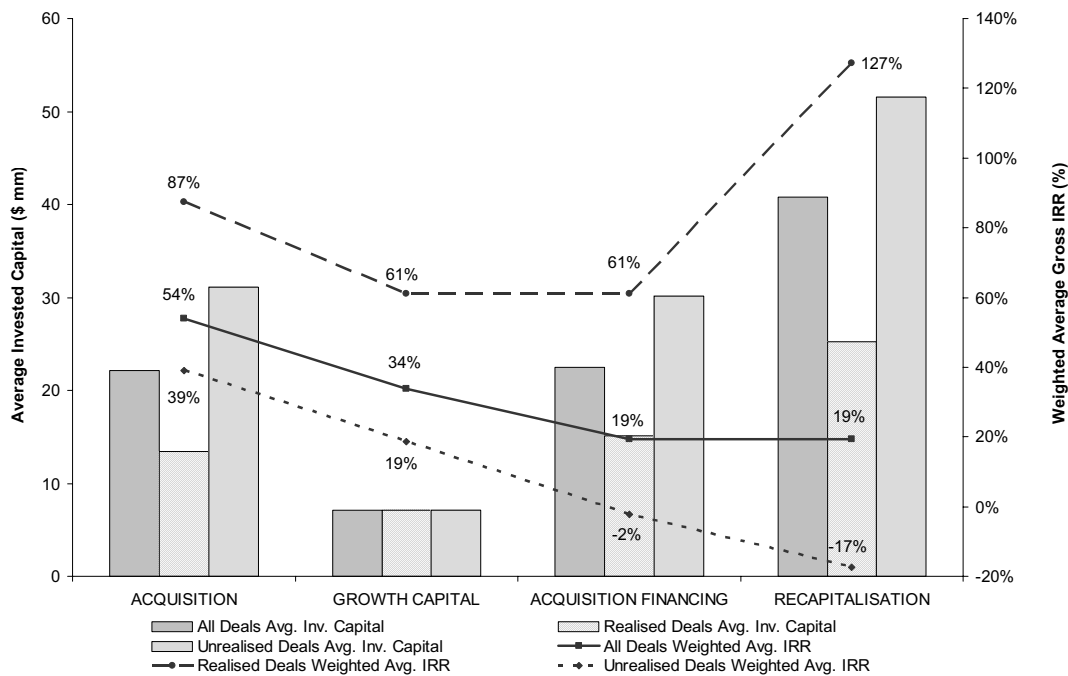
##### 4.3.8.1.1. Entry Mode and Invested Capital

The performance results according to entry mode show that the outright acquisition yields the highest average gross IRR with 54%, followed by growth capital (34% average gross IRR), acquisition financing and recapitalization (19% average gross IRR each). These findings support

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<sup>101</sup> Yield may either be received through cash interest, or through pay in kind (PIK) interest, which is accumulated and paid at maturity (or transaction exit) with the repayment of the principal, plus warrants on the target's equity.

the efficient market theory, as the higher risk involved in outright acquisitions is rewarded higher than financing-like investments. Acquisition financings, whose (subordinated) debt facilities are often secured by the assets of the buyout target, must therefore also yield less than the risk premium received in an outright acquisition. Likewise, the recapitalization of a buyout target means that the main value creation process has already largely materialized under the initial deal. In a recapitalization deal, there is therefore limited scope on average to further enhance business performance internally, thus the average gross return of 19% is rather based on “financial (re)engineering” than operational improvements. However, it is noteworthy to mention the high average gross IRR of 127% for realized recapitalizations. The high IRR is likely to be a result of the typically very low amount of remaining equity in the company after the recapitalization and must therefore be interpreted in conjunction with the initial deal’s IRR.



**Figure 55: Weighted Average Gross Returns of Buyout Deals by Entry Mode, Average Invested Capital and Investment Status**  
 Source: INSEAD Buyout Database, analyzed by author (Deals N=836).

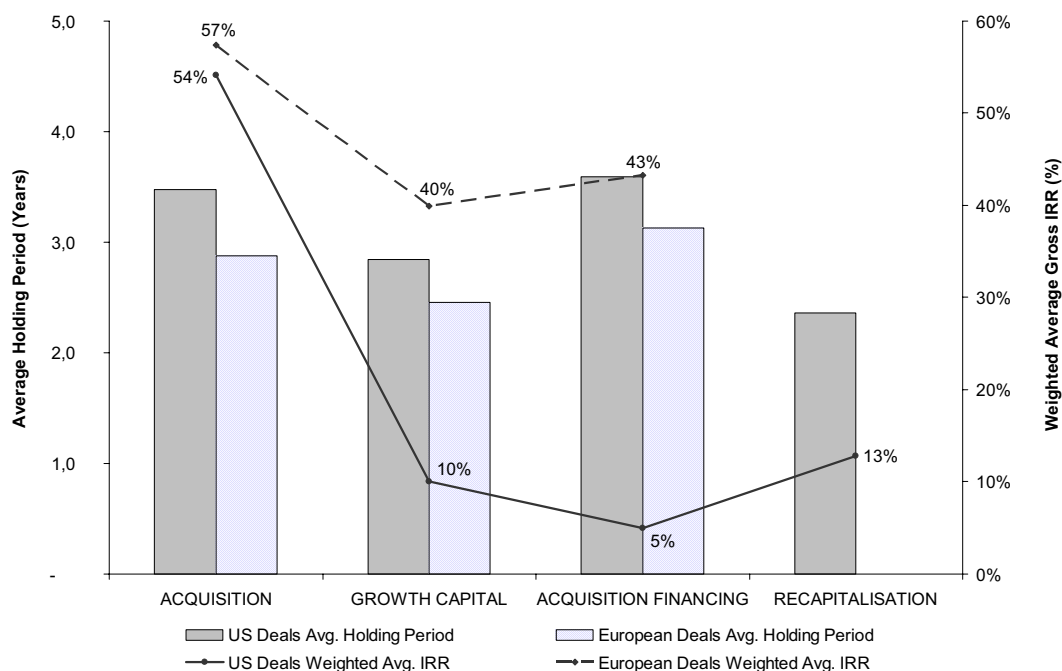
The average invested capital in the entry mode sub-sample is comparable for acquisitions and acquisition financings with US\$ 22.1 million and US\$ 22.5 million respectively. Although it may be somewhat surprising that the average deal size for the less risky acquisition financings is not higher, this should be seen in the context that the size of these investments is capped by the conventionally lower overall transactions sizes in the small- and mid-cap segment<sup>102</sup>. Naturally, investments in the growth capital sector only averaged US\$ 7.1 million due to the smaller amounts involved in follow-on equity capital injections or venture-type deals. The considerably higher

<sup>102</sup> This is assuming that the above statement that these acquisition financing events are more frequent in these segments holds.

average invested capital in recapitalizations of US\$ 40.8 million can be seen as a result of (i) the lower risk involved in re-leveraging successful buyouts compared to investing in uncertain new ones, (ii) the fact that the average deal size naturally must be higher as the recapitalization can be seen as a “secondary buyout”, hence companies are more mature and larger than the initial/average buyout.<sup>103</sup>

#### 4.3.8.1.2. Entry Mode and Holding Period

Consequently, the average holding period of recapitalizations is the lowest, with 2.3 years, as the recapitalization is commonly intended to only shortly postpone the final exit from the investment. Likewise, growth capital investments (2.5 years average holding period) in buyouts on average occur later in the life cycle of a target and thus have a shorter holding period than outright acquisitions and acquisition financings (3.4 and 3.5 years average holding period respectively).<sup>104</sup>



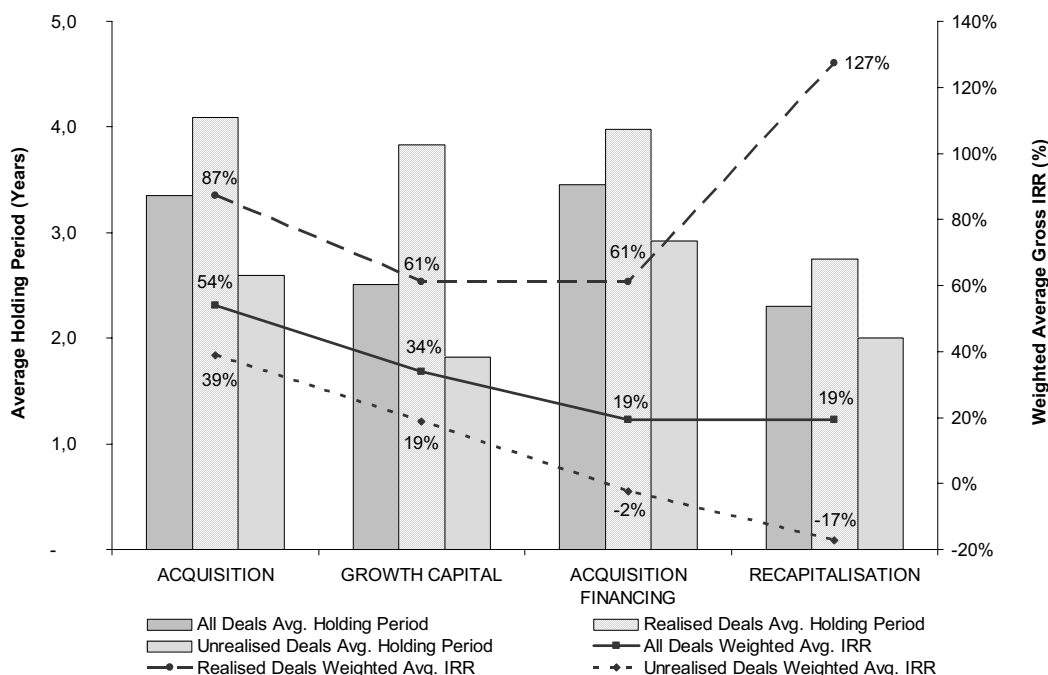
**Figure 56: Weighted Average Gross Returns of Buyout Deals by Entry Mode, Holding Period and Region**

Source: INSEAD Buyout Database, analyzed by author (Deal N=823).

A comparison of returns and average holding period between U.S. and European deals uncovers the lower average gross return for U.S. deals in any of the financing categories (i.e. growth capital, acquisition financing and recapitalization). This is partially the result of higher average holding periods before exit. However, the magnitude of the U.S.-European gap in this depiction must have further causes. One possible explanation could be the more competitive U.S. market. The low level

<sup>103</sup> Recapitalizations are common if other exit strategies are not available to the buyout fund, and can therefore be seen as a secondary deal of the same company, postponing the final public or private exit.

of deal flow and large amounts of un-invested buyout fund capital could force buyout fund managers to broadly seek co-investment opportunities, which may (i) not be as selectively chosen, (ii) are only available at less attractive (yield) terms. Although the main sample of the Limited Partners’ dataset has shown that U.S. deals outperform European deals, this smaller entry mode sub-sample points to somewhat higher returns on European acquisitions (57% of average gross IRR).<sup>105</sup>

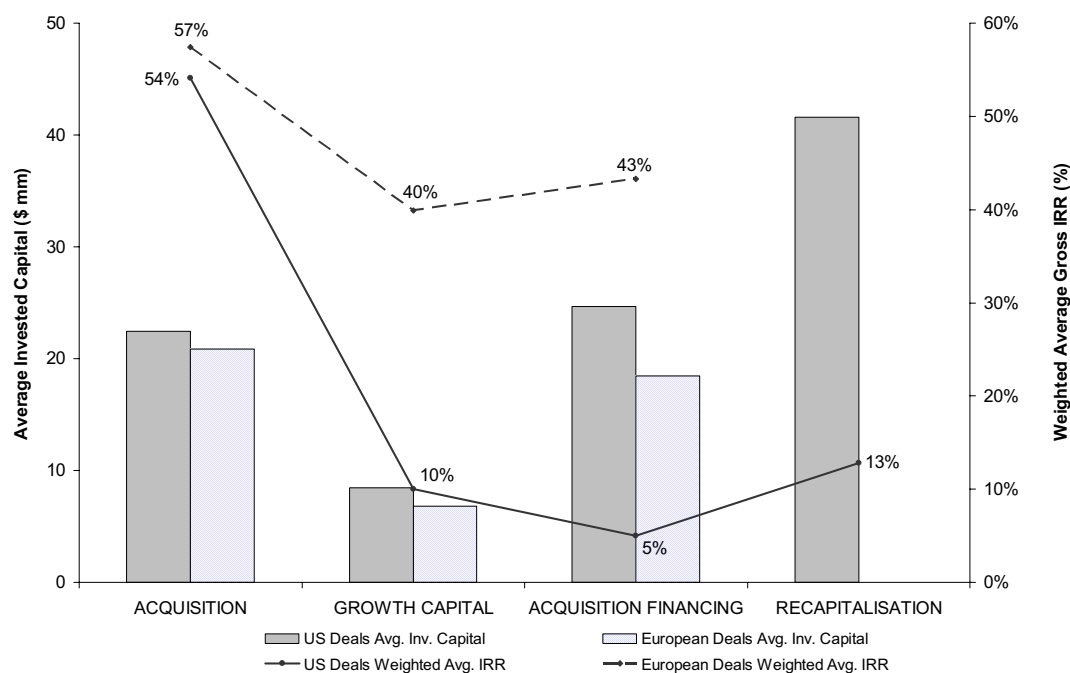


**Figure 57: Weighted Average Gross Returns of Buyout Deals by Entry Mode, Holding Period and Investment Status**  
 Source: INSEAD Buyout Database, analyzed by author (Deals N=836).

In addition to the three to six month shorter holding period for European investments, they also demonstrate to have lower average deal sizes. In particular, acquisition financings just average US\$ 18.5 for European compared to US\$ 24.7 million for U.S. deals. The gap could be either seen in a greater conservativeness per investment of European buyout funds, which may have less competitive pressure to invest large amounts of fund capital, or due to the greater openness of the European banking sector to also (acquisition-)finance smaller transactions.

<sup>104</sup> The same holds true for venture-type investments of buyout funds.

<sup>105</sup> Please note that this analysis only holds for this sub-sample and no general conclusions on the performance of European vs. U.S. deals is useful here, due to the smaller sample size of categorized realized deals.



**Figure 58: Weighted Average Gross Returns of Buyout Deals by Entry Mode, Average Invested Capital and Region**

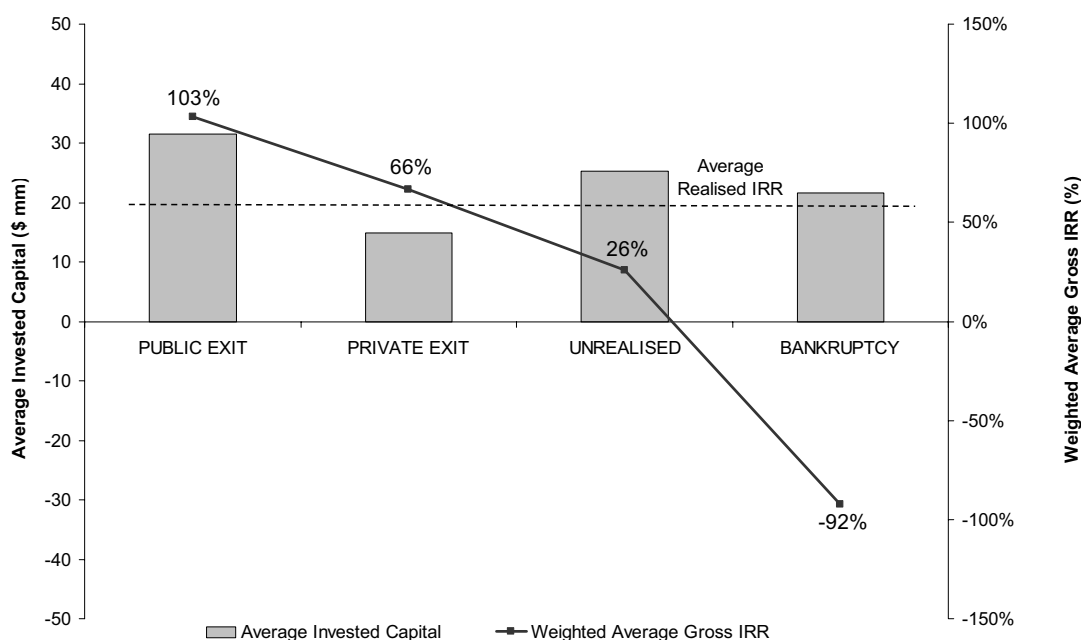
Source: INSEAD Buyout Database, analyzed by author (Deal N=823).

#### 4.3.8.2. Leveraged Buyout Performance according to Exit Mode

Results from the Venture Economics control dataset in section 4.2.2.9. had suggested that investments that were exited through an initial public offering involved the highest average net fund returns.<sup>106</sup> This finding is supported by the deal level data from the Limited Partners' database. On average, the public exit route yielded a gross IRR of 103% across all deals (and countries) in the sample. The private exit, which incorporates strategic sales, mergers and secondary buyouts, only yielded an average gross IRR of 66%. For comparison, the average gross IRR of total realized deals (independent of exit mode classification) of the Limited Partners' data was 61%, and the average IRR of unrealized deals was 26%.<sup>107</sup> Buyout transactions that led to bankruptcies could recover only very limited capital to buyout funds, generating a negative gross IRR of -92% on average.

<sup>106</sup> Fund returns served as proxy for each individual investment across a very large sample.

<sup>107</sup> Averages refer to (i) all realized transactions, including the smaller sub-sample for which exit modes have been codified, and (ii) only those unrealized transactions, which have been coded and are hence included in the exit mode sub-sample.



**Figure 59: Weighted Average Gross Returns of Buyout Deals by Exit Mode and Invested Capital**

Source: INSEAD Buyout Database, analyzed by author (Deal N=847).

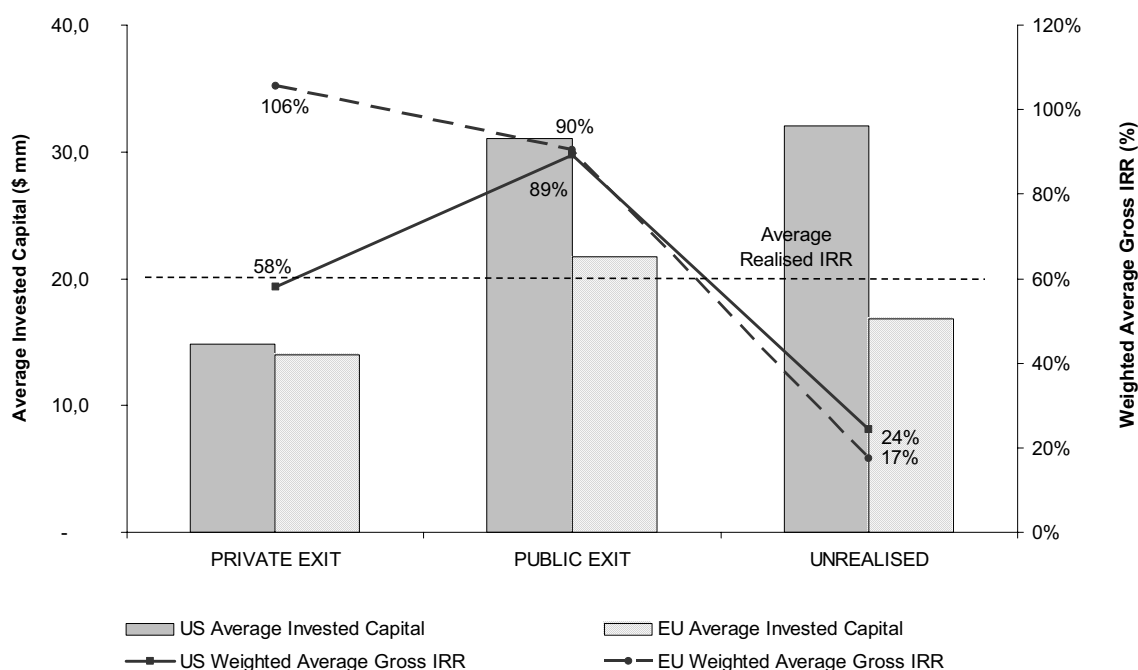
#### 4.3.8.2.1. Exit Mode and Invested Capital

These exit mode performance findings can further be analyzed with respect to the capital that was initially put at risk in the transaction. Transactions that led to an initial public offering had an average buyout fund investment of US\$ 32 million. This compares with only US\$ 15 million for private exit deals. There can be two important conclusions drawn from this higher capital allocation to private exit deals: the average deal size for these deals is higher, because (i) at the outset of the transaction, the public exit mode had a greater probability and/or due to the superior expected returns, more capital was put at risk, (ii) companies that are destined to go public post-buyout need a critical transaction size to attract equity market investors, hence the buyout fund either needs to acquire larger companies from the outset or must build the required critical size by subsequent add-on investments in order to float the buyout on the public market.

However, the potentially higher risk involved in larger average deal size transactions becomes obvious, when interpreting the US\$ 22 million of average invested capital in bankrupt deals. The elevated average capital that was put at risk in bankrupt deals could represent (i) an overpayment for the company at time of the acquisition (excessive equity and/or too aggressive leverage), (ii) the result of additional equity that was injected in the already defaulting company by the buyout firm in a rescue effort, (iii) a misinterpretation of exit opportunities. Although acknowledging a general increase in average transaction size over time, the relatively high average deal size of US\$ 25 million for unrealized deals in the sub-sample could therefore also be interpreted as an increase in risk-taking behavior among buyout funds, which may not necessarily result in higher expected returns, as seen by these findings.



When comparing these results across geographic regions, the above described trend holds true for U.S. buyout transactions, but not equally for European ones. The first distinct difference is that the private exit mode in Europe with 106% average gross IRR is even more attractive than the public exit mode with 90% average gross IRR.<sup>108</sup> The average deal size for private exit deals remains smaller than the one for public exit deals, thus making it more attractive for buyout funds – from a capital and risk allocation perspective – to focus their investment on deals that are likely to exit via the private route in Europe. The lower focus on public exit deals in Europe could also serve as an explanation for the fact that average invested capital in public exit deals is only US\$ 22 million, compared to US\$ 31 million for the U.S. The conservativeness in average capital allocation in Europe can also be observed among unrealized transactions in the sub-sample, which is almost half (US\$ 17 million) compared to the U.S. (US\$ 32 million).



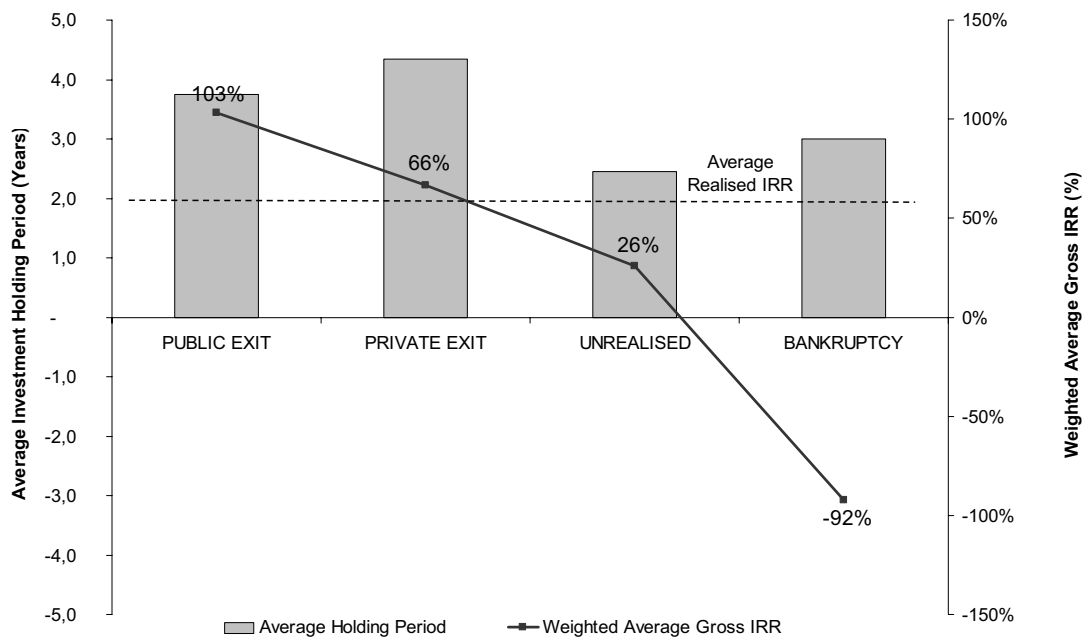
**Figure 60: Weighted Average Gross Returns of Buyout Deals by Exit Mode, Holding Period and Region**  
 Source: INSEAD Buyout Database, analyzed by author (Deal N=741).

#### 4.3.8.2.2. Exit Mode and Holding Period

Another important aspect is the time frame, in which buyout funds are able to realize their investments. This time frame, i.e. the holding period of the investment, is generally either driven by aspects of the value generation process at the buyout target or the exit environment. Nonetheless, the attractiveness of the public exit route is confirmed by the Limited Partners’ data through a shorter average holding period of 3.7 years compared to 4.3 years for the private exit route. The

<sup>108</sup> Please note that the sample size of the categorization between U.S. and Europe is slightly smaller (due to other countries and not announced). As a result, weighted averages differ slightly to the above depiction.

shorter average payback time can to some extent be understood as compensation for the higher average capital at risk in public exit deals. Moreover, another explanation for the shorter holding period of public exits could be that due to the higher expected return through public exits, buyout funds on average are likely to initially examine the IPO option before private exits. Therefore, as the more successful deals, i.e. characterized by a shorter time frame for the same level of value generation, are likely to opt for the former option, average returns are higher and average holding periods shorter for the public exit mode.

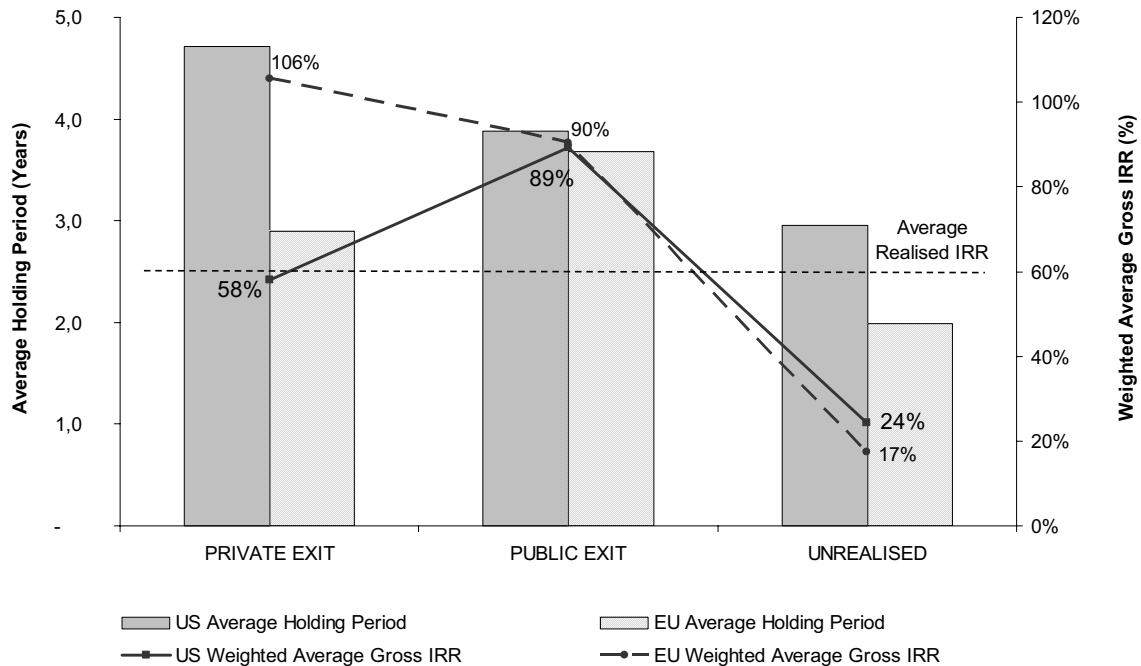


**Figure 61: Weighted Average Gross Returns of Buyout Deals by Exit Mode and Holding Period**

Source: INSEAD Buyout Database, analyzed by author (Deal N=847).

Another influencing factor of buyout performance according to exit mode becomes clear when analyzing exit modes jointly with average holding periods and according to geographic region. The above presented results that European buyout transactions perform better when exited through the private market is supported by a significantly lower average holding period of 2.9 years, compared to 4.7 years for the U.S. The effect is less clear for public exits, as both performances (89% and 90% average gross IRR for the U.S. and Europe respectively) and holding periods (3.9 and 3.7 years for the U.S. and Europe respectively) are almost analogous. Hence, the significantly shorter payback period of European private exits also appears to influence the level of expected return. The superiority of the private exit market in Europe could potentially be seen as a result of (i) a less mature European market from a consolidation perspective in a range of industries, in which strategic acquisitions (of buyout portfolio companies) – since the opening of the free trade zone in Europe in 1993 – represent important means to strengthen a company's competitive position on a pan-European basis, and (ii) the traditionally less developed markets for initial public offerings in Europe, which lack the comparable level of retail investor interest found in the U.S. and whose

regulatory obstacles have been criticized to inhibit a more fervent IPO market (EU 2002; Gompers and Lerner 2002).



**Figure 62: Weighted Average Gross Returns of Buyout Deals by Exit Mode, Holding Period and Region**  
Source: INSEAD Buyout Database, analyzed by author (Deal N=741).

#### 4.3.8.3. Regression Results

As reflected in the above trends, the entry and exit mode of the focal buyout transaction to a considerable degree appears to affect the value creation potential, i.e. the performance of the dependent variable IRR. For the entry mode, it was established that higher risk (outright acquisitions) is generally compensated with higher returns compared to, for example, acquisition financing participation. For the exit mode, prior findings from the VE dataset were confirmed that the public exit route is attractive. However, concrete differences between the U.S. and European markets were found. These variables will now be tested with respect to statistical significance.

##### 4.3.8.3.1. Descriptive Statistics

The entry mode correlation statistics show that only the “acquisition” entry mode variable is (positively and) significantly correlated at the 0.01 level (2-tailed) with the dependent variable IRR. Consequently, the comparatively higher average performance by buyout funds realized on acquisitions suggests that the diversification into other entry modes, such as growth capital,

acquisition financing and recapitalizations may not be recommended from a return perspective.<sup>109</sup> Investors in buyout funds, who are expecting top quartile performance, should therefore scrutinize General Partner plans to diversify their investment model towards lower yielding investments.

The exit mode correlation statistics show that bankruptcy is (negatively and) significantly correlated at the 0.05 level (2-tailed), which is not very surprising as the statistics are simply expressing that bankruptcies consistently lead to adverse performance. More importantly, among the profitable exit modes the public exit is (positively and) significantly correlated at the 0.01 level (2-tailed) with acquisition performance. This finding supports the above descriptive graphical results, which illustrated that the public exit route on average is the more profitable exit route. Also, although not significant, unrealized deals directionally are likely to have negative performance, which expresses the initial cash out-flows and low valuation.

Descriptive and Correlation Statistics								
Variable (Dummy) Tested	N <sup>(1)</sup>	Minimum	Maximum	Sum <sup>(2)</sup>	Mean	Std. Deviation	Pearson Correlation	Sig. (2- tailed)
<i>Entry Mode</i>								
ACQUISITION	1746	0	1	307	,18	,381	,095(**)	0
GROWTH CAPITAL	1746	0	1	65	,04	,189	0,001	0,965
ACQUISITION FINANCING	1746	0	1	26	,01	,121	0,017	0,468
RECAPITALISATION	1746	0	1	9	,01	,072	0,013	0,576
<i>Exit Mode</i>								
PRIVATE EXIT	1746	0	1	182	,10	,306	0,011	0,641
PUBLIC EXIT	1746	0	1	116	,07	,249	,083(**)	0,001
BANKRUPTCY	1746	0	1	7	,00	,063	-,058(*)	0,015
UNREALISED	1746	0	1	11	,01	,079	-0,033	0,166
Valid N (listwise)	1746							

(1) Total sample size of tested cases (all realized transactions). Includes entry and exit modes not specified.

(2) Number of cases where dummy variable = 1, i.e. number of transactions per year.

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

**Table 26: Descriptive and Correlation Statistics on Entry and Exit Modes**

The relatively high standardized coefficient Betas for acquisition and public exit underline the positive performance impact of these entry and exit mode variables. The collinearity statistics show very high tolerances (and very modest variance inflation factors), hence multicollinearity does not appear to be a problem among these variables in the bivariate regression model context.

<sup>109</sup> But could certainly be from a risk (-return) perspective. The Pearson correlation and coefficients remain positive, indicating that no losses are made on average.

		Coefficients <sup>(a)</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	<i>Entry Mode</i>							
	(Constant)	,719	,051		14,164	,000		
	ACQUISITION	,478	,118	,098	4,065	,000	,987	1,013
	ACQUISITION FINANCING	,359	,368	,023	,976	,329	,996	1,004
	GROWTH CAPITAL	,105	,236	,011	,447	,655	,991	1,010
	RECAPITALISATION	,442	,621	,017	,712	,477	,998	1,002
2	<i>Exit Mode</i>							
	(Constant)	,768	,049		15,711	,000		
	BANKRUPTCY	-1,656	,703	-,056	-2,355	,019	,999	1,001
	PRIVATE EXIT	,107	,146	,018	,734	,463	,991	1,009
	PUBLIC EXIT	,627	,179	,084	3,500	,000	,991	1,009

(a) Dependent Variable: Gross IRR Performance

Table 27: Coefficients and Collinearity Statistics on Entry and Exit Modes

#### 4.3.8.3.2. Regression Model

The linear regression model describing the explanatory strength of the entry mode construct is surprisingly weak, with an adjusted R square of only 0.8%. However, the F value for the model's fit is 4.347 and highly significant. Model 2 summarizes the bivariate regression model for the key three exit mode variables (excluding unrealized deals).<sup>110</sup> Exit modes generate an adjusted R square of 0.9%. The F value for the exit modes is higher than for entry modes at 6.112, and highly significant. The direct comparison of the two models suggests that the entry mode of a buyout may be less important than the way it is exited. Both constructs will be utilized as important control variables in subsequent advanced regression models.

Linear Regression Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,099(a)	,010	,008	1,856899	,010	4,347	4	1741	,002
2	,102(b)	,010	,009	1,855871	,010	6,112	3	1742	,000

(a) Predictors: (Constant), RECAPITALISATION, ACQUISITION FINANCING, GROWTH CAPITAL, ACQUISITION

(b) Predictors: (Constant), PUBLIC EXIT, BANKRUPTCY, PRIVATE EXIT

Table 28: Linear Regression Model on Entry and Exit Mode Dummy Variables

#### 4.3.8.4. Summary of Findings

The analysis of entry and exit mode variables revealed significant findings for the dynamics of value creation and buyout returns. The entry mode variable analysis has shown that the riskier outright acquisition yields higher returns, driven by the more extensive potential for value creation. Variable hypothesis H9 can therefore be accepted. However, other entry modes, such as recapitalizations have demonstrated to yield attractive returns, on lower perceived risk as seen by higher average capital investment. European exit modes on average performed better in this sub-

sample, driven e.g. by lower average investment holding periods. The exit mode variable confirmed that IPOs are statistically the preferred exit route from a return perspective. Variable hypothesis H10 can therefore also be accepted. Again, a surprising difference between Europe and the U.S. is, however, that the private exit market is relatively more attractive, enhanced by shorter European holding periods on this exit route. This may lead to the conclusion that the private exit market in Europe is also more active, e.g. driven through (necessary) pan-European consolidation.

### 4.3.9. Leveraged Buyout Performance according to Entry and Exit Types

#### 4.3.9.1. Leveraged Buyout Performance according to Entry Type

The quality and quantity of deal flow substantially determines the success of buyout funds. Overall, there are three main entry types to approach and eventually acquire a buyout target. First, potential targets may be approached through a *buy-side intermediary*, i.e. either an investment bank or business broker, and is then marketed or introduced to a few selective buyout funds. Buy-side intermediaries receive a commission in case of one of their acquisition ideas materializes. Secondly, companies that more actively seek an investor engage similar buy-side intermediaries, more likely an investment bank that provides additional advice, for the purpose of holding a *competitive auction*. These are generally held for larger, attractive businesses, in order to maximize the transaction value to the seller. As a consequence, due to the higher competition among buyout funds, it would be expected that returns on these auctions are lower on average according to industry observers. Finally, the *negotiated sale* resembles the proprietary deal flow that is originated by the buyout fund through direct approaches to target companies' management and/or shareholders. Due to the personally established contact and exclusive negotiations with the target, these transactions are commonly thought to involve more favorable acquisition prices for buyout funds.<sup>111</sup>

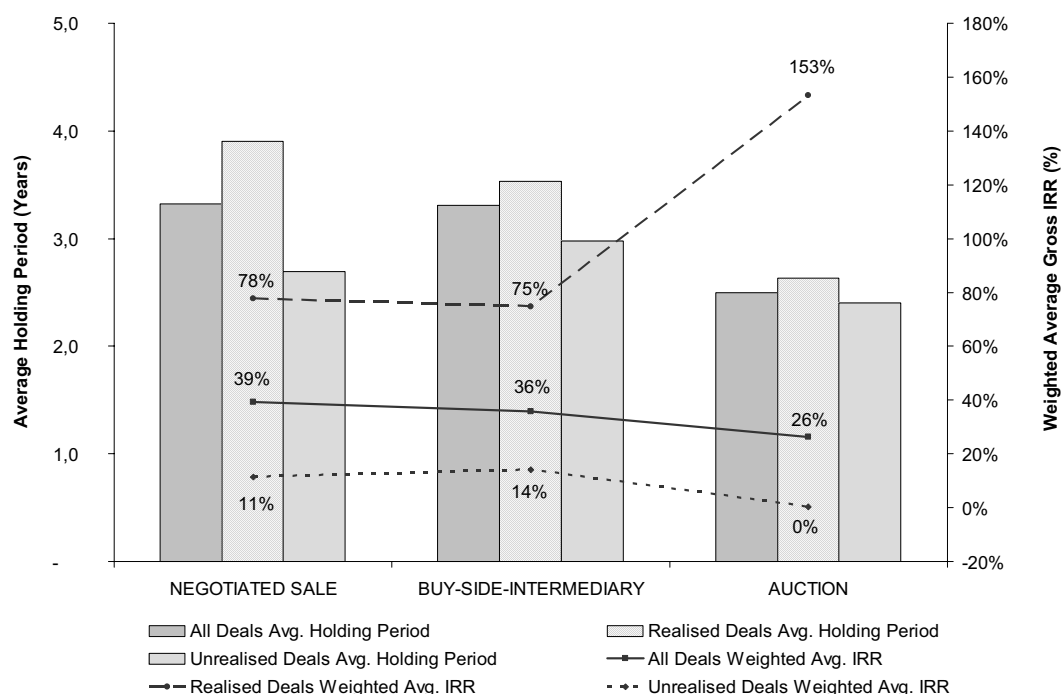
The initial descriptive findings support the hypothesis that the more exclusive, i.e. less competitive, the negotiations with the buyout targets are held in a transaction, the higher the average expected return on these investments. Therefore, the weighted average gross return on negotiated sales is highest with 39%, followed by 36% for buy-side intermediary deals and 26% for competitive auctions. However, the margin between negotiated sales and buy-side intermediary deals is astonishingly low, suggesting that either (i) more attractive assets are brokered through intermediaries, or (ii) intermediaries are not able to extract a considerable sale premium for the seller. Most surprisingly when considering only realized deals, average gross returns for deals entered through competitive auctions soar to 153%. The validity of this high return is further substantiated by a lower standard deviation of 89% for auctions compared to negotiated sales

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<sup>110</sup> Throughout all regression models in this study, only realized deals will be analyzed, unless specially mentioned.

<sup>111</sup> As a consequence, investors in buyout funds consider the amount of proprietary deal flow as one of the key criteria in their fund due diligence process.

(92%) and buy-side intermediary deals (122%). The finding is therefore in stark contrast to the expectation that competitive auctions must significantly affect returns. The *raison d'être* for this high returns in realized auctions must most likely be that on average, the most attractive buyout targets (from a value creation potential, business characteristics, e.g. market share, etc.) are being sold in competitive auctions and despite their (probably) loftier acquisition prices, the value generation potential still remains superior compensating for the higher investment cost.



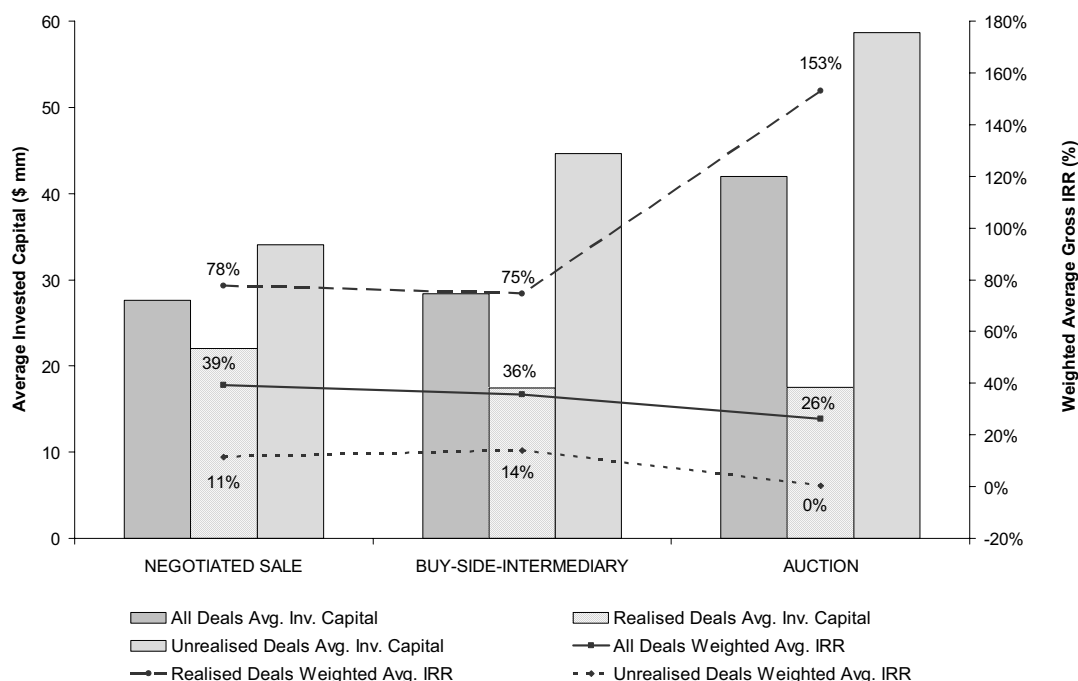
**Figure 63: Weighted Average Gross Returns of Buyout Deals by Entry Type, Holding Period and Investment Status**

Source: INSEAD Buyout Database, analyzed by author (Deal N=350).

However, introducing the holding period variable into the analysis demonstrates that the high returns on realized auction deals are related to the substantially lower average holding period of 2.5 years for these transactions, compared to 3.3 years for their counterparts. This implies that on average, deals that were auctioned must (i) be highly attractive with respect to a clear exit strategy at the time of the investment, (ii) more value generation potential can be extracted in a shorter time frame. This evidence strongly supports the above mentioned theory that the most attractive buyout targets are entered through the auction process, and that their higher than average value generation potential does materialize in superior returns.

Moreover, the average amount of invested capital for deals entered by auction is US\$ 42 million, compared to US\$ 28 million on average for its two counterparts negotiated sale and buy-side intermediary deal. Therefore, the larger average investment could be both, an indicator that deals entered by auction usually involve larger companies, or simply that a premium is paid due to the competitive nature of the sale. However, it may be worrisome trend that the high average return of

153% has been achieved on realized (i.e. investment was much further back in time) companies on a substantially lower average investment size of US\$ 18 million, and that the low (expected) return on unrealized (i.e. more recent) deals of 0% relates to an average investment size of US\$ 59 million. Consequently, the increasing trend towards auctions and the considerably larger capital invested may in the future lead to significantly lower returns than observed historically for this entry type.

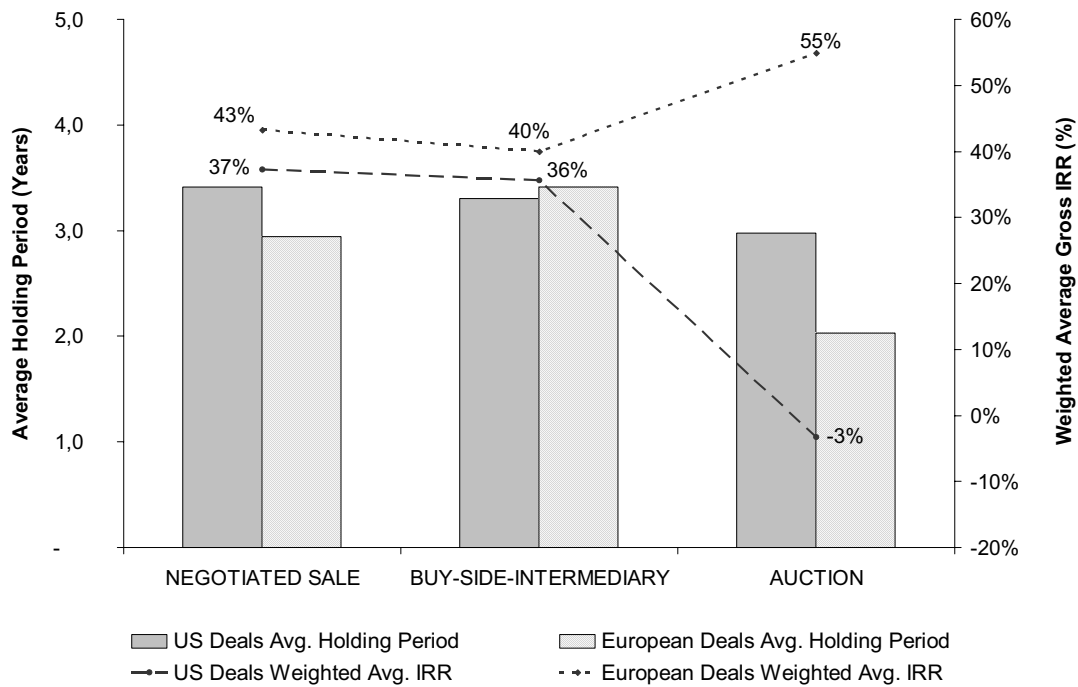


**Figure 64: Weighted Average Gross Returns of Buyout Deals by Entry Type, Average Invested Capital and Investment Status**  
Source: INSEAD Buyout Database, analyzed by author (Deal N=350).

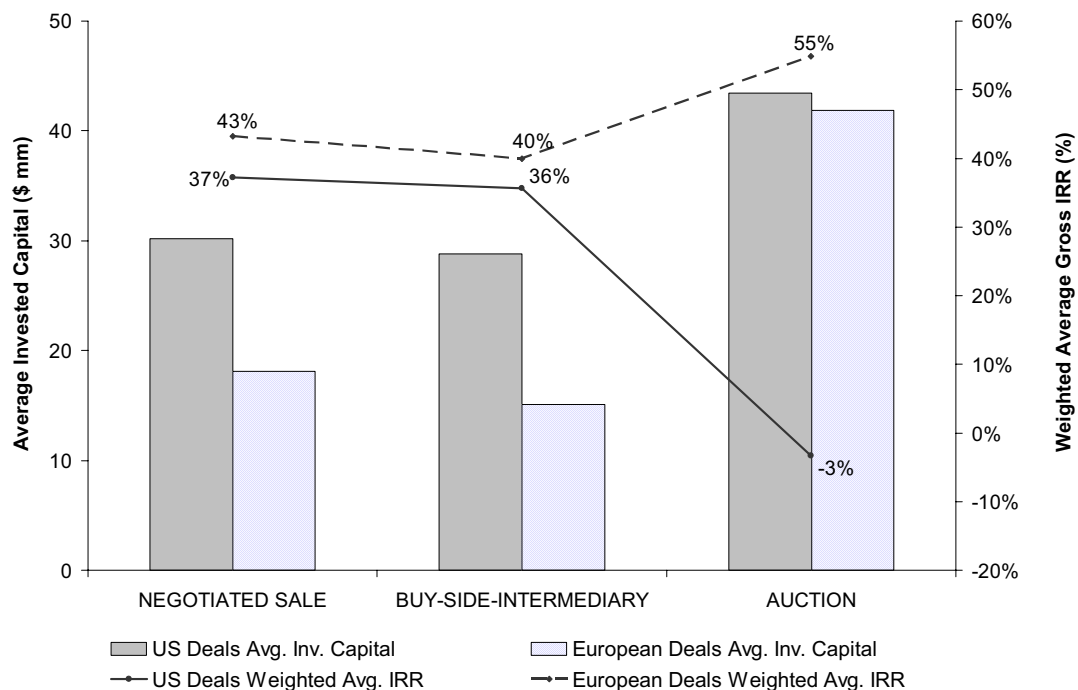
The hypothesis of a return corrosion among competitive auctions finds further evidence when comparing auction returns in an international context (see figure 65)<sup>112</sup>. The European market, depicted to be less mature and less competitive than the U.S. buyout market, displays higher weighted average gross IRRs in each entry type, but particularly strong for European auctions. The high average gross IRR of 55% found among European auctions could be seen as support for the hypothesis that high quality assets, i.e. with strong value creation potential, are being auctioned in Europe. The low return of -3% among U.S. auctions could by contrast be seen as an indication that the more mature and competitive U.S. market has had an adverse effect on this entry type and hence, U.S. auctions should be avoided by buyout funds.

<sup>112</sup> Please note again that the sample size of the categorization between U.S. and Europe is slightly smaller (due to other countries and not announced). As a result, weighted averages differ slightly to the above depiction.





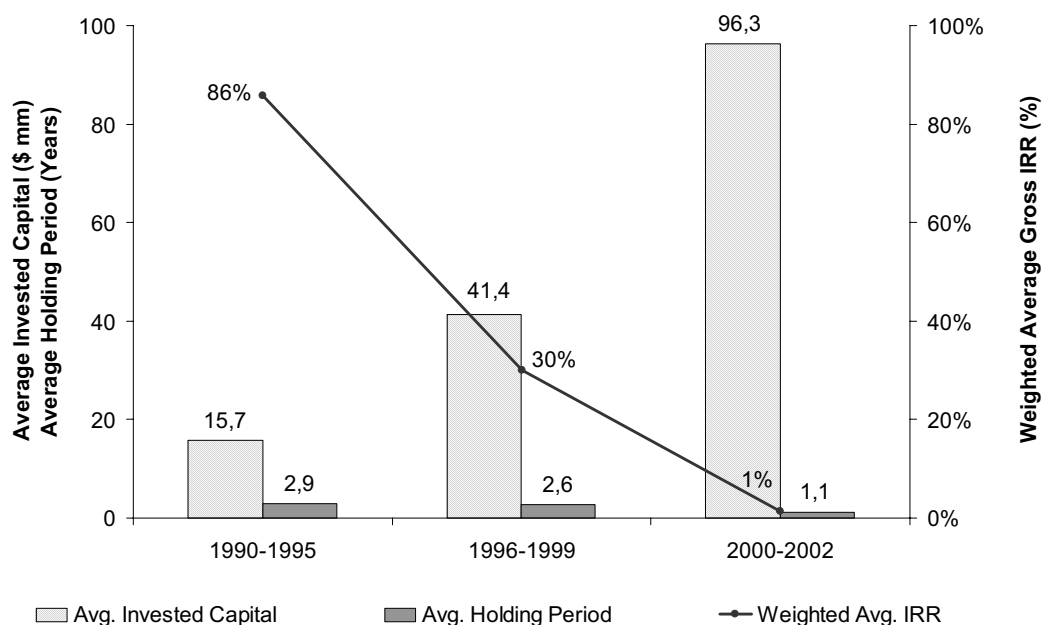
**Figure 65: Weighted Average Gross Returns of Buyout Deals by Entry Type, Holding Period and Region**  
 Source: INSEAD Buyout Database, analyzed by author (Deal N=341).



**Figure 66: Weighted Average Gross Returns of Buyout Deals by Entry Type, Average Invested Capital and Region**  
 Source: INSEAD Buyout Database, analyzed by author (Deal N=341).

With regard to average deal size (see figure 66), European and U.S. auctions are highly comparable, with US\$ 42 million and US\$ 43 million of invested capital respectively. However, average deal size for negotiated sales (US\$ 18 million for European vs. US\$ 32 million for U.S. deals) and buy-side intermediary deals (US\$ 15 million for European vs. US\$ 29 million for U.S. deals) are distinctively lower in Europe. To some extent, this could be (i) an indicator that European buyout funds attain lower acquisition prices, which is supported by higher average gross returns in each entry types, or (ii) simply the result of lower average deal sizes for European transactions.

In summary, the major identified trend among entry types is an increased utilization of auctions, which are characterized by shorter holding periods than other entry types as well as rapidly rising average deal sizes. As exhibited in figure 67, auctions have historically involved some of the most attractive buyout targets that generated high returns despite elevated purchase prices (average weighted gross IRR of 86% for the period of 1990-1995). However, the amplified competition for assets has markedly led to a constant deterioration of average gross IRR prices (30% for the period of 1996-1999 and 1% for the period of 1996-1999), especially in the U.S. The rapid rise of average invested capital between the 1996-1999 and 2000-2002 period, against the adverse development in the return profile would suggest that buyout fund returns in the future will be depressed should the buyout firm be unable to pursue proprietary deal flow opportunities.<sup>113</sup>



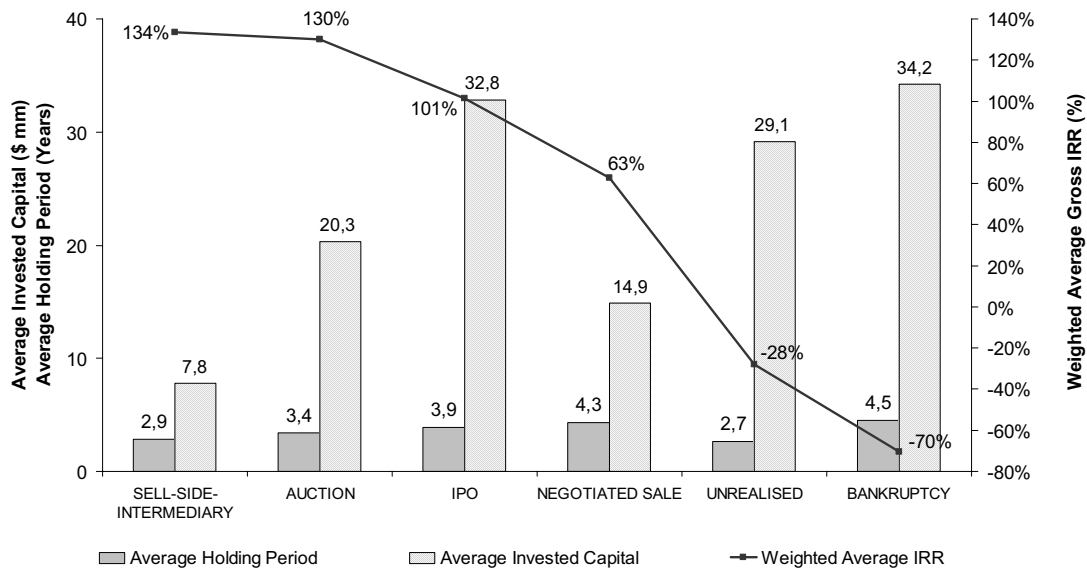
**Figure 67: Development of Weighted Average Gross Returns, Average Invested Capital and Average Holding Period of Buyout Deals acquired via Auction**

Source: INSEAD Buyout Database, analyzed by author (Deals N=37).

<sup>113</sup> This trend should be considered with a cautious view on the lower sample size of 37 auctions in this analysis.

#### 4.3.9.2. Leveraged Buyout Performance according to Exit Type

In the same way as seen in the above entry type performance categorization, there are also several options available to the buyout fund to approach the exit of a buyout. In this case, though, a decision has to be made by the buyout fund whether to employ a business broker (sell-side-intermediary), to mandate investment bankers to initiate an auction or an initial public offering of the company, or instead, to negotiate the sale of the portfolio exclusively and without external advice.



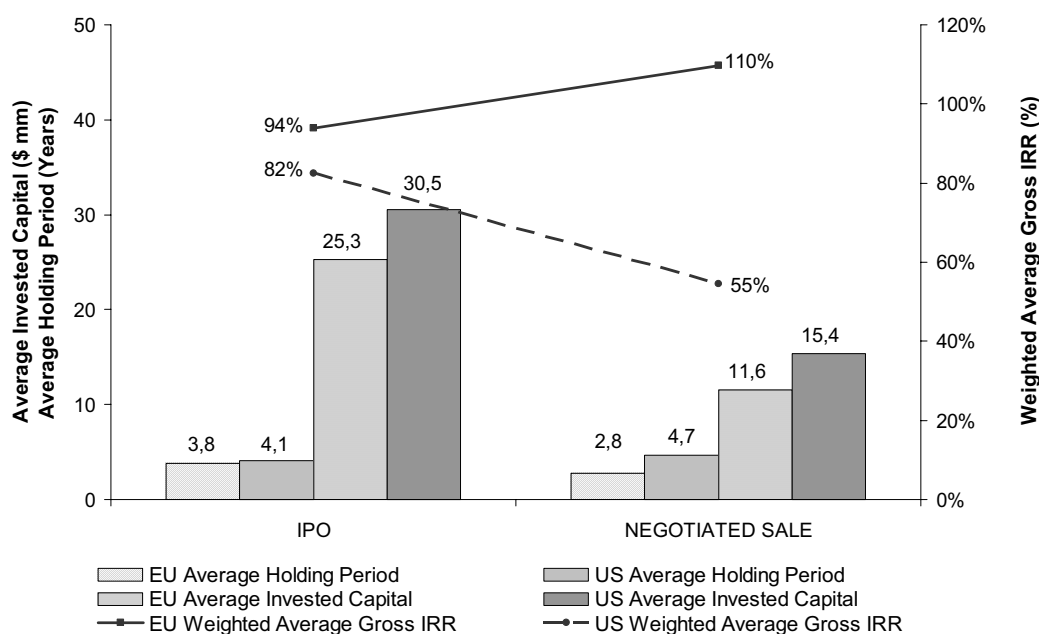
**Figure 68: Weighted Average Gross Returns of Buyout Deals by Exit Type, Average Invested Capital and Average Holding Period**

Source: INSEAD Buyout Database, analyzed by author (Deals N=700).

The findings on the performance of deals that were exited by either one of these options in the subsample of this analysis are to some extent unanticipated. The highest weighted average gross IRR of 134% was attained among deals that were sold with the help of a sell-side intermediary, closely followed by an auction (130% average gross IRR) and the initial public offering (101% average gross IRR). Markedly, all three categories have in common that external advice for the exit of the buyout company is involved. By contrast, buyout exits that were self-negotiated by the buyout fund only returned 63% of average gross IRR. This clear trend leads to the hypothesis that buyout firms may be excellent investors, but poorer “salesmen” than would have been anticipated. However, the clear trend of average holding period for these exit alternatives serves as an impending explanation for this phenomenon. The shorter the holding period of the investment, the higher the average gross return on the respective exit type. Intrinsically, this suggests that the relatively long average holding period found for negotiated sales by the buyout fund may be a result of the fact that on average, these companies are less successful buyouts that have not qualified for one of the more attractive exit options earlier. To strengthen the assumption that these businesses may be less attractive is the fact that external advisors, i.e. sell-side-intermediaries and investment bankers,

constantly approach buyout funds with exit ideas and strategies. Assuming that these external advisors thereby focus on the most attractive assets, it comes as no surprise that exactly these exit types also dominate from a return perspective. From a managerial perspective, companies that are approached directly by a buyout fund to negotiate a sale of a portfolio company may be advised to act with caution and to intensely scrutinize the rationale for this transaction.

On the other hand, the choice of exit type by the sponsor also seems to be influenced by the size of the portfolio company involved. Assuming that the invested capital at time of the acquisition is also an indication of the size of the company at time of the exit, the largest portfolio companies are disposed of through an initial public offering (US\$ 32.8 million of invested capital), while medium-size companies are exited through an auction (US\$ 20.3 million of invested capital) and for the smallest portfolio companies, a sell-side intermediary is employed to find a buyer. The average deal size of negotiated exits is US\$ 14.9 million, and may therefore be too small for an initial public offering and auction. Given this evidence of a distinct return, holding period and average deal size relationship profile, it can be concluded that buyout firms appear to be efficiently optimizing their exit strategy with respect to highest achievable average IRR.



**Figure 69: Weighted Average Gross Returns of Buyout Deals by Exit Type, Average Invested Capital, Average Holding Period and Region**

Source: INSEAD Buyout Database, analyzed by author (Deals N=311).

However, the above observed facts appear to hold true for U.S. buyouts, but less so for European deals.<sup>114</sup> As already monitored for the European private exit mode (see section 4.3.9.2.), the

<sup>114</sup> Due to a too low sub-sample size for European sell-side intermediary and auction deals, only initial public offerings and negotiated sales are compared here.

negotiated sale in Europe appears to be substantially more successful from a return perspective than in the U.S. (with 110% and 55% of average gross IRR for Europe and the U.S. respectively). On the one hand, this better return is a result of a notably shorter holding period of 2.8 years in Europe compared to 4.7 years for the U.S. Moreover, as alluded to in the exit mode discussion, the private exit (and therefore also the negotiated sale) in Europe is more frequent due to the historically less developed market for initial public offerings or auctions as an exit type.<sup>115</sup> The short holding period for negotiated deals in Europe may also be an indication of (i) better exit demand characteristics through Pan-European consolidation, (ii) better ability of European buyout fund managers to directly dispose of their portfolio companies, (iii) high average asset quality. Moreover, the relatively greater unattractiveness of European initial public offerings as an exit type are exposed by the one-year-longer average holding period for these investments (average of 3.8 years) compared to negotiated deals (average of 2.8 years). The longer holding period could be a sign that European companies struggle to exit through an IPO quickly, which potentially is enhanced through regulatory obstacles, compliance issues with reporting requirements and/or less receptive capital markets in the preparation phase of public market exits.

#### 4.3.9.3. Regression Results

As reflected in the above trends, the entry and exit types of the focal buyout transaction appear to affect the value creation potential, i.e. the performance of the dependent variable IRR. Among the entry types, the least competitive entry type, negotiated sale, does appear to be the most profitable one. By contrast, as an exit type, this route is not recommended to buyout firms. Auctions are a preferred exit, but the trend towards increasing auction activity has led to a deterioration of returns. These variables are now statistically tested with respect to their explanatory power of buyout performance.

##### 4.3.9.3.1. Descriptive Statistics

The entry type correlation statistics show that only the “auction” entry type variable is (positively and) significantly correlated at the 0.05 level (2-tailed) with the dependent variable IRR. The descriptive graphical results show that, on average, returns on buyouts that were entered via auction performed worse. However, it was also established that (i) deals entered in European auctions are significantly more profitable, (ii) the returns on auctioned deals had decreased substantially over time, and (iii) there exists a high variance between realized and unrealized auction deal returns. From a return perspective based on historical transactions, the performance of companies acquired through this entry type is statistically proven still positive overall, which may support the theory that the best assets are being auctioned. Despite this historical trend, the recent decline in auction

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<sup>115</sup> The statement should not imply that these markets are non-existent in Europe, as exemplified by several large IPOs and auctions through buyout funds in recent years. Instead, the statement refers to the overall climate across the large majority of smaller deals in Europe, among which a public exit through (negotiated) trade sale is the most common exit type.

deal performance, however, demonstrates that buyout funds may be advised to be highly disciplined with respect to bidding in competitive auctions.

Descriptive and Correlation Statistics								
Variable (Dummy) Tested	N <sup>(1)</sup>	Minimum	Maximum	Sum <sup>(2)</sup>	Mean	Std. Deviation	Pearson Correlation	Sig. (2- tailed)
<i>Entry Type</i>								
AUCTION	1746	0	1	16	,01	,095	,051(*)	0,034
BUY-SIDE- INTERMEDIARY	1746	0	1	52	,03	,170	-0,008	0,746
NEGOTIATED SALE	1746	0	1	117	,07	,250	0,005	0,851
<i>Exit Type</i>								
AUCTION	1746	0	1	9	,01	,072	0,014	0,566
BANKRUPTCY	1746	0	1	3	,00	,041	-0,035	0,149
SELL-SIDE- INTERMEDIARY	1746	0	1	4	,00	,048	0,014	0,563
NEGOTIATED SALE	1746	0	1	233	,13	,340	0,025	0,291
IPO	1746	0	1	99	,06	,231	,098(**)	0
Valid N (listwise)	1746							

(1) Total sample size of tested cases (all realized transactions). Includes entry and exit types not specified.

(2) Number of cases where dummy variable = 1, i.e. number of transactions per year.

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

**Table 29: Descriptive and Correlation Statistics on Entry and Exit Types**

As previously observed for the exit mode, the exit type correlation statistics show that the IPO exit type is strongly (positively and) significantly correlated at the 0.01 level (2-tailed), which underlines the steadily higher potential for high returns achieved through this exit type. The results do not prove statistical significance for the even stronger average returns found descriptively for deals exited via a sell-side intermediary or through a competitive auction. It therefore cannot be supported from the statistical findings to preferably follow these exit routes and buyout funds should be advised to focus on the IPO exit route. With Pearson correlation significance of around 0.56 only, the presented findings for the two alternative exit routes may be ambiguous and are sample driven, hence not statistically valid.

Coefficients <sup>(a)</sup>							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
<i>1 Entry Type</i>							
(Constant)	,805	,047		17,062	,000		
AUCTION	,993	,468	,051	2,121	,034	,999	1,001
BUY-SIDE- INTERMEDIARY	-,073	,263	-,007	-,277	,782	,997	1,003
NEGOTIATED SALE	,041	,179	,006	,230	,818	,997	1,003
<i>2 Exit Type</i>							
(Constant)	,741	,050		14,932	,000		
AUCTION	,429	,620	,016	,692	,489	,999	1,001
BANKRUPTCY	-1,478	1,072	-,033	-1,379	,168	1,000	1,000
SELL-SIDE- INTERMEDIARY	,612	,929	,016	,659	,510	,999	1,001
IPO	,822	,193	,102	4,259	,000	,990	1,010
NEGOTIATED SALE	,194	,131	,035	1,475	,140	,989	1,011

(a) Dependent Variable: Gross IRR Performance

**Table 30: Coefficients and Collinearity Statistics on Entry and Exit Modes**

The relatively high standardized coefficient Betas for auction and IPO underline the positive performance impact of these entry and exit type variables. Astonishingly, the Beta coefficient for the negotiated sale as exit type is higher than for sell-side intermediary or auction, which is in contrast to the earlier findings. On average, therefore, buyout firms increase their returns more likely through selling their portfolio companies without retaining external advisors. The Collinearity statistics show very high tolerances (very modest variance inflation factors), hence multicollinearity does not appear to be a problem among these variables in these bivariate model context.

#### 4.3.9.3.2. Regression Model

The linear regression model describing the explanatory strength of the entry type construct is very weak, with an adjusted R square of only 0.1%. Also, the F value for the model's fit is only 1.544 and not significant. Therefore, despite the significant entry type variable "auction", the overall contribution of the entry type variables under the bivariate model is negligible. Model 2 summarizes the bivariate regression model for the key three exit type variables (excluding unrealized deals). Exit types generate an adjusted R square of 1.0%. The F value for the exit modes is 4.408, and highly significant at the 0.01 level. Although the entry type model adds very limited explanatory power, both constructs will be utilized with respect to the significant control variables in subsequent regression models.

Linear Regression Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,052(a)	,003	,001	1,863136	,003	1,544	3	1742	,201
2	,112(b)	,013	,010	1,854971	,013	4,408	5	1740	,001

(a) Predictors: (Constant), NEGOTIATED SALE, AUCTION, BUY-SIDE-INTERMEDIARY

(b) Predictors: (Constant), NEGOTIATED SALE, BANKRUPTCY, SELL-SIDE-INTERMEDIARY, AUCTION, IPO

Table 31: Linear Regression Model on Entry and Exit Type Dummy Variables

#### 4.3.9.4. Summary of Findings

The analysis of entry and exit type variables revealed interesting from a practitioner point of view, yet not statistically strong findings for the dynamics of value creation and buyout returns. The entry type variable analysis has shown on an average return basis that the less competitive entry types show high returns. However, based on realized transactions only and on statistical correlation tests, the competitive auction counter-intuitively has historically been the entry type, which yielded highest returns. This can be explained with the fact that (i) the most attractive assets from a value creation or market position perspective are being auctioned, and (ii) auctioned deals also demonstrate the shortest holding period and the quicker exit increases returns. The development of recently declining returns for auctioned deals must be cautiously observed. Variable hypothesis H11 must therefore be rejected. With respect to exit types, the IPO has maintained its position as preferred exit route from a statistical validity perspective. Descriptive results had found that sell-

side intermediaries and auctions generate equally higher returns. This can not be supported from the regression tests, which directionally also show that negotiated sales by the buyout firm yield better returns. Variable hypothesis H12 must therefore also be rejected. Overall, these results therefore represent a mixed picture of what the preferred entry and exit type strategy is; the analysis with respect to which entry and exit types drive value creation therefore remains subject to further investigation in the future, preferably with even larger sample sizes.

#### 4.3.10. Summary Tests

##### 4.3.10.1. Test of Combined Entry and Exit Control Variables

The above sections in detail outlined the explanatory power of a range of entry and exit related variables. The following regression model tests the combined contribution to explaining variation in buyout performance. The combined explanatory power of all entry and exit type variables, i.e. entry and exit years, entry and exit modes as well as entry and exit types, is highly significant. Model 1 exhibits an adjusted R square for all entry and exit type control variables of 10.6%. The model's fit is described by an F value of 4.744, which is highly significant at the 0.001 level (2-tailed). Consequently, we can argue that these control variables alone present a strong explanatory basis for understanding value drivers in buyout performance and will be used in subsequent analysis (regressions).

<b>Linear Regression Model Summary</b>									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,366(a)	,134	,106	1,762889	,134	4,744	55	1690	,000

(a) Predictors: (Constant), NEGOTIATED SALE, BANKRUPTCY, ACQUISITION FINANCING, RECAPITALISATION, GROWTH CAPITAL, BANKRUPTCY, ACQUISITION, NEGOTIATED SALE, PRIVATE EXIT, AUCTION, BUY-SIDE-INTERMEDIARY, SELL-SIDE-INTERMEDIARY, PUBLIC EXIT, AUCTION, X1988, X1997, 1996, X1991, X1985, X1992, X1989, X1986, X2003, X1987, X1990, X1996, X2001, X2002, 1999, 1990, X1994, X1993, X1998, X2000, 1982, X1999, X1995, 1998, 2000, 1987, 1994, 1992, 2001, 1983, 1991, 1981, 1985, 1980, 1989, 1988, 1984, 1995, 1986, 1993, 1997

Table 32: Linear Regression Model on all combined Entry and Exit Dummy Variables

The multivariate regression model on the combined control variables exhibits several changes to significance levels of certain variables. Among entry years, the years 1980, 1981, 1987, 1999, 2000 and 2001 become significant (at either the 0.01 or 0.05 level). Moreover, the increase in deal numbers per entry years the correlation with other entry and exit variables leads to high variance inflation factors, although these remain below 10. The mean VIF is 4.914 for entry years; the maximum is 9.275 for the entry year 1995. More drastically, all exit years from 1985 to 2000 become significant (at either the 0.01 or 0.05 level). This is most likely related to correlation with exit type and exit mode variables. However, the collinearity tolerance remains high, with the mean VIF reaching only 2.352. With respect to entry and exit mode/type dummy variables, acquisition, buy-side intermediary, negotiated sales (entry), bankruptcy (mode) and public exit become



significant. All variance inflation factors for these variables remain below 2.0 though.<sup>116</sup> See appendix 1 for an overview of the model's coefficients.

#### 4.3.10.2. Test of Buyout Firm Variables

It must be expected that certain buyout firms (or General Partners, “GPs”) in the buyout transaction sample may perform significantly better or worse than the average buyout firm. This represents an important control factors, as other effects under observation may otherwise be influenced through several General Partners' statistical under- or over-performance.

##### 4.3.10.2.1. Descriptive Statistics

The correlation statistics reveals that 14 of the 87 General Partners in the Limited Partners' dataset sample are highly correlated with buyout gross performance (IRR). Among these, eight General Partners (GP number 10, 22, 40, 42, 47, 60, 70, 72) significantly (at the 0.01 and 0.05 level; 2-tailed) out-perform, as well as six General Partners (GP number 20, 33, 63, 67, 76, 81) under-perform other GPs in the sample.<sup>117</sup>

Descriptive and Correlation Statistics								
Variable (Dummy Tested)	N <sup>(1)</sup>	Minimum	Maximum	Sum <sup>(2)</sup>	Mean	Std. Deviation	Pearson Correlation	Sig. (2-tailed)
<i>General Partner Code</i>								
10	1746	0	1	51	,03	,168	,069(**)	0,004
20	1746	0	1	72	,04	,199	-,055(*)	0,021
22	1746	0	1	10	,01	,075	,129(**)	0
33	1746	0	1	7	,00	,063	-,054(*)	0,025
40	1746	0	1	12	,01	,083	,218(**)	0
42	1746	0	1	13	,01	,086	,059(*)	0,014
47	1746	0	1	55	,03	,175	,051(*)	0,033
60	1746	0	1	2	,00	,034	,100(**)	0
63	1746	0	1	43	,02	,155	-,050(*)	0,037
67	1746	0	1	115	,07	,248	-,065(**)	0,007
70	1746	0	1	22	,01	,112	,097(**)	0
72	1746	0	1	9	,01	,072	,108(**)	0
76	1746	0	1	81	,05	,210	-,056(*)	0,019
81	1746	0	1	80	,05	,209	-,108(**)	0
Valid N (listwise)	1746							

(1) Total sample size of tested cases (all realized transactions).

(2) Number of cases where dummy variable = 1, i.e. number of transactions per variable tested.

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

**Table 33: Descriptive and Correlation Statistics on General Partners**

These results denote an initial confirmation of the existence of a “GP effect” for leveraged buyouts, i.e. besides financial and market drivers influencing a transaction it emerges to be inherently important, which buyout firm is undertaking the deal. This finding could have far-reaching practical implications with respect to (i) supporting buyout investors' investment decision during fund diligence, (ii) target company management's decision on choice of General Partner to work

<sup>116</sup> Due to the high number of variables, a correlation matrix has been omitted here.

<sup>117</sup> General Partners have been codified with an assigned number code in order to protect anonymity.

with in a contemplated buyout transaction. This study therefore endeavors to shed further light on some of the potential explanations for the “GP effect” (see empirical chapters II and III).

The GP variable regression model’s standardized Beta coefficients demonstrate the extent of “significant” performance of some of the General Partners under review: GP 40 carries the highest standardized Beta with 0.237 and GP 81 the lowest standardized Beta with -0.052. The t-test shows that several GPs become non-significant within the multivariate model’s context (GP numbers 20, 63, 76). These GPs all carry negative Beta coefficient, which is partially related to the lower downside scale in the dependent variable IRR (i.e. maximum -100% loss) compared to the possible “infinitely high” (i.e. higher than +100%) positive IRRs found for other GPs. As would be expected for separately operating General Partner firms, collinearity is no issue among them.

Coefficients <sup>(a)</sup>								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	<i>General Partner Code</i>							
	10	1,191	,294	,108	4,045	,000	,714	1,401
	20	-,043	,263	-,005	-,162	,871	,641	1,559
	22	3,628	,577	,147	6,288	,000	,925	1,081
	33	-1,125	,681	-,038	-1,652	,099	,946	1,057
	40	5,345	,531	,237	10,069	,000	,912	1,097
	42	1,722	,512	,079	3,362	,001	,905	1,105
	47	,981	,287	,092	3,421	,001	,698	1,432
	60	5,939	1,248	,108	4,759	,000	,984	1,016
	63	-,132	,313	-,011	-,422	,673	,746	1,340
	70	2,046	,407	,122	5,025	,000	,850	1,176
	72	3,251	,606	,125	5,367	,000	,932	1,073
	76	-,022	,254	-,003	-,088	,930	,615	1,625
	81	-,465	,255	-,052	-1,825	,068	,618	1,618

(a) Dependent Variable: Gross IRR Performance

Table 34: Coefficients and Collinearity Statistics on General Partners

#### 4.3.10.2.2. Regression Model

The linear regression model describing the explanatory strength of the General Partners’ firm dummy variables is very strong, with an adjusted R square of 11.9%. The F value for the model’s fit is 4.014 and highly significant ( $p < .001$ ). It is therefore particularly important to control for the performance of significantly (positively or negatively) performing individual buyout firms. These findings and the strength of the regression model on General Partner performance therefore provide evidence towards a theory for a “GP effect” on performance in leveraged buyout transactions, which will be developed further in the course of this study.

Linear Regression Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,398(a)	,158	,119	1,749868	,158	4,014	78	1667	,000

(a) Predictors: (Constant), 9, 66, 85, 74, 60, 36, 32, 71, 41, 39, 77, 61, 31, 2, 44, 78, 43, 33, 16, 12, 1, 52, 4, 27, 26, 72, 69, 59, 86, 84, 22, 18, 34, 3, 28, 53, 5, 40, 83, 8, 42, 73, 51, 50, 46, 79, 54, 48, 21, 82, 68, 6, 75, 65, 49, 19, 15, 7, 70, 58, 64, 29, 55, 25, 13, 38, 63, 56, 10, 47, 45, 80, 57, 20, 81, 76, 17, 24

Table 35: Linear Regression Model on General Partners

#### 4.3.10.3. Test of Combined Entry, Exit and GP Firm Variables

The broad analysis of the various variables affecting buyout performance in this chapter has demonstrated the extent of market, acquisition and GP firm related factors influencing the dependent variable IRR. The below nested multivariate regression models summarize this initial analysis: model 1 carries all significant variables found in the analysis of entry and exit type, mode, and years, significant industries (based on categorization Level 4), the significant investment holding period variable as well as deal size (“Initial investment USD”). The model posts an adjusted R square of 22.8%, with a strong F value for the model’s fit of 10.351 and is highly significant at the 0.001 level (2-tailed). This relatively small set of significant variables therefore explains over one fifth of the variance of leveraged buyouts in the Limited Partners’ primary sample.

Linear Regression Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Value Change	df1	df2	Sig. F Change
1	,502(a)	,252	,228	1,159134	,252	10,351	18	552	,000
2	,518(b)	,268	,241	1,149040	,016	5,870	2	550	,003
3	,631(c)	,398	,304	1,100756	,130	1,865	57	493	,000

- (a) Predictors: (Constant), 1984, 1998, 1999, X2001, X1987, X1988, X1989, ACQUISITION, PUBLIC EXIT, AUCTION, BANKRUPTCY, LESUR, SFTCS, INFOH, ENGEN, TELCM, Initial Investment USD, Holding Period  
 (b) Predictors: (Constant), as above, plus Market Performance, Industry Performance  
 (c) Predictors: (Constant), as above, plus all GPs

**Table 36: Linear Regression Model on Deal Size Variables**

In order to put the significance of the so far identified value drivers into perspective, Model 2 introduces the control variables for each transaction’s comparable industry and equity market index performance, which will be further discussed in the next sections of this chapter. The adjusted R square improves only slightly to 24.1%, the change in F value is 5.870 and significant at the 0.01 level (2-tailed). Although the impact of public market performance and its financials will be discussed in more detail in the following sections, it can already be noted at this stage that the impact of public markets is marginal compared to the so far examined control variables. Model 3 introduces all GP variables. The adjusted R square rises to 30.4%, while the F value improves by 1.865 and is highly significant at the 0.001 level (2-tailed). The strong rise in adjusted R square provides clear evidence of a “GP effect” in leveraged buyouts, i.e. that particular buyout firms are performing substantially better or worse, and that this effect may be more significant than some market related drivers. Variable hypothesis H13, which argued for a strict application of efficient market theory to buyout investments, i.e. no buyout firm could outperform the market on a continuous basis, therefore has to be rejected. The following sections will further test the influence of market and financial drivers. The empirical part II will subsequently take a closer look at GP firms and their team profiles and empirical part III will analyze various buyout strategies these General Partners undertake, in order to establish what may explain this observed diversity in performance.

#### 4.3.11. Summary of Test Results

The initial tests of leveraged buyout deal performance in this section have demonstrated the extent of explanatory power of market, acquisition, and GP firm related control variables in explaining variance in buyout performance and in identifying value drivers. It was established that the year a buyout target has been acquired and exited may impact the buyout's performance, as it indicates general market and economic conditions. No final conclusion could be drawn with respect to a country specific dominance of buyout returns, as several European countries descriptively outperform, but the U.S./Canada statistically appear to provide for better returns. The industry in which a buyout target is acquired is equally important, and several surprising findings when compared to the Venture Economics control dataset could be found: the information technology sector, and especially the software development segment, has been a successful area of investment of buyout funds. Among the more traditional sectors, the service sector, particularly the non-cyclical segment, as well as the financial service sector as a whole, have been recognized as a source of strong buyout returns. The analysis of amount of capital invested showed that small investments perform best, which may hint at successful co-investment activity of some buyout funds. This theory received further support from the analysis of the size of ownership stake acquired in a buyout, as besides the strong performance of the "full control" acquisitions also minority investments performed exceptionally well. Large and mega-deals also performed surprisingly well in the reviewed Limited Partners' dataset. The holding period of a buyout transaction demonstrated a clear adverse relationship with buyout performance. The optimal exit time for buyouts has been established within the first two years, as subsequently the marginal value creation potential at the target diminishes and does not justify to hold on to the investment for the buyout firm.

The analysis of entry and exit mode and type variables did not prove to be strong from a statistical point of view point, but offered valuable insights into the investment behavior of funds. The outright acquisition has been identified as most rewarding entry mode, but also the less risky recapitalization provided solid returns. The exit mode IPO was statistically significant, but surprisingly, the private exit route appears to be the better alternative for Europe. A transaction should be entered and exited with the least and highest competitive environment respectively in general. Nevertheless, deals entered by auction historically proved to be considerably more successful than would have been anticipated by market observers. It was theorized that this could be in relation to the comparatively higher quality of assets that enter auction processes, which are most likely characterized as (i) larger businesses, (ii) with more value creation potential, (iii) that are being exited faster, and hence provide superior returns to compensate for higher acquisition prices through the auction process. Nevertheless, it was also found that the increase in auction activity leads to a deterioration of returns. Finally, the General Partner firm undertaking the buyout has statistically been verified as a potential significant source of value creation. This evidence is seen as motivation to study the GP firm in more depth in the empirical chapters II and III.

## 4.4. Leveraged Buyout Deal vs. Public Market & Industry Financial Performance

### 4.4.1. Test Setting

The guiding test question for this chapter and especially for this section had been stated as follows:

*Do Private Equity Funds, especially LBO Funds, as well as individual LBO transactions create value, i.e. do they provide (market-adjusted) abnormal returns for investors? If so, how does this performance compare to performance of public market indices in the exact same industries over the exact same time horizon?*

The first and second section of the empirical test of market and financial drivers of value creation has focused mainly on entry and exit conditions of the focal buyout transaction, as well as general factors such as holding time, invested capital or industry classification. The latter factor will be further developed in this test section, as the distinct industry classification of the Limited Partners sample allows a sharp comparison between actual deal performance and the comparable public market index over the exact same time horizon as the buyout firm held its investment. This analysis therefore seeks to shed light on the actual “real value creation”, or excess performance of the focal LBO over public markets. In addition, the aggregation of results across the large Limited Partners sample allows drawing conclusions across industries and time. The value creation that is made explicit is necessarily the result of better operating and financial performance, leverage and strategic decisions, driven by the acquiring buyout firm. The financial performance will be further scrutinized in this section by setting it in relation to industry development, and examined on the buyout level in the next and final test section in this chapter. In summary, the main tests in this section include:

- Value Creation compared to Industry Classifications
- Value Creation compared to Equity Markets
- Value Creation Performance Indices
- Value Creation and Industry Financial Performance Conditions

Descriptive graphical results on the primary Limited Partners sample will be presented. In addition, the section features an extensive statistical evaluation of the observed trends with (nested) multivariate regression models. The test section ends with a combined regression among all public market and industry financial drivers in order to illustrate the combined explanatory power of these variables.

#### 4.4.1.1. Variables and Hypotheses

Results of in-depth studies on performance of Private Equity as an investment asset class as well as returns to investors has produced mixed results so far. Kaplan and Schoar (2003) find no significant out-performance of Private Equity, with average returns net of fees approximately equal the S&P 500 performance over their sample period. Jones and Rhodes-Kropf (2003) use the same data set, but focus in their paper on the pricing of idiosyncratic risk. Their results are qualitatively similar for venture funds and slightly better for buyout funds. However, Ljungqvist and Richardson (2003) study the returns on investments in 73 venture and buyout funds by one Limited Partner in funds raised from 1981 to 1993 and find that the funds in their sample – 54 buyout funds and 19 Venture Capital funds – outperform the equity market in the order of five plus per cent per annum. In summary, results for buyout funds have been more ambiguous than those for venture funds, mainly due to the more or less questionable general assumption that equity betas of buyout portfolio companies are roughly equal to one. The focus in all of these studies, however, is on net (fund) returns to investors (i.e. after fees) in order to create a benchmark for investment decisions. By comparison, the Limited Partners' dataset in this study provides performance information on the individual deal level and is based on gross returns in order to compare actual underlying performance between the focal investment and public equity markets. In the following, several testable guiding hypotheses for the above outlined tests are developed, which are based on (i) initial findings from the control group, (ii) literature findings, and (iii) industry expert interviews.

Assuming that Private Equity investors have strong incentives to choose investments that result in a high gross internal rate of return (IRR) to provide for (i) superior fund returns (compared to the industry) in order to remain competitive, i.e. attract more capital in subsequent fundraising efforts, and (ii) considerable personal compensation (through co-investment and participation through carried interest), it is expected that

*H14.) Gross returns on individual buyout transactions undertaken by General Partners are significantly higher than in comparable public companies within the same industry over the holding period of the buyout target firm.*

Ljungqvist and Richardson (2003) and Gottschalg, Phalippou et al. (2003) show that Private Equity investors demand a liquidity premium over public market indices for holding an illiquid investment through their fund commitment. As a consequence, buyout firms are not only required to ensure that their investment(s) outperform(s) their respective industry index, which could at times be in a cyclical downturn, but on average also to generate returns in excess of overall equity markets plus a liquidity premium. It is therefore expected that

*H15.) Gross returns on individual buyout transactions undertaken by General Partners are significantly higher than the applicable broader equity market performance over the holding period of the buyout target firm.*

In addition, one of the key characteristics of Private Equity as an investment asset class is the low correlation with public market returns, which is beneficial to diversification strategies in asset

management. Bance (2002) provides an overview of correlation studies and finds that correlation between Private Equity and equity and bond markets is low. It is therefore expected for the Limited Partners sample that

*H16.) Gross returns on individual buyout transactions undertaken by General Partners have a low correlation with their respective industry indices' performance.*

Section 4.3.4. has demonstrated that buyout returns may be significantly explained by the industry in which they are being undertaken. This leads to the assumption that the industry's overall financial performance over the time of the buyout is exceptionally well. Following the financial value drivers of IRR, as developed in section 3.5.4., industry performance must therefore be analyzed with respect to sales growth, margin expansion, multiple expansion and cash flow generation, which benefits the de-leverage effect of the business, over the time of the investment. The practical difficulty is that industry performance is only generated for year-end as an average of all underlying industry players. It is therefore recommended to focus the observation of industry financial performance on the fiscal entry and exit years of the transaction, and to infer from past and expected performance at those times, what industry financial conditions were. It is therefore expected that

*H17.) Gross buyout deal performance is higher for transactions undertaken when (a) the industry's revenue growth prospects were high and (b) exited when the industry's revenue growth prospects were low.*

*H18.) Gross buyout deal performance is higher for transactions undertaken when (a) the industry's margin expansion prospects were high and (b) exited when the industry's margin expansion prospects were low.*

*H19.) Gross buyout deal performance is higher for transactions undertaken when (a) the industry's trading multiple expansion prospects were high and (b) exited when the industry's trading multiples had reached a peak.*

*H20.) Gross buyout deal performance is higher for transactions undertaken when (a) the industry's cash flow generation and de-leverage prospects were high.*

#### 4.4.1.2. Methodology and Data

Following a similar approach as Ljungqvist and Richardson (2003), the author is measuring relative performance of LBO investments and LBO funds using excess IRRs, i.e. the difference between an investment's (or fund's, respectively) IRR and the return on the public equity market. Due to the fact that exact deal entry and exit dates are available, the relevant public equity market performance can also be determined and aggregated on the fund level, receiving a precise investment-based fund level IRR. In doing so, the author follows earlier studies, in which equity betas of buyout portfolio companies are assumed to be equal to one (average market risk). This approach therefore discounts

the impact of a higher leverage factor and does not make adjustments for its effect on risk and performance.<sup>118</sup>

In order to determine whether leveraged buyouts create value at any given time and within any given industry, their performance must be benchmarked against other companies and/or public market indices. The industry classification of LBO transactions in this study has intentionally been chosen from data provider Thomson Financial Datastream. There are detailed industry public market indices available, generally reaching back into the early 1970s or whenever an industry was “born”, e.g. in the high tech sector (see industry classification overview in section 3.6.5.).<sup>119</sup> Furthermore, Datastream also provides complete financial accounting data for the majority of the industries it follows, which are based on the major publicly traded companies in that particular sector. This unique dataset allows for far-reaching benchmarking opportunities of buyout deals as (i) each buyout transaction’s performance can be compared to the public market performance of highly similar companies, (ii) the impact of industry financial performance on the performance of the buyout target can be analyzed, and (iii) a potential financial accounting benchmarking between buyout target and the industry would allow for an evaluation of the impact of key financial value drivers in each transactions, i.e. whether the buyout target performed better or worse than the industry.<sup>120</sup> The focus of tests in this section will be on the analysis of the buyout target’s main industry financial developments – revenue growth, EBITDA (margin) growth, trading multiple growth and change in financial (de)leverage – and their impact as value drivers for buyout transactions.

#### 4.4.2. LBO Value Creation by Industry Sector

A sub-sample of 637 realized buyout transactions, for which industry classifications were available, has been analyzed with respect to the development of average gross IRR according to the major ten industries. Furthermore, the respective public market performance in the industry sector for the exact same time period (i.e. from acquisition date of the buyout target to exit) has been generated from Datastream. Effectively, a comparison is made of whether the buyout firm should have invested equity in the buyout target or simply should have bought into the comparable public market index. The difference between average gross IRR per industry sector and average public stock market performance per sector represents excess performance, or leveraged buyout driven value creation beyond (or below) industry performance.

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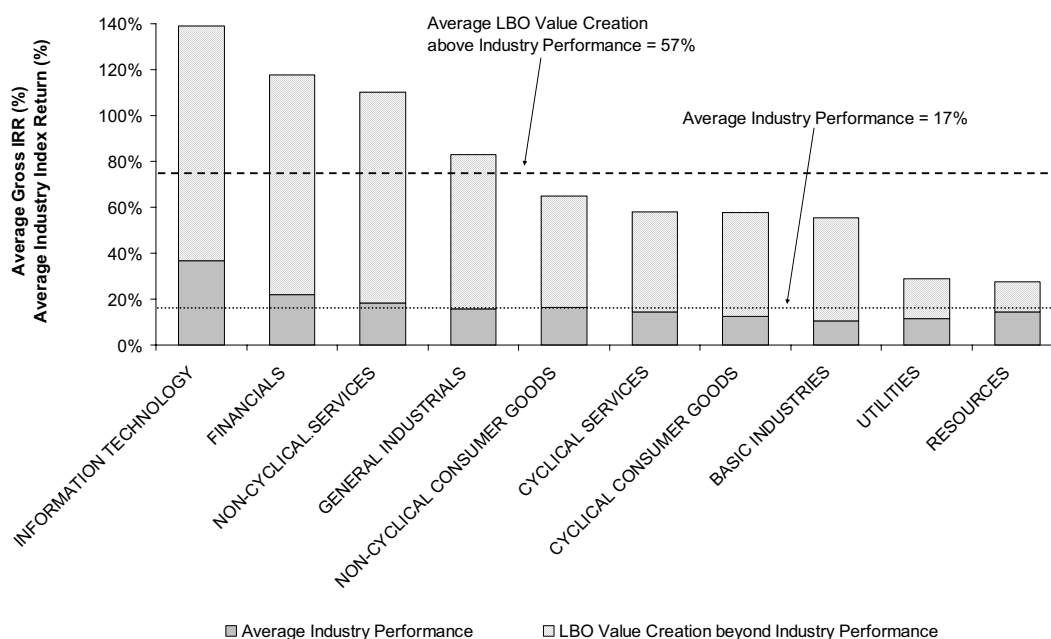
<sup>118</sup> For a more in-depth discussion and approaches to measure risk in buyout funds, see Ljungqvist and Richardson (2003), Kaplan and Schoar (2003), Jones and Rhodes-Kropf (2003). This literature shows that there is no consensus on estimating risk for buyout funds yet, but that CAPM-Betas are not significantly different from average market risk.

<sup>119</sup> Several other frequently used security data provider such as Dow Jones, MSCI, S&P, MSDW, etc. could either not provide the necessary detail with respect to industry classification and/or time.

<sup>120</sup> This comparison requires a sufficient set of financial accounting information for a sample of buyouts, which is specifically difficult to obtain. See section 4.5. of this study for an initial analysis.



The results clearly point to significantly superior average value creation among buyout companies compared to publicly traded companies. The average public industry index performance of all realized buyouts (between 1980 and 2002) across all industries was 17%. The average LBO value creation beyond public markets was calculated as 57%, hence the average gross IRR of all buyouts was 74% in this sub-sample. However, the degree of value creation differs considerably between industries. The strong average public market performance in the information technology industry of 37% was topped by an additional 102% of value creation among companies acquired through buyout funds. Potentially more surprising, the financial services sector public markets on average returned 22%, but an additional 96% of value was generated among the sample's buyout targets. In some industries, however, the value creation potential appears to be substantially lower, such as in the resources (14% of public market, and 13% of additional value creation) and utilities (11% of public market, and 18% of additional value creation) sectors. This underlines earlier findings that the overall value creation potential in these often highly regulated commodity-type businesses is very limited.



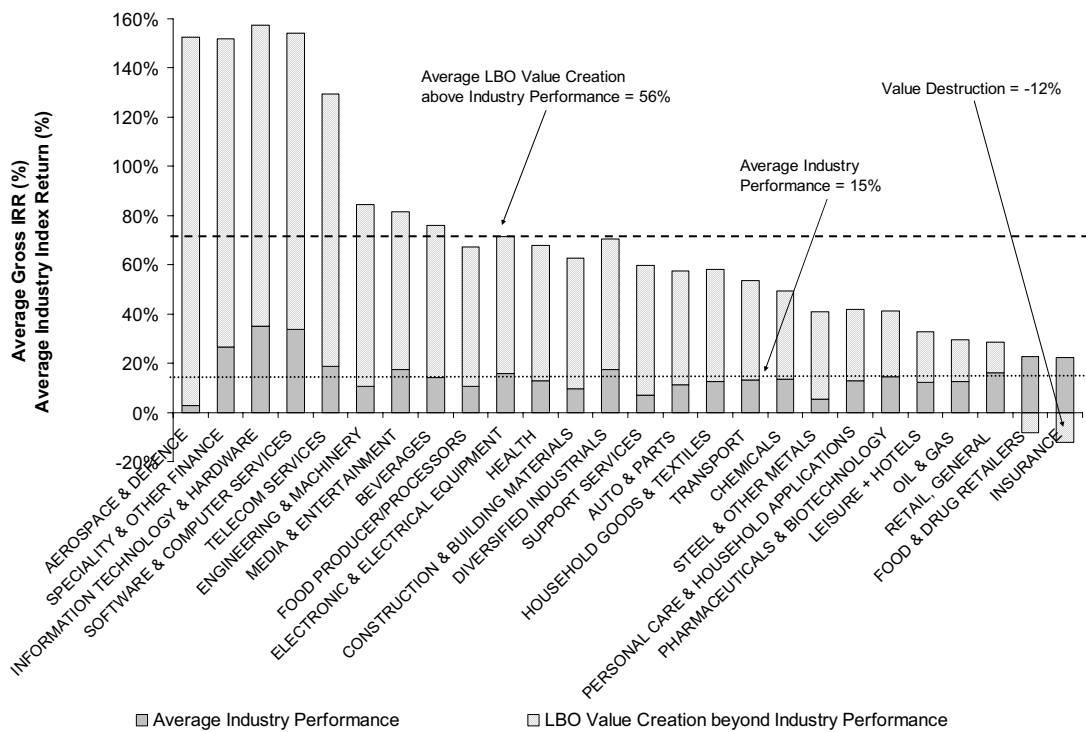
**Figure 70: Realized LBO Deals' Value Creation vs. Industry Indices (Level 3)**

Source: INSEAD Buyout Database, analyzed by author (Deal N=637).

By examining the more detailed Level 4 industry classification, it can be observed which individual industries in the above indicated main industry segments are (or are not) creating superior value.<sup>121</sup> Markedly, the aerospace and defense sector only returned 3% on public markets over the average

<sup>121</sup> The Level 4 sub-sample consists of n=562 buyouts, which are n=75 less than on Level 3. The reason for the lower sample is that (i) some companies could not be further specified according to more detailed industry sectors from the information obtained, (ii) several Level 4 sub-sectors have been omitted due to insufficient sample size. The minimum sample size is five, maximum 44 and mean is 22 buyouts per Level 4 industry sub-sector.

time of the buyout transactions, while an extra 150% could be generated through buyout firms. Despite a generally high deal flow in the buyout market in the retail sector, very low value was generated in the Limited Partners sample relative to other industry sub-sectors. For example, general retail returned 16% on public markets, while buyout firms could add another 12%. More significantly, food and drug retailers returned a higher 23% on public markets, but value was destroyed by an average -8% for transactions carried out by buyout firms in this sector. The low value creation in the retail sector could potentially be linked to the extremely competitive character and margin pressure in this sector.

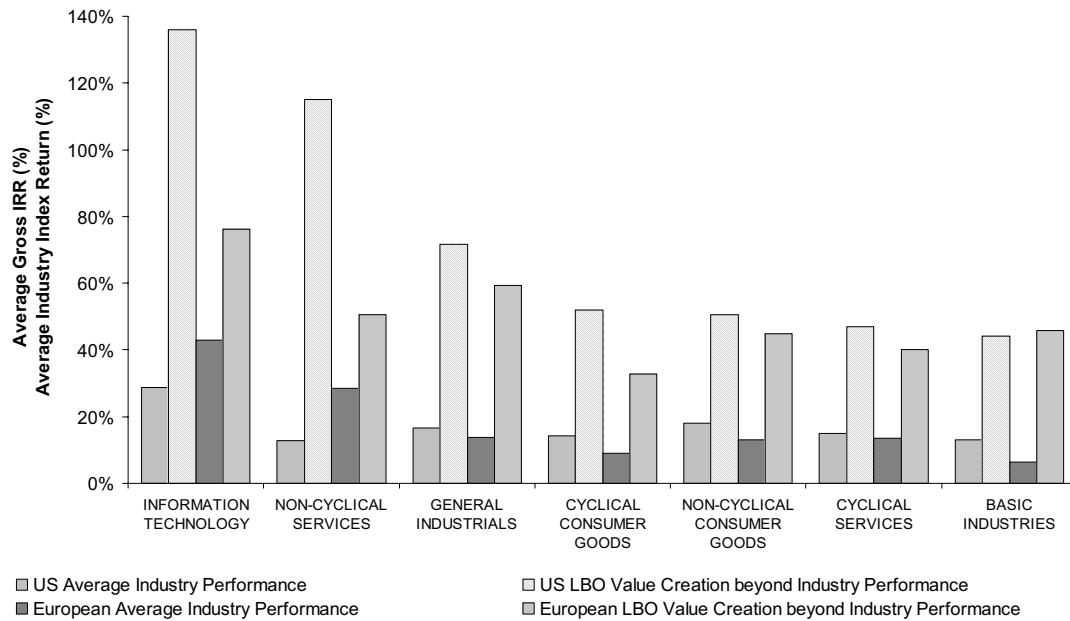


**Figure 71: Realized LBO Deals’ Value Creation vs. Industry Indices (Level 4)**

Source: INSEAD Buyout Database, analyzed by author (Deal N=562).

#### 4.4.2.1. LBO Value Creation by Industry Sector and Region

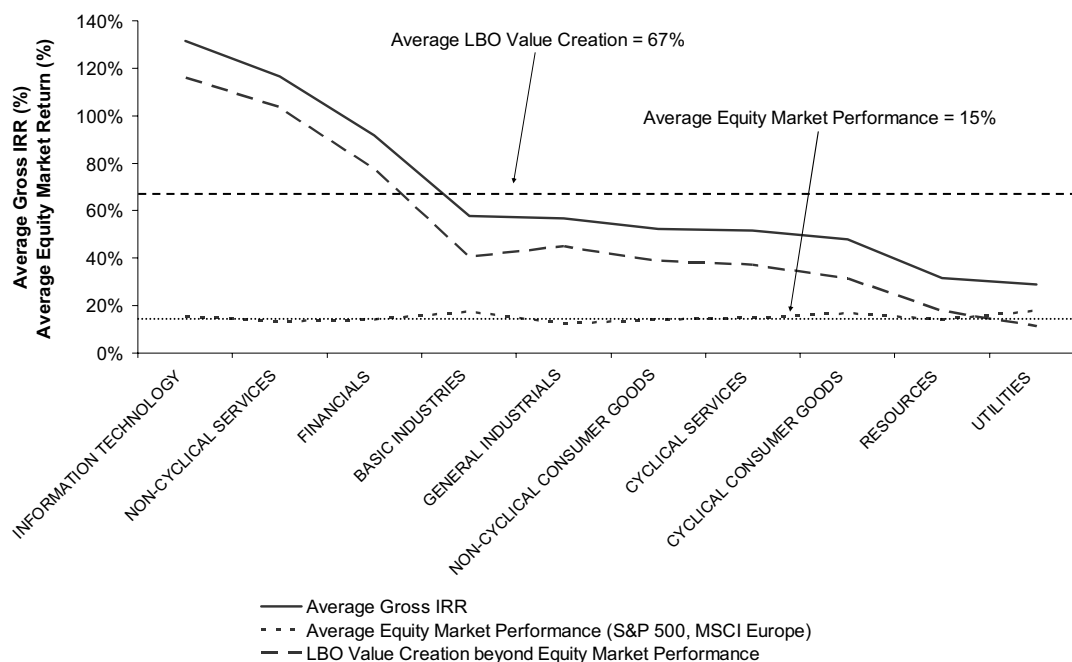
The amount of value created in certain industries generally only differs slightly when comparing U.S. and European transactions, except for two sectors. The average value creation in the information technology sector in the U.S. is considerably higher with 136% compared to 76% in Europe, which is in contrast to the higher underlying average European stock market performance in this sector with 43% compared to 29% in the U.S. More drastically, value creation among non-cyclical service firms in Europe is only 51%, less than half of the 115% of value generated by buyout firms on top of the stock market return in the U.S.



**Figure 72: Realized LBO Deals’ Value Creation vs. Industry Indices (Level 3) for selected Industries by Region**  
 Source: INSEAD Buyout Database, analyzed by author (Deal N=545).

4.4.2.2. LBO vs. Equity Market Performance (by Industry)

Benchmarking LBO transactions against the broader equity markets allows for a direct comparison of the performance of the buyout (Private Equity) investment asset class. Equally to the comparison to specific industry indices, buyout transactions are benchmarked against the S&P 500 Composite price index for U.S. transactions, against the MSCI Europe price index for European buyouts and against the MSCI World price index for non-U.S. and non-European deals. The results, when aggregated by industry sector show a similar albeit slightly higher average LBO value creation as under the industry benchmarking. This is due to the fact that the average stock market performance is considerably lower than the average of industry indices of certain industries. Nevertheless, buyout firms appear to be able to generate significantly higher returns than can be achieved from investment in the public equity market. Hence, by constructing a portfolio of companies that is similar to the composition of the public market index, a Private Equity investor on average will receive a 67% higher return than the 15% earned on public markets, based on this sample of Limited Partners’ data.



**Figure 73: Realized LBO Deals' Value Creation Index vs. Equity Market Performance (S&P 500, MSCI Europe/World) grouped by Deal's Industry Classification**

Source: INSEAD Buyout Database, analyzed by author (Deal N=872).

These comparisons suggest that the risk of a buyout portfolio and a public market firm portfolio is the same. However, the literature on Private Equity investments is divided on the risk profile with which buyout investments need to be assessed. Risk and volatility in Venture Capital is acknowledged to be considerably higher than both market and buyout risk. The evaluation of risk for Venture Capital and buyout funds is not consensual: CAPM-betas for venture (buyout) funds are estimated to be 1.8 (0.7) by Jones and Rhodes-Kropf (2003), 1.1 (1.1) by Ljungqvist and Richardson (2003), and 1.7 (0.5) by Kaplan and Schoar (2003). It is also generally assumed that the CAPM holds and that betas on assets are the same within each industry (Gottschalg, Phalippou et al. 2003).<sup>122</sup> As a consequence of the still divided opinions in the field of finance, this study does not seek to explore the risk characteristics of buyout funds in greater depth and treats buyout investments to be in line with market risk (Beta of 1.0). Furthermore, no risk-related adjustments are being made for individual industries, as on average, the Limited Partners sample should represent the overall market. Despite this assumption, it is acknowledged though that the strong performance of several industries, e.g. of the information technology sector, may be driven to some extent by above market risk (see section 4.2.2.5. for a general return vs. risk analysis). Under these assumptions, the out-performance of a portfolio of buyout investments over public markets highlights the superior value creation capabilities and corporate governance effectiveness of buyout firms over their publicly traded peers.

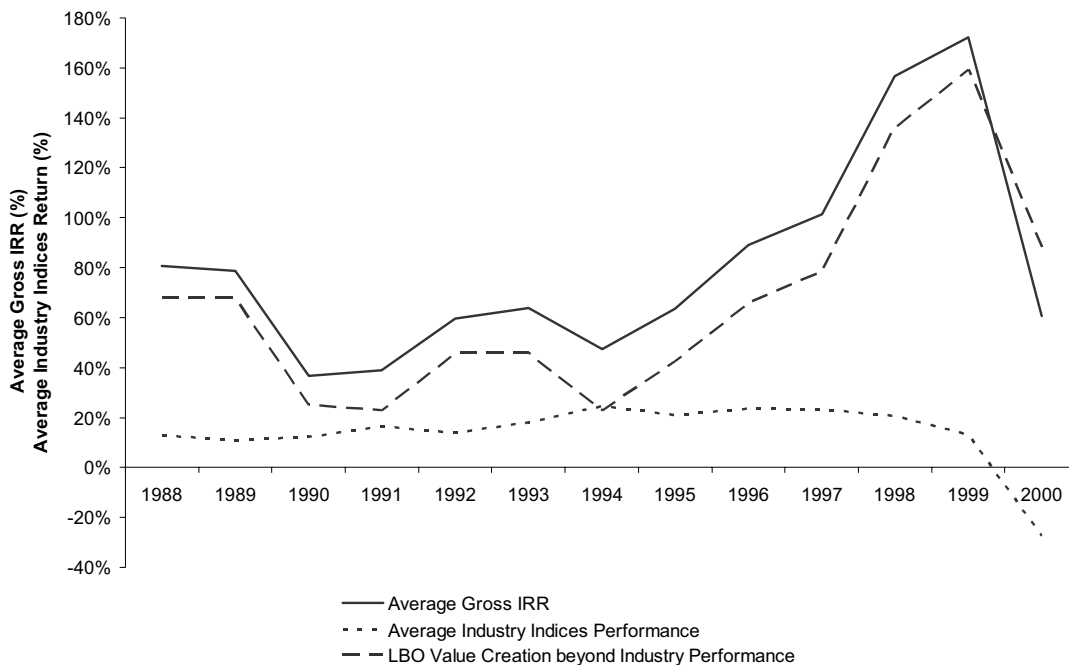
<sup>122</sup> As assets are not traded continuously, the CAPM does not hold, in theory, in the context of Private Equity investments.

### 4.4.3. A Buyout Performance Index over Time

The large amount of buyout transactions, which is similar in nature to a market portfolio as it is captured across all industries over a prolonged time period from the Limited Partners' data, allows for an indexation of the underlying transactions according to deal (entry or exit) year. This resulting index, if further developed, could eventually serve as an useful benchmarking tool for buyout deals at any given time, employed by both buyout firms and their investors during fundraising due diligence. Any value creation presented by a buyout firm on a fund or portfolio company basis could instantly be brought into context with the overall trend in the portfolio's underlying industries. The need for an effective benchmarking index has especially been postulated by Private Equity industry experts and academia for some time (Loos, Gottschalg et al. 2004). There are generally two perspectives to construct an LBO Performance index, either by year of acquisition or year of exit of the transaction. Both viewpoints are valuable as they offer aggregated insights into the entry or exit conditions for buyout transactions at any given time. Probably the more important among the two alternatives, the entry date index allows drawing conclusions of whether external conditions at the time of entry could have been determining the value creation potential of the buyout target.

#### 4.4.3.1. The Buyout Performance Entry Date Index

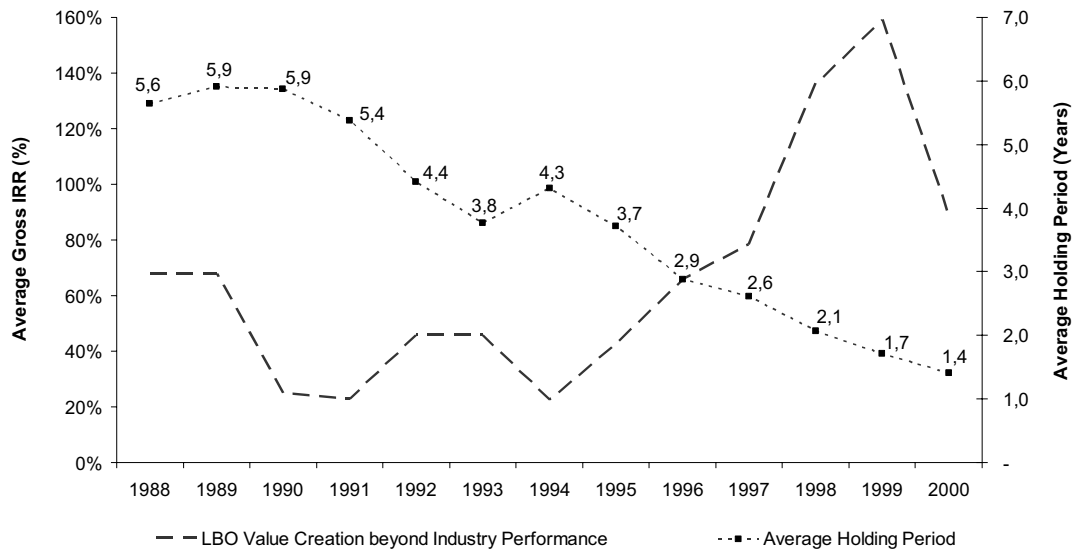
The depiction of a buyout performance index according to entry date as shown in figure 74 allows for several interpretations, when comparing index performance to underlying economic climate.



**Figure 74: Realized LBO Deals' Value Creation Index vs. Industry Indices Performance (Level 6) by Buyout Acquisition Year**  
Source: INSEAD Buyout Database, analyzed by author (Deal N=486).

Buyout transactions that were entered in 1988 and 1989 resulted in average LBO value creation of 68%, despite lower and volatile average stock market returns of 13% and 11% respectively. The crash of the high yield bond market between 1989 and 1991 led to a substantially worse financing environment for buyout transactions. Partially as a result of this trend, average value creation dropped to 23% for deals entered in 1991.

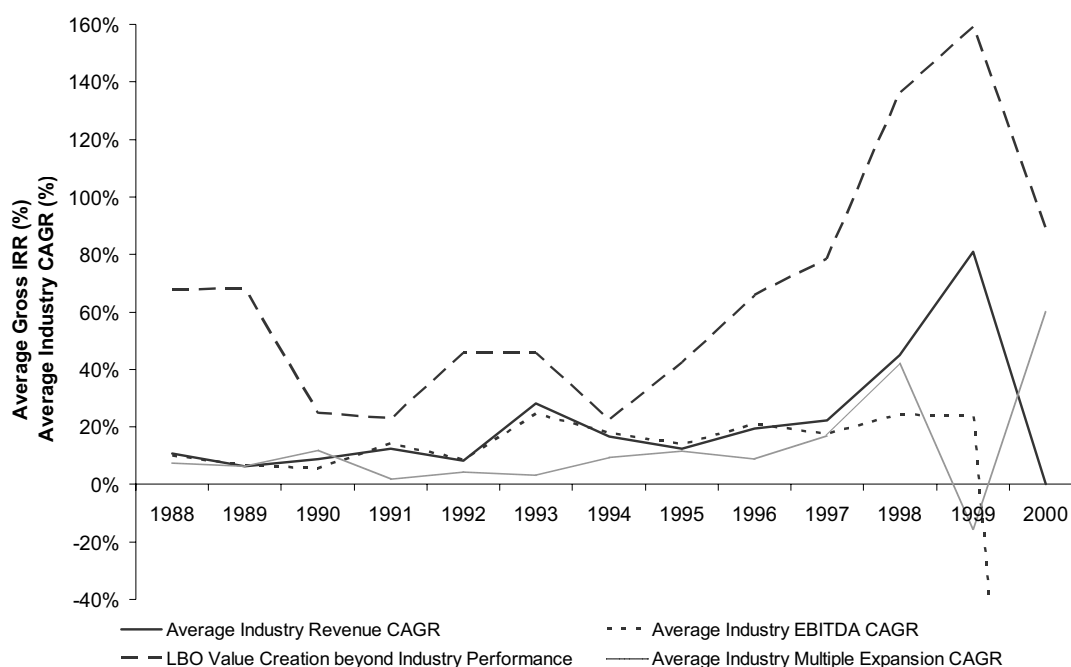
As one of the important initial observations from the illustration, the anti-cyclical return characteristics nature of the buyout (Private Equity) investment asset class becomes evident for the years 1992 and 1993. These were characterized by difficult external economic conditions through a looming global recession. As a result, buyout firms were able to acquire assets at very attractive valuations and consequently average excess value creation beyond comparable industry indices soared to 46% for buyout transactions that were entered in 1993. From 1995 onwards, the information technology boom led to vast value creation opportunities for buyout funds, especially due to highly favorable stock market (exit) conditions, which increased the gap between public market and buyout returns. With average stock market returns ranging between 20% and 25%, average LBO value creation peaked for deals entered in 1999 at 159%. This peak return in 1999, however, must be considered in relation to the nature of the sample, which only consists of realized deals. As a consequence, most realized deals that were entered in 1999 were also successfully exited within a very short time frame, i.e. most likely before the markets crashed in 2000.



**Figure 75: Realized LBO Deals’ Value Creation Index vs. Average Holding Period of Deals by Buyout Acquisition Year**  
 Source: INSEAD Buyout Database, analyzed by author (Deal N=486).

Accordingly, an index based on entry date of realized acquisitions will ultimately have a profile in which average holding periods are decreasing. From this perspective, it appears as if the average holding time of all investments had decreased consistently, which is not necessarily true. Therefore, in order to determine actual holding periods per year, it is more useful to analyze an index based on

exited buyout transactions (see further below). Another finding from the entry date buyout performance index is that it may be trailing public markets by up to 12 months: while the average public market return had decreased to -28% in 2000, average realized gross buyout performance was still positive, even though considerably lower than at its 1999 peak, at an IRR of 61%. Moreover, the above discussed effect of anti-cyclical acquisition activity (“bargain shopping”) by buyout firms may also lessen the extent of the buyout index’s retraction.



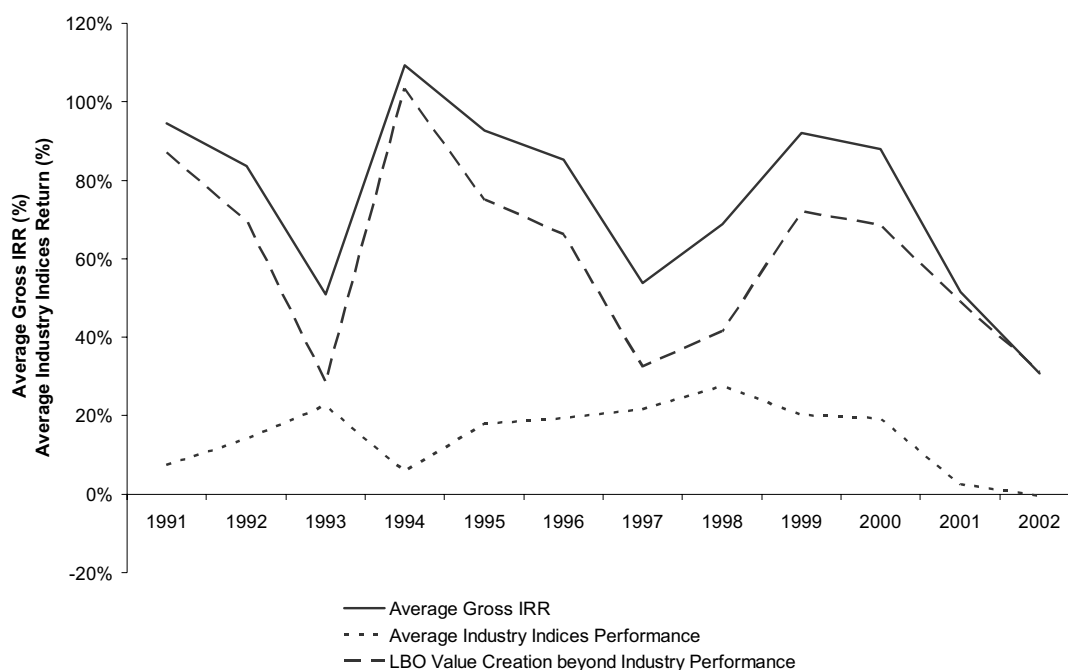
**Figure 76: Realized LBO Deals' Value Creation Index vs. Average Industry Performance Driver CAGRs by Acquisition Year**  
Source: INSEAD Buyout Database, analyzed by author (Deal N=486).

Another consideration in the analysis of the buyout performance index is the development of economic drivers of value creation, i.e. the average target industries' financial development, which can be uncovered under the entry date perspective. The timing of the acquisition will directly determine whether the buyout will be subject to a positive or negative industry growth climate over its holding time, measured by the CAGR of industry financial performance metrics from entry to exit year of the focal buyout. The question of how much each buyout's value creation process is affected from these external factors remains. For instance, the interpretation of results in figure 76 show that deals that were entered in 1991 will – on average – not see multiples expand over the holding period of the deal, they will, however, see margins and revenues grow slightly, which on a net basis will not result in strong value creation. By contrast, deals acquired in 1993 will see strong revenue and margin growth until exit, which according to the average holding period of 3.8 years should be in 1997. The results in the graph also reveal that the strong value creation increase from 1996 to 1999 is mainly driven by (i) actual strong underlying average revenue growth prospects in the various industry sectors at the time of acquisition, (ii) considerable increases in trading multiples and therefore valuation prospects through the stock market boom. Interestingly, the

valuations reached in 1998 do not suggest further trading multiple expansion, while prospects for amplified revenue growth came to an end in 1999, one year earlier than the actual stock market decline.

#### 4.4.3.2. The Buyout Performance Exit Date Index

The exit date buyout index allows for an ex-post analysis of deal performance. In contrast to the entry date buyout index, which highlighted the acquisition environment and its influence on the value creation potential at the target, the exit date buyout performance index creates the link between timing of the exit and its external environment. The results are to a large extent counterintuitive when weighed against entry conditions.



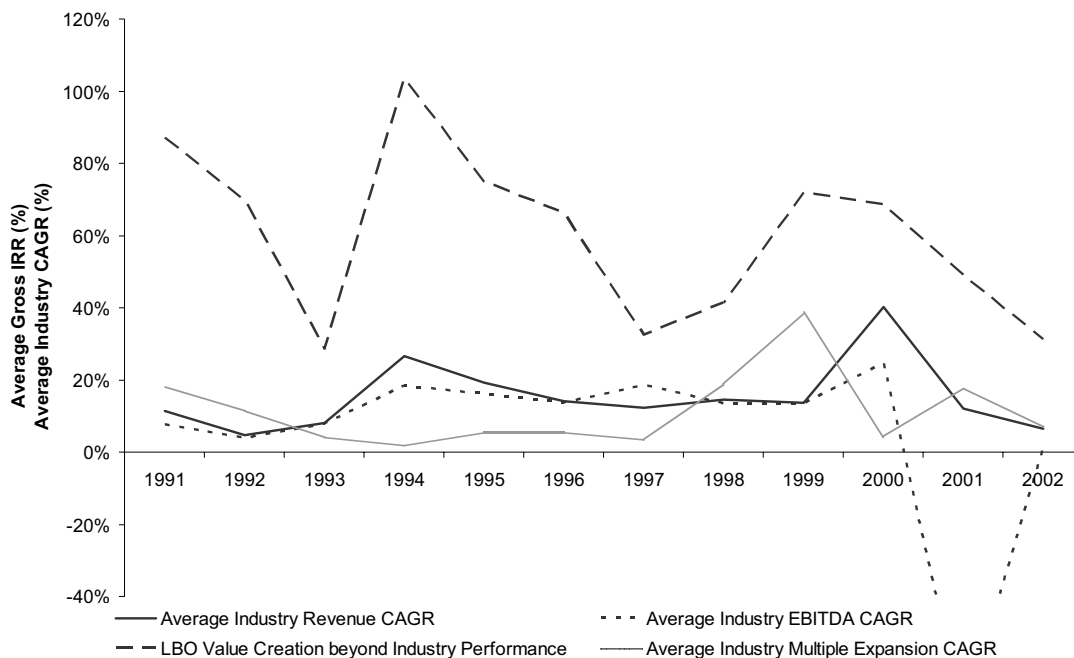
**Figure 77: Realized LBO Deals' Value Creation Index vs. Industry Indices Performance (Level 6) by Buyout Exit Year**

Source: INSEAD Buyout Database, analyzed by author.

In 1993, deals that were exited had seen their comparable public market industry indices rise on average by 23% p.a. over the holding period of the deal. Despite this sign of a reviving stock market in 1993, the average gross IRR and LBO value creation was relatively low with 51% and 28% respectively. Consequently, the year 1993 was very favorable from an entry perspective, but not for exits. What were the reasons? First, the average holding period of 3.2 years for deals in 1993 actually was shorter than in other years (see figure 79), and therefore did not adversely affect returns through a longer holding period. Nevertheless, the average financial industry performance (see figure 78) reveals that deals exited in 1993 had been exposed to three of the most difficult economic years between 1991 and 1993, during which industry financial performance and trading valuations had been affected by decline.

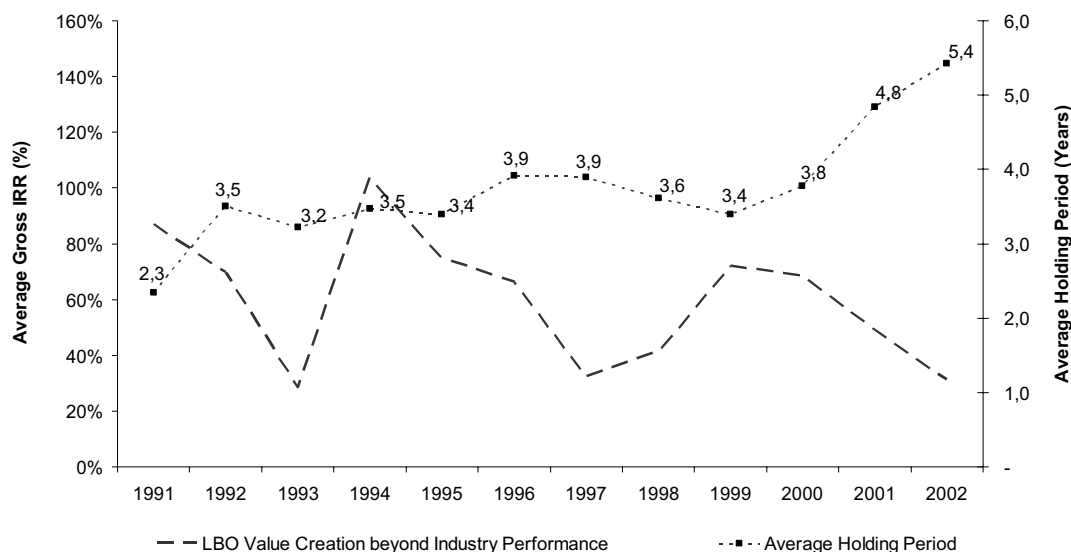


The average holding period grew to 3.5 years in 1994, which indicates that several buyout firms may have postponed their exit decision to await a stronger revival in the stock markets. Remarkably, the year 1994 showed the highest average value creation from exited deals with 103% compared to a public market return of only 6%. This could be interpreted in such a way that buyout investors had bought assets very cheaply during the years from 1990 to 1993 (the steeply falling valuation levels can be observed in figure 78). In 1994, economic conditions improved substantially as exhibited by strong average revenue and profit margin growth, and hence the “turnaround” of those cheaply acquired buyout investments could be completed.



**Figure 78: Realized LBO Deals' Value Creation Index vs. Average Industry Performance Driver CAGRs by Buyout Exit Year**  
Source: INSEAD Buyout Database, analyzed by author.

Moreover, although the technology boom years from 1997 to 1999 had been the most successful from a value creation perspective according to the entry date buyout index, the extent of value creation is relatively smaller from an exit date perspective. Value creation in 1999 reached 72% on the back of a strong average CAGR in the industries' drastic multiple expansions of 39%. The value creation of 69% maintained in 2000, however, was largely driven by the strong underlying average CAGR in the industry's revenue growth that averaged 40% (considerably influenced through technology driven revenue growth). At the same time, the declining markets in 2000 had already reduced average industry valuations. The massive extent of the collapse in average industry revenue growth and operating profitability becomes visible in 2001, which is accompanied by the decline in LBO value creation.



**Figure 79: Realized LBO Deals' Value Creation Index vs. Average Holding Period of Deals by Buyout Exit Year**

Source: INSEAD Buyout Database, analyzed by author.

Another significant finding becomes transparent when examining the average holding period of buyout transactions from an exit year perspective, i.e. how long did buyout firms keep their buyout target company in their portfolio before divestment. Despite volatile economic conditions between 1992 and 1995, average holding periods were low, ranging between 3.2 and 3.5 years, suggesting that exit routes were still open to buyout firms. The average holding periods in 1996 and 1997 under the exit date perspective was 3.9 years each and must therefore relate to transactions acquired in 1992 and 1993. Apparently, it took buyout firms on average slightly more time to turn around these recession-time investments, potentially because of the quality of acquired assets.<sup>123</sup>

Average holding periods continued to decline between 1996 and 1999, reaching 3.4 years. This trend was clearly stimulated by the favorable exit opportunities brought about through the booming equity markets, i.e. buyout firms sought to take advantage by exiting their investments as long as the market environment was advantageous. From 2000 to 2002, a sweeping increase in average holding periods for buyout deals to 5.4 years can be observed. This trend is a direct consequence of the almost completely shut IPO exit market as well as low M&A activity during this time<sup>124</sup>. Due to

<sup>123</sup> Conversely, the expected average holding periods for these years from an entry date perspective had been 4.4 and 5.4 years. The difference relates to the different sample distribution of the entry and exit date indices. As mentioned above, the entry date perspective is less useful, as its ex-ante nature is skewed towards an apparent decrease in holding periods, which is not based on fundamental actual holding periods. It is rather a result of the fact that most private purchasing memoranda, from which the Limited Partner data had been extracted, were published between 2000 and 2003, and hence the time-induced frontier for realized deals leads to a decrease in average holding periods. The buyout exit date index better reflects average holding period reality.

<sup>124</sup> M&A activity is seen as a tentative indicator for openness of the public exit route here. The public exit markets were essentially closed – even more so when compared to the private exit (M&A) markets, in which corporate managers and shareholders focused on profitability and balance sheet management, instead of engaging in additional risky M&A activity.

the substantially longer average holding periods observed among these deals, average gross returns were equally adversely affected.

#### 4.4.4. LBO Value Creation, Equity Market Return and Correlation

One of the key aspects for a Private Equity investor during the decision-making process of a buyout fund investment – besides risk and return – relates to the evaluation of correlation of buyout funds with public markets and the investor’s portfolio. In general, introducing Private Equity into a balanced portfolio of assets can further improve overall diversification (Bance 2002). Although the extent of correlation of returns between Private Equity and public market classes is widely debated, the results presented in the table below, based partly on unrealized gains, do indicate a lower correlation. As a result, adding Private Equity to a balanced portfolio can reduce volatility and contribute to an overall improvement in risk profile. This would allow higher targeted returns for the same level of calculated risk, or a reduction to the level of risk in the portfolio whilst preserving the target rate of return (Bance 2002).

	Equity Markets (%)		Bond Markets (%)	
	<i>Long-term</i>	<i>Short-term</i>	<i>Long-term</i>	<i>Short-term</i>
<b>European Private Equity</b>				
Quarterly <sup>125</sup>	0.16	0.42	-	- 0.24
<b>Venture Economics</b>				
Annual <sup>126</sup>	0.48 to 0.63	0.27 to 0.51	-0.06 to -0.23	-0.36 to -0.48
Quarterly <sup>127</sup>	0.31 to 0.37	0.41 to 0.47	-0.07 to -0.14	-0.20 to -0.23
<b>Other Sources</b>				
Annual <sup>128</sup>	-0.46	-	-0.47	-

**Table 37: Overview of Correlation Tests between Private Equity and Market Returns**

Source: Bance (2002).

One key problem with correlation studies between Private Equity returns and public markets is that comparable industry indices lack the sufficient level of detail. The comparison is frequently made on a macro level between overall stock markets (as measured by MSCI or S&P indices) and Private Equity fund returns. By contrast, the Limited Partners’ dataset in this study, which has been classified on the transaction level, can be directly linked to the industry specific public market index and therefore more direct comparison with its underlying industry dynamics.

<sup>125</sup> Long-term horizon 22 years; short-term horizon 10 years. Source: Venture Economics, MSCI, JP Morgan.

<sup>126</sup> Long-term horizon 28 years; short-term horizon 16 years. Correlation ranges for large and small cap stocks; Treasury bills and bonds and corporate bonds. Source: Venture Economics, Ibbotson Associates.

<sup>127</sup> Long-term horizon 24 years, short-term horizon 14 years. Correlation ranges for large and small cap stocks; Treasury bills and bonds and corporate bonds. Source: Venture Economics, Ibbotson Associates.

<sup>128</sup> Long-term horizon 20 years. Source: Venture Economics, Ibbotson Associates, Wilshire, Salomon, MSCI.

#### 4.4.4.1. Regression Analysis

A statistical test on a sub-sample of 523 realized buyout deals on the most detailed Datastream Level 6 industry classification reveals a low, but significant correlation between IRR of the focal transaction and the comparable industry performance over the same time period, as shown in the following correlation matrix.

Correlations			
		Buyout IRR	Industry Performance
Buyout IRR	Pearson Correlation	1	
	Sig. (2-tailed)	.	
	N	523	
Industry Performance	Pearson Correlation	,125(**)	1
	Sig. (2-tailed)	,004	.
	N	523	523

\*\* Correlation is significant at the 0.01 level (2-tailed).

**Table 38: Correlation Table on Buyout Correlation with Industry Performance**

The Pearson correlation between the buyout's IRR and the industry's performance is 0.125 and significant at the 0.01 level. Contrary to the findings of (Bance 2002), the correlation of the Limited Partners sample is at the low end of the spectrum. This is surprising, as it would have been expected that through a closer comparison of buyout performance and industry sharp public market benchmarks, a higher correlation could be observed.

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,125(a)	,016	,014	1,34784	,016	8,253	1	521	,004

a Predictors: (Constant), Industry Performance.

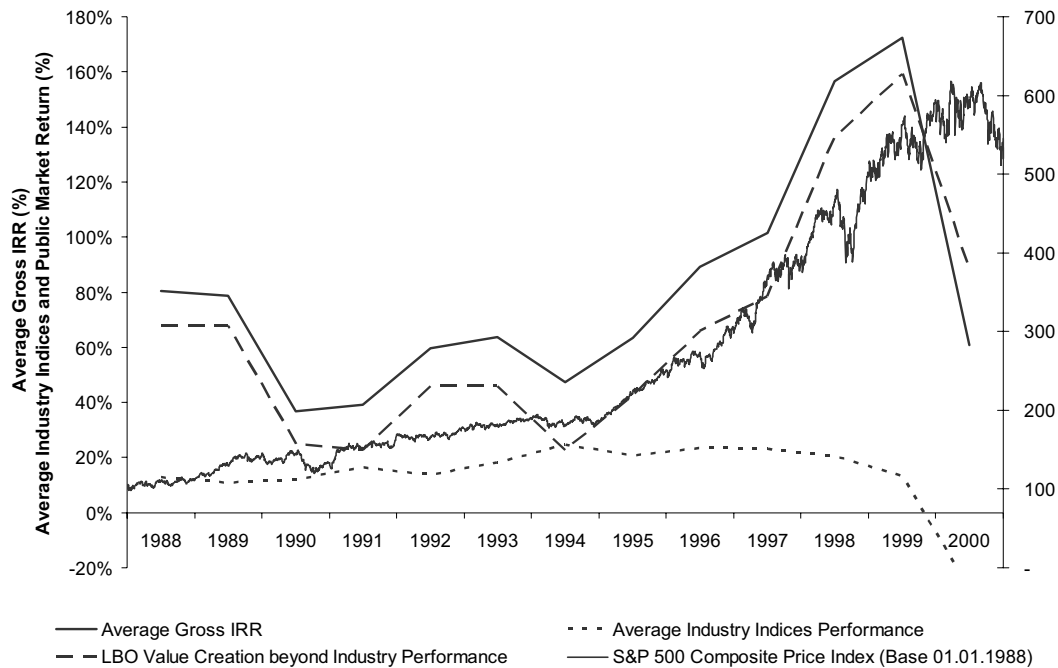
**Table 39: Linear Regression Model on Buyout Correlation with Industry Performance**

As a consequence of the relatively low correlation, the regression model's R square remains low with 1.4%. The model's fit is high with 8.253 and significant at the 0.01 level. Nevertheless, although the analysis on the Limited Partners' data demonstrates that buyout performance is influenced by industry performance, the extent is very minor. The result therefore substantiates that buyout investments perform independent to public markets and the investment asset class can contribute favorably to asset portfolio diversification.

#### 4.4.4.2. Additional Descriptive Findings

As a consequence of the low but significant correlation between buyout investments and public markets, it is not surprising to find a general descriptive graphical relationship between LBO value creation on the one side, as well as industry and general equity markets on the other side. The

following graph mirrors the rise in the S&P 500 composite price index between January 1, 1988 and December 31, 2000, as well as the average LBO value creation entry date index, as described in section 4.4.3.1.



**Figure 80: Realized LBO Deals' Value Creation Index vs. Average Industry Indices Performance (Level 6) and S&P 500 Composite Price Index by Buyout Acquisition Year**

Source: INSEAD Buyout Database, analyzed by author.

A general correlation between indexed equity market returns and indexed average gross IRR of buyout transactions can be observed. The decline in stock markets in 1990 as a result of the gulf war and in 2000 following the end of the technology boom, as well as the technology-driven rise in stock markets between 1995 and 1999 is similarly followed by the LBO entry index performance.

#### 4.4.5. Statistical Tests

The key finding from the above sections with respect to identifying drivers of value creation of buyout transactions was that the impact of the respective target industry's financial performance and trading levels play a fundamental role. Through systematical analysis of the financial entry and exit conditions of buyouts in any given industry at any given time, it should be possible to identify industry conditions that are supportive of successful buyout transactions. First, this statistical section will therefore shed light on the financial conditions in the buyout's entry and exit (fiscal) year, and more specifically, up to two years before and afterwards. The backward and forward looking aspect provides additional valuable information, i.e. what the recent industry financial history of each transaction looked like and what the prospects with respect to financial performance

developments were. Secondly, these findings – in conjunction with control variables developed in prior sections – will be utilized to explain industry out-performance and the underlying external financial value creation mechanisms.

#### 4.4.5.1. Financial Industry Conditions at Deal Entry

The correlation statistics for the industry financial conditions at the time of the acquisition of the buyout target reveal significant findings, which support the motivations for buyout managers to enter into a particular target company in a specific industry at that particular time.

##### 4.4.5.1.1. *Descriptive Statistics*

First, the bivariate correlation matrix reveals that the industry financial performance, either one year (n-1) or two years (n-2) before the acquisition date (n), measured by the compounded annual growth rate (CAGR) of sales and margin, does not have a significant effect on buyouts. In other words, there generally is no significant sales and margin growth in an industry prior to the General Partner's buyout target acquisition. However, from a forward looking perspective, we find highly significant (at the 0.01 level; 2-tailed) sales growth for both, one year (n+1) and two years (n+2) post acquisition, in the buyout target's industry. Hence, we can conclude that the General Partner on average has developed a capability to enter a buyout company exactly at a point in time, when its respective industry is at the beginning of a cyclical upturn. We further pinpoint this exact deal timing proficiency of the General Partner with the fact that in case he would buy into an industry after the upturn had started, the backward looking sales CAGR (e.g. n-1) would be more significantly correlated. Instead, this latter variable is highly insignificant. In addition, we also find that industry profitability, measured as margin CAGR two years post acquisition (n+2) is on the a cyclical upswing as well. The margin CAGR (n+2) is highly significant at the 0.01 level. Consequently, it can be theorized that buyout funds on average are investing into companies, who are expected to grow and increase profitability significantly two years after the acquisition, which points to buyout fund's ability to take advantage of industry cycles.

Secondly, no significant effect with respect to the industry's valuation, measured by the trading multiple Enterprise Value/EBITDA (EV/EBITDA), can be established. It could have been assumed that asset valuations at the time of entry of the General Partner are fairly moderate. However, the significance level for this variable is approaching the 0.1 significance level (0.137), which means that the target valuation is definitely not likely to be under-priced. In other words, not only the buyout firm is aware of the cyclical upturn of a particular industry, but sellers are as well. Asset prices – assuming efficient markets – have to some extent priced in this positive outlook already.

Thirdly, no significant correlation for the industry's profitability at time of entry, measured by the industry's average EBITDA margin, is found in the Pearson correlation context. However, in the below regression model context, the variable becomes significant. This finding would indicate that buyouts perform better when the target's industry EBITDA margin is high. It may be assumed that

on average, a high industry EBITDA also contributes positively to operating cash flows at the target, which in turn supports quick de-leverage of the acquisition debt. This would also be in line with the hypothesis that buyout firms prefer cash generative businesses. Nevertheless, a high EBITDA margin must not (necessarily) be understood in such a way that the industry is at a profitability peak (as underlined by the positive *and* significant margin growth prospects).

Descriptive Statistics								
Variable (Dummy) Tested	N <sup>(1)</sup>	Minimum	Maximum	Sum <sup>(2)</sup>	Mean	Std. Deviation	Pearson Correlation	Sig. (2- tailed)
<i>Entry Conditions</i>								
EBITDA Margin Entry Date Ind	694	-,025	697,313	1376,992	1,984	34,135	,003	,944
EV/EBITDA at Entry Date Ind	725	-7,613	154,971	7613,815	10,502	10,735	,055	,137
Sales CAGR n-2	666	-,453	4,519	75,894	,114	,318	,004	,911
Sales CAGR n-1	666	-,589	23,153	117,788	,177	1,064	,015	,708
Sales CAGR n+1	667	-,589	5,118	90,692	,136	,396	,125(**)	,001
Sales CAGR n+2	667	-,713	3,780	83,059	,125	,261	,101(**)	,009
Margin CAGR n-2	660	-,320	1,124	16,144	,0245	,144	,010	,799
Margin CAGR n-1	665	-,594	3,262	23,798	,036	,254	,041	,291
Margin CAGR n+1	666	-,770	3,142	16,261	,024	,235	,002	,951
Margin CAGR n+2	666	-,534	3,378	16,966	,025	,204	,104(**)	,007
Valid N (listwise)	660							

(1) Total sample size of tested cases (all realized transactions).

(2) Number of cases where dummy variable = 1, i.e. number of transactions per year.

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

**Table 40: Descriptive Statistics on Industry Financial Entry Conditions**

There is a range of significant inter-correlations of forward and backward looking variables. Backward (forward) looking sales are significantly (at the 0.01 level) correlated with backward (forward) looking margins. Moreover, margins and sales are also correlated among each other across time. In summary, the inter-correlations are not surprising due to the fact that an industry's sales growth and margin levels may differ slightly according to economic cycles, but practically vary in pre-defined ranges over time.

The interpretation of the regression model's coefficients demonstrates the above mentioned high and positive standardized coefficient Beta for the EBITDA margin at entry date (0.116 in model 1) verifies that an attractive EBITDA margin – on average for any industry – is significantly contributing to deal performance. Also, high industry sales growth in the year after the buyout is an important contributor to performance. In model 1, the trading multiple EV/EBITDA becomes significant at the 0.1 level, indicating that rising valuations in an industry is positive for buyout deals. This finding is to some extent counter-intuitive, as higher valuations generally lead to higher acquisition prices. However, it could be argued that higher valued firms generally also provide above average growth prospects and cash flows, so the acquisition is rather a question of a favorable price. Collinearity statistics show very high tolerances (i.e. very modest variance inflation factors), hence multicollinearity is fully under control in these nested models. In summary, the results underline that these variables for industry financial conditions at the time of entry into an acquisition do have explanatory power with respect to variance in buyout returns.

		Coefficients <sup>(a)</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
<i>Entry Conditions</i>								
1	(Constant)	,351	,127		2,766	,006		
	EBITDA Margin Entry Date_Ind	1,964	,655	,116	2,999	,003	,998	1,002
	EV/EBITDA at Entry Date_Ind	,008	,005	,070	1,808	,071	,998	1,002
2	(Constant)	,377	,131		2,888	,004		
	EBITDA Margin Entry Date_Ind	1,686	,683	,100	2,467	,014	,908	1,101
	EV/EBITDA at Entry Date_Ind	,006	,006	,053	1,106	,269	,646	1,548
	Sales CAGR n-2	-,111	,185	-,029	-,600	,549	,632	1,583
	Sales CAGR n-1	,027	,054	,024	,499	,618	,644	1,552
	Sales CAGR n+1	,330	,154	,109	2,139	,033	,575	1,738
	Sales CAGR n+2	-,020	,254	-,004	-,079	,937	,490	2,040
	Margin CAGR n-2	-,212	,433	-,025	-,488	,625	,556	1,797
	Margin CAGR n-1	,057	,262	,012	,217	,828	,499	2,005
	Margin CAGR n+1	-,284	,241	-,055	-1,181	,238	,674	1,485
	Margin CAGR n+2	,591	,303	,100	1,953	,051	,566	1,766

(a) Dependent Variable: Gross IRR Performance  
Note: "n" depicts entry deal year.

**Table 41: Coefficients and Collinearity Statistics on Entry Condition Variables**

#### 4.4.5.1.2. Regression Models

The multivariate regression models describing the explanatory strength of the industry financial conditions around the deal entry year are significant. Model 1, based on industry valuation and profitability predictors at entry, exhibits an adjusted R square of 1.5%. The F value for the model's fit is 5.903 and is highly significant ( $p < .01$ ). Model 2 introduces the sales and EBITDA growth variables prior and after the focal deal and the adjusted R square rises to 2.4%. The model's F change significance is valid at the 0.1 level, while the standalone model's (i.e. non-change model) significance is highly significant at the 0.01 level.

Linear Regression Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Value Change	df1	df2	Sig. F Change
1	,133(a)	,018	,015	1,199909	,018	5,903	2	657	,003
2	,197(b)	,039	,024	1,194266	,021	1,778	8	649	,078

(a) Predictors: (Constant), EV/EBITDA at Entry Date\_Ind, EBITDA Margin Entry Date\_Ind  
(b) Predictors: (Constant), EV/EBITDA at Entry Date\_Ind, EBITDA Margin Entry Date\_Ind, Sales CAGR n-1, Sales CAGR n+1, Sales CAGR n+2, Sales CAGR n-2, Margin CAGR n+1, Margin CAGR n-1, Margin CAGR n-2, Margin CAGR n+2

**Table 42: Linear Regression Model on Entry Condition Variables**

In summary, the results can be considered as an important contribution to understanding the way General Partners utilize industry financial information to substantiate their respective deal decisions at the time of entry into a leveraged buyout. Specifically, industry profitability has been identified as an important value driver of buyout transactions.

#### 4.4.5.2. Financial Industry Conditions at Deal Exit

The correlation statistics for the industry financial conditions at the time of exit from the buyout target reveal further significant and intuitive findings, which further verify the theory developed in



the above section that buyout investment managers are educated investors who time their acquisitions wisely.

#### 4.4.5.2.1. *Descriptive Statistics*

First, we find the opposite development of sales and margin growth, when compared to entry conditions. Both the sales CAGR, measured from two years (x-2) before the exit, as well as margin CAGR for one and two years before the exit are positively and highly significantly (at the 0.01 level) correlated with acquisition performance. In other words, at the time of exit, the industry (and assumingly equally the target company) had grown its sales and its profitability over the last two years. This substantiates and complements the finding that General Partner do benefit from the positive prospects they encountered when entering the buyout target (see entry conditions) through higher buyout performance. A topic for further investigation would therefore be whether the General Partner is able to demonstrate an ability to create superior “financial” value at the buyout target, i.e. beyond industry driven financial growth. If this would be the case, this could be understood as additional evidence for positive acceptance of a “GP effect” to value creation in buyouts (compare section 4.5.).

Secondly, it is noteworthy to briefly interpret the non-significant correlations with performance at the exact time of exit. In line with the entry conditions, EBITDA margin at exit shows a non-significant Pearson correlation to buyout performance. However, likewise to the entry conditions the variable’s coefficient becomes significant in the regression context (see below). Similarly, the industry’s trading multiple at the time of the exit is equally not significantly correlated, although directionally approaching the 0.1 significance level. In other words, a high asset valuation level in an industry does not significantly support buyout performance. This could be interpreted in such a way that (i) buyout firms are less dependent on favorable exit conditions than assumed, or more likely (ii) the different trading levels observed across the various industries make a comparison obsolete.<sup>129</sup> Thirdly, it is not surprising that the correlation table reveals highly positive and significant correlations between acquisition performance as well as industry CAGRs on the variables sales, EBITDA and trading multiples over the holding time of the investment: an increase in each variable has a direct impact on the valuation of the business at exit.<sup>130</sup> Notably, the valuation impact of the EBITDA CAGR appears to be highest. Accordingly, buyout funds should incorporate this finding in their analysis of appropriate target industries for investment, i.e. the industry should demonstrate room for an increase in average profitability. As observed for the entry condition analysis, similar significant inter-correlation effects between industry financial variables, both between sales and margin variables (backward and forward looking), as well as within the same variable (sales or margin) across time.

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<sup>129</sup> It must be considered that different industries are examined here. Naturally, these industries are trading at different multiple ranges. Hence, from a statistical point of view buyout performance on a relative industry basis is less likely to be dependent on exit valuation multiples.

<sup>130</sup> Refer to the deduction of the IRR formula in section 3.5.4. for details.

Descriptive Statistics								
Variable (Dummy Tested)	N <sup>(1)</sup>	Minimum	Maximum	Sum <sup>(2)</sup>	Mean	Std. Deviation	Pearson Correlation	Sig. (2-tailed)
<i>Exit Conditions</i>								
EBITDA Margin Exit Date Ind	695	,000	1636,979	1820,195	2,619	62,124	,008	,832
EV/EBITDA at Exit Date Ind	726	,706	71,297	8927,697	12,297	10,283	,055	,139
Sales CAGR Industry	679	-,713	5,118	87,457	,129	,276	,091(*)	,018
EBITDA Margin CAGR Industry	674	-,770	3,142	22,505	,033	,184	,127(**)	,001
Multiple Expansion CAGR Industry	704	-,780	1,557	40,596	,0577	,189	,095(*)	,012
Deleverage Industry	728	-20,874	,780	-273,947	-,376	1,804	,058	,115
Sales CAGR x-2	653	-,713	1,994	88,305	,135	,209	,114(**)	,004
Sales CAGR x-1	653	-,917	5,118	120,190	,184	,453	,012	,765
Sales CAGR x+1	654	-1,000	82,867	176,605	,270	3,282	,007	,849
Sales CAGR x+2	654	-1,000	2,578	74,421	,114	,206	-,046	,241
Margin CAGR x-2	629	-,478	,990	26,068	,041	,177	,122(**)	,002
Margin CAGR x-1	629	-,770	3,142	63,922	,102	,521	,116(**)	,004
Margin CAGR x+1	629	-,864	3,142	9,797	,016	,283	,053	,187
Margin CAGR x+2	626	-,686	3,378	51,153	,082	,555	,067	,092
Valid N (listwise)	611							

(3) Total sample size of tested cases (all realized transactions).

(4) Number of cases where dummy variable = 1, i.e. number of transactions per year.

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

**Table 43: Descriptive Statistics on Industry Financial Exit Conditions**

In summary, as long as the industry financial performance has been positive prior to exit, a good exit price/valuation appears attainable in different environments. On the other hand, the data indirectly suggests that the General Partner is timing its portfolio company disposal wisely: the forward looking sales and EBITDA CAGR variables at the time of the divestment do not indicate that the sponsor is selling when any additional high growth is expected (contrary to entry conditions). Therefore, it can be assumed that the sponsor may not consider holding the asset any longer, because growth prospects have become rather mediocre, or are potentially already worsening (e.g. cyclical down-swing). Consequently, it could be theorized that buyout funds on average are making highly efficient decisions with respects to entry and exit timing in leveraged buyouts.

The high and positive standardized coefficient Beta for the EBITDA margin at exit date underlines that an attractive EBITDA margin – on average for any industry – is significantly contributing to deal performance. Other coefficients are not significant in the deal exit context. Collinearity statistics show very high tolerances (i.e. very modest variance inflation factors), except for Model 2, where the introduction of the sales and margin CAGR one and two years prior (x-1, x-2) and after (x+1, x+2) the exit leads to small multicollinearity effects, e.g. with the industry EBITDA margin at exit date. Several variables, especially to the more sensitive margins, have been removed. Consequently, the maximum VIF remains below 2.0 and thus is under control in these nested models.

Model		Coefficients <sup>(a)</sup>					Collinearity Statistics	
		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Tolerance	VIF
		B	Std. Error	Beta				
<i>Exit Conditions</i>								
1	(Constant)	,350	,110		3,180	,002		
	EBITDA Margin Exit Date Ind	1,887	,452	,166	4,173	,000	,998	1,002
	EV/EBITDA at Exit Date Ind	,007	,005	,053	1,326	,185	,998	1,002
2	(Constant)	,380	,112		3,401	,001		
	EBITDA Margin Exit Date Ind	1,651	,464	,146	3,559	,000	,941	1,062
	EV/EBITDA at Exit Date Ind	,003	,006	,022	,543	,588	,922	1,084
	Sales CAGR x-2	,832	,311	,138	2,676	,008	,591	1,692
	Sales CAGR x-1	-,315	,154	-,104	-2,048	,041	,609	1,642
	Sales CAGR x+1	-,002	,085	-,001	-,029	,977	,978	1,023
	Margin CAGR x+1	,215	,175	,051	1,223	,222	,907	1,103
3	(Constant)	,362	,112		3,243	,001		
	EBITDA margin Exit Date Ind	1,893	,475	,167	3,983	,000	,890	1,123
	EV/EBITDA at Exit Date Ind	-,001	,006	-,008	-,190	,850	,827	1,209
	Sales CAGR x-2	,702	,316	,117	2,225	,026	,570	1,753
	Sales CAGR x-1	-,271	,155	-,090	-1,754	,080	,599	1,670
	Sales CAGR x+1	-,052	,088	-,024	-,591	,555	,914	1,095
	Margin CAGR x+1	,221	,175	,053	1,266	,206	,906	1,103
	Multiple Expansion CAGR Industry	,630	,287	,098	2,196	,028	,779	1,284
4	(Constant)	,430	,116		3,708	,000		
	EV/EBITDA at Exit Date Ind	-,002	,006	-,018	-,405	,686	,818	1,222
	EBITDA margin Exit Date Ind	1,814	,475	,160	3,816	,000	,885	1,130
	Sales CAGR x+1	-,059	,087	-,028	-,680	,497	,912	1,097
	Sales CAGR x-1	-,246	,155	-,081	-1,592	,112	,595	1,680
	Margin CAGR x+1	,196	,175	,047	1,122	,263	,902	1,109
	Sales CAGR x-2	,691	,315	,115	2,195	,029	,570	1,754
	Multiple Expansion CAGR Industry	,650	,286	,101	2,271	,024	,778	1,285
	Deleverage Industry	,263	,124	,085	2,110	,035	,966	1,035

(a) Dependent Variable: Gross IRR Performance

Note: "x" depicts deal exit year.

Table 44: Coefficients and Collinearity Statistics on Exit Condition Variables

#### 4.4.5.2.2. Regression Model

The multivariate regression models describing the explanatory strength of the industry financial conditions around the deal's exit year are significant. Model 1, which summarizes the state of industry valuations and industry profitability at exit, exhibits an adjusted R square of 2.8%. The F value for the model's fit is high with 9.859 and is highly significant ( $p < .001$ ). Model 2 introduces the sales and margin growth variables measured as one/two years prior and post-exit and the adjusted R square increases to 3.5%. The model's F change is low at 2.170 and only significant at the 0.1 level. Models 3 and 4 introduce the industry's multiple expansion growth variable and the industry's deleverage variable, as an indicator for cash flow generation, measured over the period of investment of the focal deal, which leads to a further increase in R square to 4.2% and 4.7% respectively, while both model's improvement is significant at the 0.05 level.

Due to very strong collinearity, sales and margin growth over the investment period had been excluded. Considering each model individually as standalone model (i.e. non-change model), each sample of predictors is highly significant at the 0.001 level. In summary, the findings confirm that the overall explanatory power of exit conditions rely on only few financial indicators, i.e. mainly related to the industry EBITDA margin and growth dynamics herein. Another important

contribution could be made through the fact that buyout firms tend to sell their targets exactly at a point in time when the industry's financial outlook deteriorates, i.e. no superior growth is expected. Furthermore, it was established – in line with findings on the entry conditions – that buyout targets had experienced strong sales and profitability growth in their respective industries prior to exit. These findings strongly underline buyout firms' apparent deal-making capabilities and are therefore in support of a theory of a GP effect in leveraged buyouts.

<b>Linear Regression Model Summary</b>									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Value Change	df1	df2	Sig. F Change
1	,177(a)	,031	,028	1,181907	,031	9,859	2	611	,000
2	,212(b)	,045	,035	1,177406	,014	2,170	4	607	,071
3	,229(c)	,052	,042	1,173715	,008	4,823	1	606	,028
4	,244(d)	,059	,047	1,170385	,007	4,453	1	605	,035

(a) Predictors: (Constant), EBITDA Margin Exit Date\_Ind, EV/EBITDA at Exit Date\_Ind  
(b) Predictors: (Constant), same as above, plus Sales CAGR x+1, Sales CAGR x-1, Sales CAGR x-2, Margin CAGR x+1  
(c) Predictors: (Constant), same as above, plus Multiple Expansion CAGR Industry  
(d) Predictors: (Constant), same as above, plus Deleverage Industry

**Table 45: Linear Regression Model on Exit Condition Variables**

#### 4.4.5.3. Modeling Buyout Performance vs. Benchmark Industry and Equity Market Performance

Having established the impact of industry financial conditions at the time of entry into and exit from the buyout target, the information will be utilized to explain buyout performance in a further developed regression model based on (i) applicable industry index performance over the time period of investment, and (ii) industry financial performance. Industry index performance relates to the public market development in each respective industry sector, measured on classification levels 3, 4 or 6 from the exact acquisition date to the exact disinvestment date of the focal deal(s). Furthermore, the impact of equity market performance on buyout performance will also be examined in this context.

For the industry benchmarking analysis, over 70 variables concerning financial performance were defined. The summary table of descriptive statistics (table 70 in appendix 2) provides an overview into the diversity of financial classification. The table only summarizes those variables, which are (i) at least significant at the 0.05 level (2-tailed), or (ii) are utilized in the subsequent regression models to explain variance in performance. Level 3 and Level 4 offer the largest number of significant industry financial variables. This is to some extent surprising, as it would have been expected that the more detailed Level 6 financials are the best predictors of performance. However, due to the lower amount of realized transactions encoded on the most detailed level, the slight decrease in average sample size from Level 3 to Level 6 diminishes the available degrees of

freedom. Furthermore, we can expect lower coding selection bias on industry classifications on Level 4.<sup>131</sup>

#### 4.4.5.3.1. *Descriptive Statistics*

For all three industry levels, both industry index performance and equity market performance is highly correlated with buyout performance, with significance at the 0.001 level (except for the industry performance on Level 6) (see appendix 2 for descriptive and Pearson correlation overview).<sup>132</sup> First, these results on the buyout deal level indicate that buyout transactions are correlated to public market performance (with Pearson correlations ranging between 0.125 and 0.180 for Level 6 to Level 3). Likewise, also the market-adjusted value creation index, as measured by the difference between public market return and gross buyout return, is highly significant at the 0.01 level (2-tailed).<sup>133</sup> The high Pearson correlation is simply a result of the fact that the subtraction between IRR and industry performance must necessarily be correlated close to 100%. In summary, the relatively low correlations compared to the findings from Bance (2002) appear to be a result of the deal level analysis and contribute to the discussion of diversification through Private Equity as an investment asset class.

As observed in section 4.4.3. for the entry and exit financial industry conditions of buyouts, there continues to be strong evidence that EBITDA (margin), as an indicator of industry profitability and cash flow generation potential, is a highly significant predictor variable for buyout returns. Similarly but to a lower extent, revenue growth potential may be an important value driver, as observed for Level 4 sales compounded annual growth rates (n+1; n+2). The correlations do not suggest that there is a meaningful impact of industry trading multiple valuations (except for Level 3 entry multiple), as measured by EV/EBITDA, at the time of entry and exit. However, an increase in average industry valuations, as measured by the industry multiple expansion CAGR, is significantly (at the 0.05 level; 2-tailed) contributing to buyout performance. This effect is referred to as “multiple riding” in the buyout industry and refers to the General Partner’s ability to buy an asset cheaply when industry valuations are low, and sell it at a (much) higher multiple when market valuations have increased.<sup>134</sup> This finding further substantiates a theory first developed around entry and exit conditions, by which investment managers can be considered sophisticated investors to the extent that they enter a target (and its industry) at a point when a multiple expansion over the holding period of the asset can be expected.

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<sup>131</sup> The Level 4 industry classification is therefore advantageous for most models due to its balanced degree of detail and aggregation power. It will therefore be the standard for further analysis throughout this study.

<sup>132</sup> As mentioned, the lower significance level may indicate minor selection bias during industry classification.

<sup>133</sup> The value creation index is also referred to as “Excess Return over Index” in the statistics reference tables.

<sup>134</sup> This refers only the external market-driven multiple expansion effect. In addition, the sponsor may also buy an asset below its market price (i.e. at a discount) and sell it above market price (i.e. at a premium). This effect is intrinsically driven by the General Partner and could be attributed to superior negotiation skills.

Furthermore, another indication of correct market timing on behalf of buyout investment managers is associated to an industry's level of indebtedness. The variable "deleverage industry" refers to the change in the focal buyout deal's industry peers' average indebtedness, as measured by the difference in Enterprise Value / Net Debt (i.e. percentage of debt in total enterprise value, a proxy for capital structure). This variable is significant at the 0.05 level (2-tailed) on Level 3 industries, and approaching 0.1 level significance for Level 4. In essence, this finding suggests that the focal deal's industry peers are generating surplus cash over the time of the investment by the buyout fund in the target company, and are able to deleverage their balance sheets. This means that overall cash generation conditions must be positive at the time of the acquisition, which is quintessential for a General Partner when evaluating a leveraged buyout transaction. In other words, General Partners are not only "multiple-riding", but also "(de)leverage-riding" between entry and exit.

#### 4.4.5.3.2. *Coefficient Statistics*

Each of the subsequent five nested regression models for each industry level has been set up in a similar way; however, the explanatory financial variables differ slightly. The selection has been made according to the following criteria: (i) highest significance of correlation between the independent variable with the dependent variable IRR (deal gross performance), (ii) lowest multicollinearity effect with other variables in the model. Naturally, the various financial variables are highly correlated among each other, e.g. the sales growth, EBITDA growth and multiple expansion variables are linked. Accordingly, it was opted to reduce explanatory power of the nested models, measured by R square as well as the significance of the F value change, in favour of high tolerance values in the collinearity statistics. Consequently, for the Level 3 industry financial variables, the variance inflation factor does not exceed 1.5 (see Appendix 2 for an overview of coefficients for Levels 3, 4 and 6).

An analysis of the standardized Beta coefficients reveals that the independent variable "industry EBITDA margin at Entry Date" displays very high results. This finding mirrors our earlier discovery among the deal entry and exit conditions and underlines that a high average industry EBITDA margin is the single most important financial contributor to buyout performance. The importance of industry profitability and profitability expansion is also highlighted by the EBITDA related compounded annual growth variables (margin CAGRs), measured both from entry and exit date. We also find strong standardized Beta coefficients for the above discussed industry multiple expansion effect as well as industry sales growth (prospects).

The Level 4 industry classification model confirms to be highly significant. It therefore intentionally also carries the largest amount of independent variables. As a side effect, the analysis of the collinearity statistics exhibits higher levels of variance inflation factors, especially relating to the industry EBITDA margin (at entry), but also to sales growth. The VIF factor for the most complex model 5 remains under 3 for all variables except for the industry EBITDA margin CAGR (3.923). The explanatory strength of the influence of industry financial performance is summarized in the Level 4 regression model below.

Due to the high level of detail in the Level 6 industry classification context, multicollinearity between industry financial variables is exceedingly high. In addition, as observed in the review of correlation statistics, the significance of the Level 6 variables is low, with only two variables being significant at the 0.05 level (2-tailed). The presented Level 6 model therefore only incorporates a reduced amount of variables, which in turn leads to high tolerance factors.

#### 4.4.5.3.3. Regression Models

The nested linear regression models have been developed in order to illustrate the stepwise impact of (i) industry public market index performance, as well as (ii) various subsequently added industry financial variable groups.<sup>135</sup>

Linear Regression Model Summary <sup>(f)</sup>									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Value Change	df1	df2	Sig. F Change
<i>Level 3</i>									
1	,137(a)	,019	,017	1,152211	,019	10,633	1	556	,001
2	,185(b)	,034	,031	1,144135	,015	8,877	1	555	,003
3	,221(c)	,049	,044	1,136562	,014	8,421	1	554	,004
4	,262(d)	,069	,057	1,128512	,020	2,983	4	550	,019
5	,273(e)	,075	,060	1,127014	,006	1,732	2	548	,178
<i>Level 4</i>									
6	,110(a)	,012	,010	1,180245	,012	5,830	1	479	,016
7	,155(b)	,024	,020	1,174256	,012	5,899	1	478	,016
8	,184(c)	,034	,026	1,170873	,010	2,383	2	476	,093
9	,233(d)	,054	,036	1,164465	,021	2,051	5	471	,070
10	,272(e)	,074	,052	1,154697	,020	5,001	2	469	,007
<i>Level 6</i>									
11	,170(a)	,029	,027	1,158292	,029	13,865	1	466	,000
12	,179(b)	,032	,028	1,157593	,003	1,563	1	465	,212
13	,180(c)	,033	,026	1,158581	,000	,207	1	464	,650
14	,192(d)	,037	,026	1,158525	,004	1,023	2	462	,360
15	,245(e)	,060	,046	1,146960	,023	5,682	2	460	,004

(a) Predictor: (Constant), Industry Performance

(b) Predictors: (Constant), (a) plus Industry EBITDA Margin

(c) Predictors: (Constant), (b) plus Industry Trading Valuation

(d) Predictors: (Constant), (c) plus Sales and Margin Growth Factors around Entry and Exit Date

(e) Predictors: (Constant), (d) plus Industry Deleverage, Industry Multiple Expansion

(f) Dependent Variable: Gross IRR Performance

Note: Predictors represent summarized predictor groups; see coefficient tables for all individual regression model predictors.

**Table 46: Nested Linear Regression Models on Industry Financial Performance Drivers (Level 3/4/6)**

#### Industry Performance Impact

Model 1 (as well as 6 and 11 for Level 4 and Level 6 respectively) represents a bivariate regression model between buyout and industry performance. Model 1 shows an adjusted R square of 1.7% for Level 3 (highly significant at the 0.01 level), 1.0% for Level 4 (model 6; significant at the 0.05 level) and 2.7% for Level 6 (model 11; highly significant at the 0.001 level). The explanatory power on Level 6 is most solid, when compared to Level 3 and Level 4, due to the superior level of familiarity of buyout target and industry sub-group categorization.<sup>136</sup>

<sup>135</sup> Independent variables are exhibited in the coefficient tables and have been omitted here intentionally.

<sup>136</sup> Accordingly, Level 4 should present better results than Level 3. Lower sample size may be responsible for the adverse effect.

*Industry Profitability Impact*

Model 2, and Models 7 and 12 accordingly, introduce the industry EBITDA margin at entry (Level 3 and Level 4) or exit (Level 6), indicating the industry's profitability and attractiveness from a cash generation capability point of view. The model's change is significant at the 0.01 level (2-tailed) for Level 3, at the 0.05 level for Level 4 and insignificant for Level 6. Likewise, the F value change for Level 3 is highest at 8.421, and very low at 0.207 on Level 6. The R square increases to 3.1% and 2.0% and decreases to 2.8% respectively. In essence, these results suggest that a high industry margin is a particularly strong predictor for buyout performance; if it can be assumed that the buyout target's profitability is similar to the industry on average, it can be stated that the higher the industry EBITDA margin, the greater the cash generation potential and hence stronger debt capacity that can be found at the target (i.e. higher leveragability reduces the equity investment amount of the General Partner and thus positively supports gross returns).

*Industry Trading Valuation Impact*

Model 3, and Models 8 and 13 accordingly, introduce the industry trading valuation variable at entry (Level 3 and Level 4) or exit (Level 4 and Level 6), indicating the asset pricing environment of the buyout target. The model's change is significant at the 0.01 level (2-tailed) for Level 3, at the 0.05 level for Level 4 and insignificant for Level 6. Likewise, the F value for Level 3 is highest at 8.877, and lowest at 1.563 on Level 6. The R square increases to 4.4%, 2.6% and decreases to 2.8% respectively. These results are to some extent counter-intuitive. It was expected that high trading valuations in the industry at the deal's exit positively affects buyout returns, as the sponsor is able to divest the asset at elevated prices. However, we also find a strong indication that high industry trading valuations at the time of deal entry are contributing positively to buyout returns. However, this could be interpreted in that respect that higher market-driven trading valuations are at least partially a result of higher expected free cash flows, which in turn largely depend on operating cash flows (generated through solid EBITDA). Therefore, high industry valuations can be understood to have an indirect relationship to high EBITDA margins, and thus support returns via the free cash flow argument. Relative asset pricing in fact is lower, as discussed in model 5.

*Industry Financials Growth Factor Impact*

Model 4, and Models 9 and 14 accordingly, introduce variables relating to industry sales growth and margin growth for both entry and exit date of the acquisition. These variables may explain buyout performance on three fronts: (i) industry financial performance before the acquisition may offer conclusions about the motivation for the buyout, (ii) strong industry financial performance during the buyout holding period should equally support the buyout company's performance, and (iii) industry financial performance post-exit may imply reasons for the timing of disinvestment.

The model's change is significant at the 0.05 level (2-tailed) for Level 3, at the 0.1 level for Level 4 and insignificant for Level 6. Likewise, the F value for Level 3 is highest at 2.983, and lowest at 1.023 on Level 6. The R square increases to 5.7%, 3.6% and is maintained at 2.6% respectively. Overall, it can be observed that the impact of EBITDA margin growth rates is more significant than



sales growth, the latter being noteworthy on Level 3. Model 9 on Level 6 only utilizes sales and EBITDA growth rates over the holding period, as multicollinearity is particularly high. As previously discussed for the buyout entry and exit conditions, the development of financials in an industry appears to be very closely watched by General Partners in the search of investment opportunities. There is strong evidence that deals are generally entered at the beginning of a cyclical upturn and are disposed of when growth prospects diminish. Remaining with the above employed metaphor, it can therefore be asserted that General Partners are also “financial-growth-riding”.

#### *Multiple Expansion and Deleverage Impact*

Model 5, and Models 10 and 15 accordingly, introduce the two remaining key variables relating to industry multiple expansion, i.e. change in trading valuations, over the buyout holding period as well as industry deleverage, i.e. change in average industry indebtedness. The former variable contributes to explaining buyout performance through the multiple riding effect, i.e. that target assets are bought at cheap valuation levels and sold when industry valuations had risen. The latter variable adds explanatory strength due to the fact that decreasing industry indebtedness is linked to an environment of superior cash generation, which enhances quick deleverage and thus seeds the basis for strong returns at the buyout target. The model’s change is insignificant for Level 3, but highly significant at the 0.01 level (2-tailed) for Level 4 and Level 6. Equally, the F value for Level 3 is lowest at 1.732, and highest at 5.682 for Level 6. The R square sharply increases to 6.0%, 5.2% and 4.6% respectively. Overall, the impact of multiple expansion is thus highly significant for Level 4 and Level 6, i.e. towards a higher level of detail in industry classification. The impact, which is equal to the explanatory strength of industry EBITDA margins, is therefore another key identified value driver utilized by General Partners to generate compelling buyout returns. It further adds to the set of value creation capabilities attributed to buyout firms, which appear to systematically take advantage of low- or under-priced industry environments to acquire businesses and sell them at higher valuations. To a lower extent from observed significance levels, the deleverage factor in an industry may more be regarded as a beneficial side effect by the General Partners; that is, it may not count as a key determinant to support an investment decisions into a certain industry in a similar fashion as margin and multiple expansion do.

In summary, this combined statistical analysis found that both broad equity market and specific industry performance contribute to explaining variance in buyout returns. Furthermore, it was established that a small set of defined industry financial indicators has the potential to significantly explain further (positive) buyout variance. In summary, the in-depth analysis of buyout target industries with respect to index and financial driver performance in this study, supported by the above regressions, therefore contributed meaningfully to the overall process of understanding value creation as developed in this study.

#### 4.4.6. Summary of Test Results

The advanced tests of leveraged buyout deal performance in this section have demonstrated the extent of explanatory power of the focal buyout deal's underlying industry (i) public market trading performance, and (ii) financial developments, in explaining variance in buyout performance and in identifying value drivers.

The descriptive findings at the beginning of the section made explicit that the Limited Partners' dataset is clearly outperforming both equity and industry benchmark indices: measured on Level 3 industry performance, average industry performance amounted to 17%, while excess value creation generation through all buyout deals in the sample was 57%. Variable hypotheses H14 and H15 can therefore be accepted. The degree of value creation in the information technology, financial and non-cyclical services industries was highest, in line with prior findings, and lowest for the utilities and resources sectors. Based on the dataset, a buyout performance index according to entry and exit year was developed, which demonstrated the trend of value creation across time. Trends in relation to buyout holding time and various industry financial metrics were compared and set into relationship with performance. These performance indices, if developed further and based on even larger samples, have in the future the potential to become a prime benchmark tool to evaluate buyouts (e.g. in investors' buyout fund due diligence).

Through a range of statistical tests, it was confirmed that buyouts are driven by overall industry benchmark performance. However, the Limited Partners sample was found to exhibit a lower correlation with public equity markets than observed in previous studies using fund data, e.g. by Bance (2002). Variable hypothesis H16 can therefore be accepted, as the correlation is statistically highly significant, but unusually low. In order to make further explicit what the link between industry index and buyout performance is, financial metrics of the respective target's industry at the time of entry and exit were examined. A high EBITDA margin at the time of entry, as indicator for profitability and cash flow generation potential, was found to be the key factor influencing buyout returns. Equally, at the time of the acquisition, industry sales and profitability on average were set to increase at least in the first two years following the acquisition. This finding supports a theory by which buyout firms have developed a proficiency of entering buyout targets at the exact time when industry growth prospects in the particular target industry were high ("investment timing capability"). This theory is further substantiated by the fact that industry growth and profitability prior to entry has not been positive. A surprising finding is that industry valuations at the time of entry were not necessarily low, i.e. the assumingly efficient markets had priced in the expected positive financial developments accordingly. In other words, buyout targets were acquired with good growth prospects, but not at a bargain. However, variables for growth in trading multiples ("multiple expansion/riding") correlated very positively with buyout performance, while industry deleverage as an indication of increased cash generation proofed statistically non-significant. Variable hypothesis H19 can therefore be accepted, but H20 has to be rejected due to lack of statistical validity.

With respect to exit conditions, it was demonstrated that the buyout firm's investment timing capability finds additional evidence. First, at the time of exit, industry financials had performed well over the two years prior to exit. However, the financial outlook suggested that sales and margin growth would halt. As a consequence, buyout firms on average also make correct divestment decisions, as they sell target companies at the height of industry financial development, and before industry financial conditions worsen (e.g. cyclical downturns). Variables hypotheses H17 and H18 can therefore be accepted, as the buyout firm does appear to be correctly timing its in-/divestment decisions. In conjunction with the findings from section 4.3., this evidence is seen as motivation to study the GP firm in more depth in the empirical chapters II and III.

## 4.5. Leveraged Buyout Value Attribution Analysis

So far, it was established in the prior sections that entry and exit conditions of the focal buyout target's industry with respect to its financial profile, i.e. general industry profitability and growth prospects as well as financial market trading levels, can influence buyout returns. The remaining question to be answered concerns a comparison of the financial developments at the focal buyout compared to its industry. From this comparison, insights can be drawn with regard to the relative impact the buyout firm has on the profitability of the company, i.e. whether and in which areas it is able to outperform the industry. If found to be superior, this finding would further contribute to a theory of the existence of a positive GP effect in leveraged buyouts.

### 4.5.1. Test Setting

Based on the various tests in the previous sections regarding market, financial and acquisition related value drivers from an industry perspective, the existence of a GP effect in the buyout value creation process could already be demonstrated in several instances. The results had shown that on average the performance in excess of industry indices was remarkable. This out-performance should therefore most likely be equally represented in the underlying financial performance of target companies. When analyzing the potential impact that the General Partner firm may have on relative buyout performance, a comparison of the key financial metrics will also reveal the financial sources of value creation in any particular buyout. In section 3.5.4., the value attribution formula was introduced, which allows making explicit the financial sources of value creation in any particular buyout. On a specifically recorded small sub-sample of buyouts, for which financial information could be gathered, this formula will be applied equally to the focal buyout transactions and industry comparable companies. In addition, conclusions are intended to be drawn with respect to differing value creation dynamics and buyout firm strategies in various industry sectors.

Accordingly, descriptive results on this sub-sample of the Limited Partners' dataset will be presented in a similar graphical way as in prior sections. Furthermore, the financial performances will be tested through an extension of the industry financial variables linear regression model (from section 4.4.5.) in order to illustrate the combined explanatory power of buyout performance through both the target and industry related variables. The section concludes with a discussion of the observed effects.

#### 4.5.1.1. Tested Variables and Hypotheses

The range of testable financial variables is limited in two ways. First, the amount of financial information provided by the General Partner, either made available through their Private Purchase Memoranda or extractable during additional fund due diligence, remains sparse. The presented and

utilized key financial metrics are those inherent in the value attribution formula, i.e. sales, EBITDA, purchase and sales multiples and leverage. Information about other cash flow items such as capital expenditure or working capital over the time of the investment can already be considered a “disclosure rarity”. Secondly, the depth of financial information available on the publicly traded industry peers is theoretically larger due to their public financial reporting requirements, however, will be limited to the key metrics on growth and profitability discussed in earlier sections. Section 4.4. has demonstrated that buyout performance on average is higher than at comparable companies. In the following, several testable hypotheses are being presented.

*How do we explain this performance on the deal level? Which intrinsic and extrinsic financial factors are driving the underlying value creation that determines this performance?* From the literature review, several drivers of value creation (and destruction) have been identified. On the operational side, generating growth in leveraged buyouts either organically or through external acquisitions is a key strategy of LBO firms. LBO firms are known for their aggressive growth-oriented business plans, raising the standards for managerial performance (Baker and Montgomery 1994; Butler 2001). Thereby, LBO firms are indirectly forcing portfolio company managers to much more adhere to high performance goals and make budgets pay off, thereby widely eliminating some of the perceived managerial inefficiencies (Easterwood, Seth et al. 1989; Smith 1990b; Anders 1992). Therefore, it can be expected that

*H21) Gross buyout deal performance is higher than at comparable companies in the industry, as considerably higher revenue growth at buyout targets can be achieved through the influence of the buyout firm.*

Further literature had shown that buyout transactions have a positive effect on the operational performance of target companies (Baker and Wruck 1989; Bull 1989; Jensen 1989a; Kaplan 1989b; Lichtenberg and Siegel 1990; Muscarella and Vetsuypens 1990; Singh 1990; Smith 1990a; Long and Ravenscraft 1993c; Ofek 1994; Smart and Waldfoegel 1994; Phan and Hill 1995; Holthausen and Larcker 1996; Weir and Laing 1998). Kaplan (1989b) provides early evidence of management buyouts’ strong improvements in operating performance, even after adjustments for industry-wide changes. Therefore, it can therefore be expected that

*H22) Gross buyout deal performance is higher than at comparable companies in the industry, as considerably higher profitability gains at buyout targets can be achieved through the influence of the buyout firm.*

Another important way to increase cash flow generation is to make more efficient use from corporate assets (Bull 1989). Following the buyout, management swiftly starts to tighten the control on corporate spending (Anders 1992; Holthausen and Larcker 1996). Kaplan (1989b) and Smith (1990b) report significant increases in operating cash flows, which allows a quick de-leverage and increases return. Therefore, it is expected that

*H23) Gross buyout deal performance is higher than at comparable companies in the industry, as considerably higher operating cash flow generation at buyout targets can be achieved through the influence of the buyout firm.*

Besides the operational improvements, value can be created (and hence IRR increased) before signing the share purchase agreement, since a lot of value can be captured during the acquisition and negotiation process. Butler (2001) showed for the chemical industry sector that financial buyers consistently paid less for their acquisitions than did trade buyers during the 1990s. One explanation that is being offered is that compared to strategic buyers, these investors follow a dispassionate, more objective approach, as they often screen dozens of targets before an eventual acquisition. The second explanation is that LBO firms have developed excellent deal negotiation skills, which may allow them to achieve on average favourable transaction multiples. It is therefore expected that

*H24) Gross buyout deal performance is higher than at comparable companies in the industry, as buyout firms on average are able to acquire targets at a discount to industry valuations and are able to sell them at a premium.*

#### 4.5.1.2. Methodology and Data

The sub-sample consists of 500 buyout transactions, of which 272 (54.4%) have been realized, for which financial data could be collected. As mentioned above, the amount of available financial information on buyout transactions is very sparse and generally restricted to the key financial metrics only by the General Partners. As observed from the relatively low number of realized transactions in the sub-sample, the dynamics of financial reporting in PPMs through buyout firms involves that the focus is on unrealized transactions. General Partners are by and large under pressure to convince potential investors that their current portfolio of unrealized investments will lead to positive returns. As a result, a more detailed financial development is presented at a specific valuation point of time when the PPM is prepared. In addition, the PPM often involves case studies of (successful) realized transactions. These dynamics lead to two major conclusions: first, a higher degree of unrealized transactions has been included in the sample due to the broader depth of financial information, yet their deal performance (IRR) as dependent variable must be considered as “preliminary”, i.e. based on current valuations. Although on average the sample’s average IRR for unrealized transactions is lower, it has to be acknowledged that the degree of conservatism in disclosure is partially dependent on the General Partner. Secondly, the presented realized transaction case studies potentially are subject to a certain degree of selection bias. Finally, the amount of financial information is very heterogeneous; hence some of the outlined value contributing variables were tested on different sample sizes. Nevertheless, as the focus of attention is not the level of performance but the relative impact of value drivers, the approach remains methodologically sound. Financial information for industry comparable companies has been provided on the most accurate level of classification detail from Datastream (i.e. industry Level 6; see section 3.6.5. for classification details). The average IRR of the sub-sample of 500 buyouts

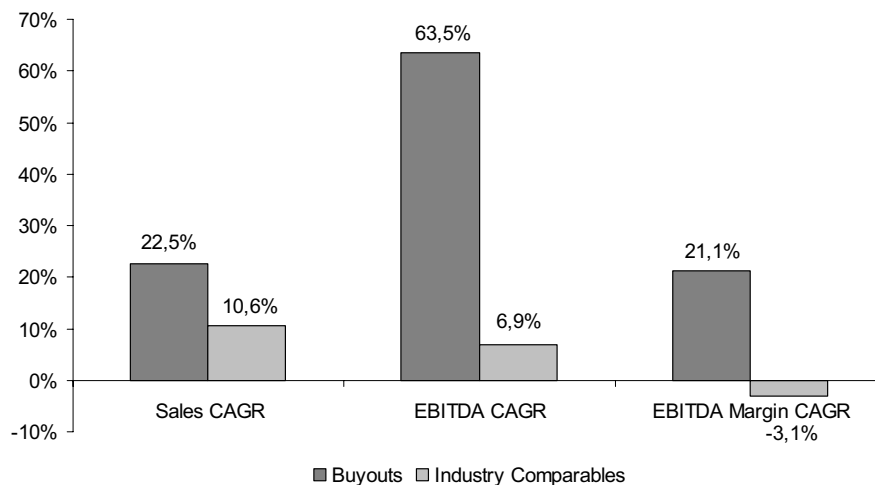
with financial data is 54.0% (average IRR of 76.5% for realized transactions), with a standard deviation of 110.2%.

## 4.5.2. Test Results

### 4.5.2.1. Descriptive Results

#### 4.5.2.1.1. Financial Performance Comparison

The findings from the descriptive comparison of average financial performance of buyout targets compared to their industry peers over the holding period of the investment overall supports the hypothesis that buyout targets exhibit a significantly stronger performance. First, revenue growth on average is more than twice as high with a CAGR of 22.5% for buyout targets against only 10.6% for average industry growth. This finding is in support of variable hypothesis H21 that LBO firms put considerable emphasis on achieving revenue growth in leveraged buyouts, either organically or through external acquisitions. The introduction of new strategies endorsed by the buyout firm and their aggressive growth-oriented business plans therefore provide incentive for target management to raise performance above industry growth levels.

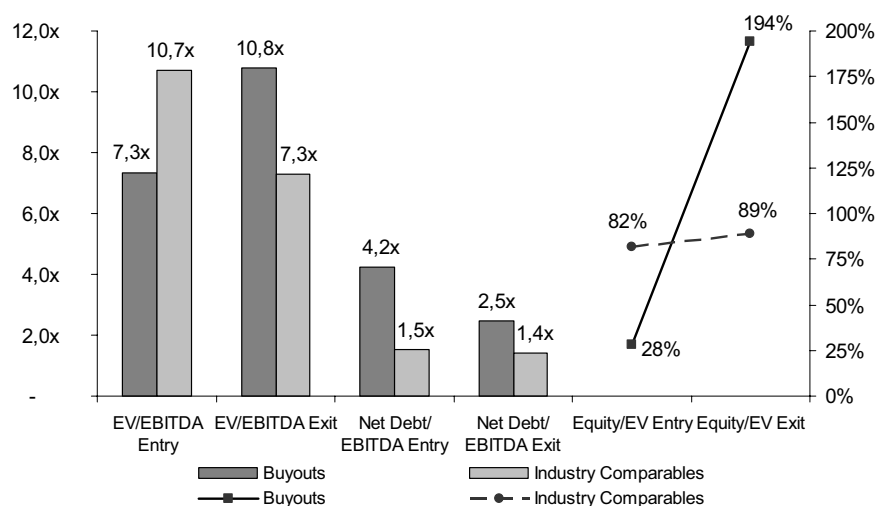


**Figure 81: Revenue, Cash Flow and Profitability Development for Buyout Deals vs. Industry Comparables**

Source: INSEAD Buyout Database, analyzed by author (Deal N=75/120).

Secondly, in line with prior research findings and in support of variable hypothesis H22, the buyout target's profitability, as measured by growth in EBITDA margin, rises by a CAGR of 21.1% compared to a slight decline of -3.1% CAGR in EBITDA margin for the comparable industry group. This result is particularly impressive given the average industry decline and leads to the hypothesis that buyout firms successfully follow "outpacing strategies" by combining operational improvements and product cost awareness with higher product value, innovation and growth (Gilbert and Strebel 1987). Their dual approach also validates that buyout firms are not exclusively

focusing on cost cutting strategies, which is in line with Porter (1996), who states that “constant improvements in operational effectiveness to achieve superior profitability is necessary in order to achieve superior performance and value creation, but usually not sufficient”. Finally, as a result of the efficiency gains also the absolute level of EBITDA at buyout targets rises, which positively impacts operating cash flows and supports deleverage of acquisition debt. Consequently, variable hypothesis H23 can be accepted as operating cash flows – as proxied by EBITDA generation – rise by a CAGR of 63.5% over the holding period of the investment, while only at a rate of 6.9% p.a. for comparable industry peers.



**Figure 82: Entry and Exit Conditions for Buyout Deals vs. Industry Comparables**

Source: INSEAD Buyout Database, analyzed by author (Deal N=272).

The strong financial performance is resembled in the leverage profile of the buyout targets under review: on average, the leverage of buyout targets at time of the acquisition was 4.2x EBITDA, compared to 1.5x as industry average.<sup>137</sup> By the time of exit, leverage levels have decreased to 2.5x, while the industry leverage remained nearly unchanged at 1.4x. Even more impressive evidence of the cash flow generation achieved by buyout targets in this sub-sample is demonstrated by the average equity contributions: buyout targets at the time of entry only had an equity cushion of 28% compared to an industry average of 82%. By the time of exit, the equity to enterprise value ratio has risen to 194% for the target group, while the industry average improved to 89%. This leads to two important conclusions. First, the level of 194% of equity value is an indication that the buyout firm has significantly increased the market value of the equity. As seen by the maintained high leverage levels, large parts of this equity (net cash position) may have been distributed back to

<sup>137</sup> The ratio Net Debt/EBITDA is the most common indicator of financial leverage in the buyout industry. The leverage is determined by the individual debt capacity of the focal buyout target, but also depends on the capital market’s view on risk of default. Leverage levels have decreased significantly from the levels seen during the 1980s, which had seen leverage levels of up to 10.0x, to a more moderate 3.0-6.0x range, depending on the financial strength of the target. By comparison, investment grade companies infrequently carry leverage levels beyond 2.0x in order to maintain investment grade credit ratings.



the investing fund through dividends. Secondly, the improvements of equity contribution (and slightly in the leverage levels) also point to the fact that the industry is improving its financial condition. This adds to the findings from section 4.4.3., which displayed that buyout firms exhibit a deal timing capability, benefiting to some extent from positive cyclical upswings.

As a final observation point, the results demonstrate support for variable hypothesis H24 that buyout firms are systematically extracting value through acquisition multiple arbitrage. At the time of entry, industry valuations of buyout targets averaged 10.7x of EV/EBITDA; yet General Partners only paid an average of 7.3x for their targets, immediately capturing value from the selling parties. By the time of exit, industry valuations have declined on average. This outcome is in line with findings from section 4.4.5.2., which highlighted that growth prospects of the industry at the time of exit were declining, i.e. the end of a cyclical upturn has been reached, which is resembled in decreasing trading valuations. Nevertheless, buyout firms were able to capitalize on their relative value play and sell their portfolio companies at an average 10.8x EV/EBITDA, against an industry average of only 7.3x.<sup>138</sup> However, it should be acknowledged that part of the increased valuation of buyout targets is linked to the extraordinary financial performance with respect to sales growth and efficiency improvements, as outlined further above.<sup>139</sup> Nevertheless, the findings are adding to Butler (2001), who had previously shown that financial buyers consistently paid less for their acquisitions than trade buyers. In summary, the dispassionate, objective approach followed by buyout firms in evaluating investments as well as their excellent deal negotiation skills appear to allow them on average to achieve highly favourable transaction multiples.

#### 4.5.2.1.2. Value Attribution

The deduction of the value attribution formula based on the Dupont equation, as outlined in section 3.5.4., highlighted the possibility to attribute the observed return of focal buyouts into their intrinsic value drivers – revenue growth, margin expansion, multiple expansion and deleverage (the latter being deduced). The breadth of available data in the sub-sample is especially limited with respect to multiple expansion, which led to the decision to focus on the former two value drivers revenue growth and margin expansion and to combine the latter two variables as plug. The resulting formula can in simplistic terms be expressed as follows:

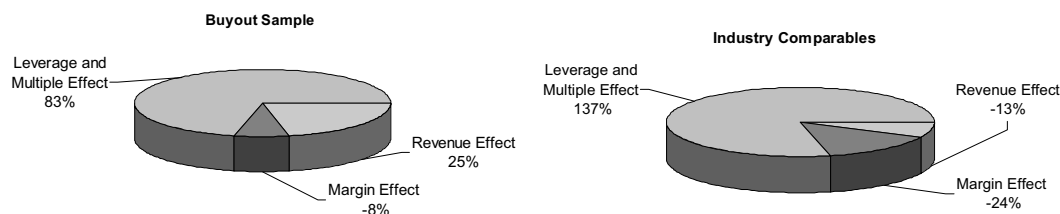
$$\begin{aligned} \mathbf{IRR (Equity)} &= \mathbf{Revenue\ growth\ effect\ (on\ IRR) + EBITDA\ margin\ effect\ (on\ IRR)} \\ &+ \mathbf{[Multiple\ expansion\ effect\ (on\ IRR) + Leverage\ Effect\ (on\ IRR)]} \end{aligned}$$

The same methodology has been applied to the comparable industry companies' returns and their respective financials. The results reinforce the above findings on the underlying financial development at the targets. For the total sample of buyouts, the leverage and multiple arbitrage

<sup>138</sup> Besides the price earnings ratio, EV/EBITDA serves as a common valuation multiple, especially in the non-public markets.

<sup>139</sup> Another theory would be that buyout firms often acquire companies in financial difficulties and are hence able to implement such observed improvements in performance/valuation.

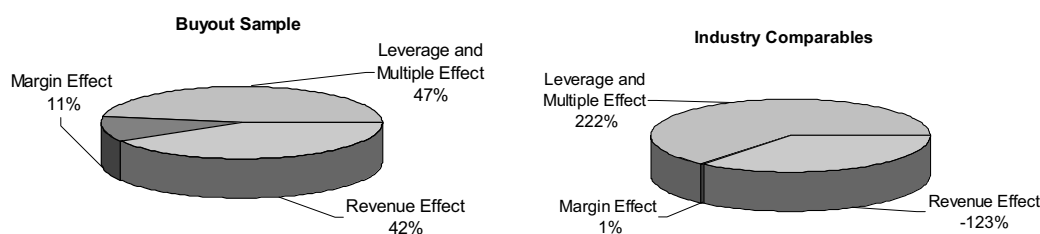
effect contributed 83% of the value that led to an average sample IRR of 78.2%. The efforts to increase revenues added another 25% in value, while the observed margin improvements had a negative effect of -8% *on a relative basis*.<sup>140</sup> The comparison with the industry in turn illustrates that comparable companies generated significantly less value from both revenue growth and margin improvements and even more so depended on an increase in market valuation levels (since leverage remained largely unchanged) in order to achieve its average IRR of 14.3%.



**Figure 83: Value Attribution of All Buyout Deals vs. Industry Comparables**

Source: INSEAD Buyout Database, analyzed by author (Deal N=57; mean IRR=78%).

However, it can be presumed that there are broad differences with respect to value creation strategies, and hence resulting value attribution profiles according to the target's respective industry. Each industry also offers a different potential for growing revenues, cutting costs or to benefit from multiple arbitrage. For example, the consumer goods sector for the sample of comparable industry peers shows that over the investment horizon, the industry had benefited from a rise in valuation, which was partially supported by strengthening margins, but weak revenue growth *on a relative basis*. By contrast, besides benefiting from the industry revaluation (47%), buyout firms were able to substantially – and equally strong from a value attribution perspective – grow revenues (42%) and reduce costs (11%) to achieve an average IRR of 49.6% vs. 11.7% for the consumer goods industry. The strong relative growth in revenues is likely to be the result of an external growth strategy, i.e. through one or several add-on acquisitions.



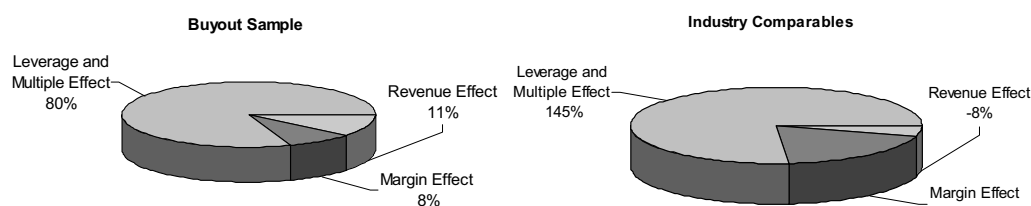
**Figure 84: Value Attribution of Buyout Deals vs. Industry Comparables – Consumer Goods Sector**

Source: INSEAD Buyout Database, analyzed by author (Deal N=14; mean IRR=50%).

However, there are also examples in which the buyout firm has more limited scope to gain from sales and cost enhancements. The results for a sub-sample of basic industry and general industrial

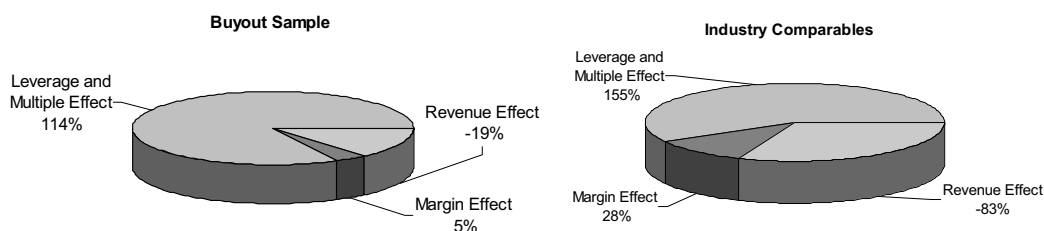
<sup>140</sup> It must be highlighted that this presentation only makes relative statements on which value drivers contributed more or less to the observed returns. As seen in the prior section, the EBITDA improvement

companies demonstrates that buyout firms in these sectors are likely to more heavily rely on (i) correct investment timing with respect to industry upward cycles to benefit from multiple expansion, and (ii) stable levels of cash flow to delever the business. As observed below, the leverage and multiple expansion effects, which also dominated the peer group's return, accounted for ca. 80% of attributable value to the average IRR of 79.7%.



**Figure 85: Value Attribution of Buyout Deals vs. Industry Comparables – Basic Industries and General Industrials**  
Source: INSEAD Buyout Database, analyzed by author (Deal N=22; mean IRR=80%).

Furthermore, investments in the information technology sector provided evidence to be highly dependent on trading multiple expansion to generate value.<sup>141</sup> Revenue growth, which is commonly very strong for information technology businesses, plays a minor role on a relative basis. However, improvements in profitability appear to be a second important area for value gains for buyout firms as well as at the industry's comparable companies. Since strong revenue growth is often accompanied by weak profitability and high cash burn rates, profitability enhancements may serve as a critical mean to reassure investors in publicly listed information technology companies, but also for buyout targets destined to eventually exit on public markets, about their business plan validity. In spite of the fact that weaker profitability has been a justifiable trend during growth years, the observed value attribution highlights the apparent benefits of focusing on cost control.



**Figure 86: Value Attribution of Buyout Deals vs. Industry Comparables – Information Technology Sector**  
Source: INSEAD Buyout Database, analyzed by author (Deal N=5; mean IRR=270%).

In summary, the value attribution analysis has shown how buyout firms in different industries – *on a relative basis* – are able to generate returns above industry returns. Although these findings will have to be verified on much larger sample sizes in the future, one key finding from this examination is that buyout firms are, on the one side, certainly benefiting from multiple expansion

was meaningful, but also partially benefited from the large increase in revenues.

<sup>141</sup> The use of leverage in this segment can be assumed to be very moderate, as financing is difficult to raise due to rapid changes in technology, which adds to volatility in earnings and cash flows.

in their chosen industries. On the other side, however, they are on average also more effective in implementing both growth and cost reduction strategies in their portfolio companies when compared to the overall industry.

#### 4.5.2.2. Regression Test

The test of the buyout target company financial development as a source of value creation through a linear regression model has produced unsatisfactory results and hence is omitted here. This is mainly the result of the large heterogeneity of the collected financial information. In order for the regression model to be effective, i.e. for a comprehensive explanation of buyout performance through multivariate factors, financial information for each of the tested categories need to be available to a sufficient degree. The unsatisfactory regression results could therefore potentially be overcome by a much larger dataset, with improved completeness in all financial dimensions, which most likely would have to be collected in cooperation with one or several General Partner firms.<sup>142</sup> However, it should be noticed that the Pearson correlations – for all and realized transactions only – in the sub-sample did not produce highly significant correlations, although directionally supportive of the above findings, e.g. high sales and EBITDA growth are naturally positively correlated to performance. One possible interpretation of this phenomenon could be that, in actual fact, the General Partner involvement on a relative basis (compared to the industry) produces very meaningful results. However, due to the observed broad differences in value attributions across industries, which are based on different value creation strategies by buyout firms, a statistical test may be less useful since the effects monitored within each of the various industries are blended in such a way that statistical trends become equalized. As a consequence, according to the author's opinion, the data analysis would critically need to concentrate on specific industry sectors, which makes the appropriate data collection even more challenging (due to the required sample size). An alternative explanation could be seen in the sub-sample's potential selection bias, as mentioned in the data overview section above.

#### 4.5.2.3. Summary of Test Results

This section has introduced the concept of value attribution to leveraged buyout transactions and applied the formula developed in section 3.5.4. to a sub-sample of buyout transactions. First, the findings for the financial development of buyout targets vis-à-vis industry peers clearly indicated that financial sponsors are outperforming industry comparable companies with respect to revenue growth, profitability enhancements and cash flow generation. In addition, buyout firms prove to be successful multiple arbitrageurs, entering companies at a discount to market valuations and exiting at a premium. These results can therefore be seen as an important factor in the explanation of the superior observed performance of gross leveraged buyout performance compared to comparable companies, as observed in section 4.4.2. The value attribution analysis substantiated that buyout

firms – *on a relative basis* – are also less dependent than industry comparable companies on improvements in industry valuations, but rather take vigorous action to enhance revenue growth and profitability in order to maximize value generation. However, differences in value creation strategies become transparent when evaluating different industries: each industry emerges to carry its own value creation dynamics, i.e. offers more or less room for revenue and profitability enhancements. This finding will be put into further perspective in the empirical chapter three, which attempts to shed more light on the various alternative value creation strategies available to buyout firms and their context conditionality.

## 4.6. Conclusions

Following the first research question, this study’s first chapter of empirical results has tested and provided an in-depth analysis of exogenous, systematic drivers of value creation, which represent the first pillar of this study’s research model. Important answers to the first research question could be presented.

First, the analysis of the secondary (control population) dataset from Venture Economics provided an overview of historical Private Equity fundraising trends and performance. The strong growth of Private Equity fundraising (from US\$ 3.6 billion in 1983 to a record US\$ 126.7 billion in 2000), especially driven by buyout funds, were a result of strong abnormal returns for funds raised during the early 1980s, which led to an influx of capital into this investment asset class. With respect to performance, the myth and fear of increasing funds sizes was demonstrated to be without reason, as traditionally larger funds outperformed the industry. The findings also confirmed that European buyout investing is more profitable (notably for funds raised in the U.K., Scandinavia or Luxembourg), yet the U.S. exhibits substantially better performance in Venture Capital investment. In addition, Venture Capitalists have been more successful in their allocation of capital to the highest yielding industries, mainly to the information technology sector. By contrast, buyout funds have demonstrated a desolate track record in this industry sector, which led to the conclusion that they should “stick to their knitting”, i.e. focus on pure buyout investment activity.

The subsequent sections introduced the primary Limited Partners’ dataset sample of individual transactions into the study. The initial tests resembled the analysis of the control population; however, each group of (control) variables was tested statistically for its contribution to explaining buyout performance. The observed abnormally strong performance of certain years in the Private Equity industry was confirmed for deals that were entered in 1984, 1998 and 1999. The country of origin of buyout transactions has overall not been identified as an important value driver: a linear regression model has confirmed that these variables are only adding minor explanatory strength to

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<sup>142</sup> Access to this detailed financial information will be dependent on the financial sponsors’ willingness to provide this information, which is most likely bound to confidentiality agreements.

the analysis of buyouts with up to 0.8% of R square on the sample under review. With respect to the U.S.-European comparison, although realized returns of some European countries had higher mean returns, this trend was statistically non-significant. Since significance for U.S. deals could be found, no valid conclusions could be drawn from this sample.

The industry of buyout transactions has been identified to be a very important value driver. The associated linear regression model confirmed that industry classification variables are adding extensive explanatory strength to the analysis of buyouts with up to 4.5% of R square on the Limited Partners sample. Some of the key findings include that in contradiction to the fund-based results from the Venture Economics data, the buyout funds in the Limited Partners' dataset sample have actually successfully invested in the information technology sector. Among the more traditional sectors, the service sector has proven to be very attractive from a return perspective, in line with the findings of the control population. Consequently, it can be concluded that industry dynamics play an important role with respect to successful buyout fund capital allocation.

With respect to market and financial value drivers that relate to entry, exit or investment period, the holding period, i.e. length of the buyout firm investment at the target, was highly negatively and significantly affecting buyout returns. The central takeaway for theory from this result must be that buyout firms should have a confirmed interest for a quick investment turnover, not least due to the fact that they will eventually be measured on their track record according to this dimension by their fund's investors. From a buyout fund practitioner perspective, investments with rather long-term value creation strategies should be disadvantaged when compared to short opportunistic investments. The results from the analysis of deal size and buyout performance produced mixed results. Overall, smaller deals statistically proved to perform better, although also strong returns for mega deals could be observed (yet statistically not confirmed). The mid-cap segment also showed slightly lower returns. In summary, no meaningful trend that would support a firm recommendation could be made on this variable. Equally, the ownership percentage acquired in buyout transactions has not been identified to be an important value driver from a statistical standpoint. This is partially the result of the convex relationship between ownership and performance, i.e. majority control investments performed best as expected, but the surprising finding on the Limited Partners sample is that minority investments, defined as less than 25%, produce very attractive results, which could be explained through a successful co-investment behavior among buyout funds. The 2<sup>nd</sup> and 3<sup>rd</sup> quartiles exhibited weaker average performance.

The analysis of entry and exit mode variables further revealed significant findings for the dynamics of value creation and buyout returns. The entry mode variable analysis has shown that the riskier outright acquisition yields higher returns than other entry modes, such as recapitalizations. European exit modes on average performed better in this sub-sample, partially driven by lower average investment holding periods. The exit mode variable confirmed that IPOs are statistically the preferred exit route from a return perspective, in line with findings on the Venture Economics control population. A surprising difference between Europe and the U.S. was, however, that the

private exit market is relatively more attractive, enhanced by shorter European holding periods on this exit route. This has led to the conclusion that the private exit market in Europe is more active than in the U.S., potentially driven by the less advanced (Pan-)European consolidation in most industries. The analysis of entry and exit type variables revealed further interesting results from a practitioner point of view, yet not all statistically significant. Counter-intuitively, the “competitive” auction has historically been the entry type that yielded highest returns. Based on this phenomenon, conclusions were made that (i) the most attractive assets from a value creation or market position perspective are being sold through competitive auctions, and (ii) auctioned deals on average demonstrated to show the shortest holding period and hence are attractive as the quicker exit increases returns. However, the development of recently declining returns for auctioned deals was made explicit and must be cautiously observed. Finally, the General Partner firm undertaking the buyout has statistically been verified as a potential significant source of value creation. This evidence must be seen as the main motivation to study the GP firm in more depth in the subsequent empirical chapters II and III. A summary regression model on all of the above outlined control variables, posting an adjusted R square of 30.4%, confirmed that important value drivers in the value creation process have been identified.

The third sub-section on the primary Limited Partners’ dataset examined gross buyout deal performance compared to public stock markets and put this into context of industry financial developments. The findings made explicit that the Limited Partners’ dataset is clearly outperforming both equity and industry benchmark indices: measured on Level 3 industry performance, average industry performance amounted to 17%, while excess value creation generation through all buyout deals in the sample was 57%. The degree of value creation in the information technology, financial and non-cyclical services industries was highest, in line with prior findings, and lowest for the utilities and resources sectors. Based on the dataset, a buyout performance index according to entry and exit year was developed, which demonstrated the trend of value creation across time. Through a range of statistical tests, it was confirmed that buyouts are driven by overall industry benchmark performance. However, the Limited Partners sample was found to exhibit a lower correlation with public equity markets than observed in previous studies using fund data, e.g. by (Bance 2002).

In order to make further explicit what the link between industry index and buyout performance is, financial metrics of the respective target’s industry at the time of entry and exit were examined. A high EBITDA margin at the time of entry, as indicator for profitability and cash flow generation potential, was found to be the key factor influencing buyout returns. Equally, at the time of the acquisition, industry sales and profitability on average were set to increase at least in the first two years following the acquisition. This finding supports a theory by which buyout firms have developed a proficiency of entering buyout targets at the exact time when industry growth prospects in the particular target industry were high (“investment timing capability”). This theory is further substantiated by the fact that industry growth and profitability prior to entry has not been positive. A surprising finding is that industry valuations at the time of entry were not necessarily

low, i.e. the assumingly efficient markets had priced in the expected positive financial developments accordingly. In other words, buyout targets were acquired with good growth prospects, but not at a bargain. However, variables for growth in trading multiples (“multiple expansion/riding”) correlated very positively with buyout performance, while industry deleverage as an indication of increased cash generation proved statistically non-significant. With respect to exit conditions, it was demonstrated that the buyout firm’s investment timing capability finds additional evidence. First, at the time of exit, industry financials had performed well over the two years prior to exit. However, the financial outlook suggested that sales and margin growth would halt. As a consequence, buyout firms on average also make correct divestment decisions, as they sell target companies at the height of industry financial development, and before industry financial conditions worsen (i.e. cyclical downturns).

Finally, the first empirical chapter ended with a comparative analysis between the above mentioned industry financial conditions and actual buyout target financial performance. The financial development of buyout targets vis-à-vis their direct industry peers clearly indicated that buyout target companies are outperforming industry comparable companies with respect to revenue growth, profitability enhancements and cash flow generation. In addition, buyout firms prove to be successful multiple arbitrageurs, entering companies at a discount to market valuations and exiting at a premium. These results can therefore be seen as an important contribution for the explanation of the above discussed excess returns over public markets. The application of the value attribution formula developed in this study to the sub-sample of buyouts then substantiated that buyout firms – *on a relative basis* – are also less dependent than industry comparable companies on improvements in industry valuations, as they rather take vigorous action to enhance revenue growth and profitability in order to maximize value generation. However, differences in value creation strategies followed by buyout firms become transparent when evaluating different industries. As a consequence, in conjunction with the above findings, this evidence serves as direct motivation to study the buyout firm, its characteristics and followed strategies in more depth in the empirical chapters II and III.



# 5. Empirical Part II – The GP Firm and Manager Effect

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## 5.1. Introduction

In the first chapter of empirical results, it was established that leveraged buyouts as part of the Private Equity investment asset class do create superior value when compared to public markets. This finding was achieved based on (i) the control population dataset from Venture Economics, which included fund return data, as well as (ii) the Limited Partners' primary dataset of individual buyout transactions. The analysis further highlighted under which exogenous, i.e. market and acquisition related, conditions buyout transactions were more likely to be successful. Moreover, an analysis of the key financial accounting patterns both on the target company level and with respect to its underlying industry financial dynamics at the time of deal entry and exit revealed, where the value creation in buyout transactions stems from. From both the Venture Economics fund return analysis as well as the deal level findings, it became evident that the variance of success between individual deals, funds and the various General Partners was considerable. As a consequence, this second empirical chapter seeks to shed light on the non-financial, human factor "Buyout firm and its Investment Professionals", as this factor is expected to be a key driver in the value creation process and may eventually determine success and failure of a buyout transaction.

First, the chapter commences by outlining characteristics and profile of buyout firm investment team professionals. Secondly, characteristics and profile of buyout firms as an organization and its team structure will be discussed. Thirdly, performance of different buyout firms will be presented and put into context to their respective team characteristics. Fourthly, direct links to the managing partners and other investment professionals that worked on particular buyout deals will be analyzed, and finally, statistics should reveal which characteristics of investment managers/ teams is likely to influence success. Specifically, the question will be answered (i) whether there is an experience effect of buyout firms in executing transactions, and (ii) whether a focused investment strategy followed by the buyout firm with respect to type of deal leads to superior value creation.

For the above outlined tests in this chapter, there will be a prior description of tested variables and brief discussion of tested "variable hypotheses" with respect to the variable's potential impact on buyout performance, detailed statistical regression analysis as well as summary interpretation of results.

## 5.2. Investment Manager and General Partner Firm Characteristics

### 5.2.1. Test Setting

Based on the various tests in the previous chapter regarding market, financial and acquisition related value drivers, the existence of a GP effect in the buyout value creation process could be demonstrated in several instances. When analyzing the potential impact that the General Partner firm as an institution has on buyout performance, both the characteristics of the individual investment managers as well as of the buyout firm as an “organization” could be relevant. The descriptive and statistical exploratory analysis in this first section will therefore analyze these characteristics according to the following main constructs:

- Investment Manager / GP Firm team time related experience profile
- Investment Manager / GP Firm team educational experience profile
- Investment Manager / GP Firm team professional experience profile
- Investment Manager / GP Firm team diversity and hierarchy profile
- Investment Manager / GP Firm team homogeneity profile

According to these dimensions, descriptive results on a specifically recorded sub-sample of the Limited Partners’ dataset, for which these GP firm related characteristics were available, will be presented in a similar way as in the first empirical chapter. Furthermore, the above constructs, each of which include a larger set of variables, will be tested through a complex linear regression model in order to illustrate the combined explanatory power of buyout performance by these General Partner related variables. The section concludes with a discussion of the observed effects.

#### 5.2.1.1. Tested Variables and Hypotheses

The range of testable variables with respect to characteristics of buyout investment managers and buyout firms is theoretically almost infinite. The below discussed constructs represent several key due diligence areas, which Private Equity fund of funds industry experts consider as highly relevant. At the same time, the amount of information provided by the General Partner about their organization is commonly sparse. The presentation of buyout investment managers is in general limited to educational and professional experience, but the presentation of this information is highly heterogeneous. Additional due diligence into team characteristics, especially the track record of individual key members of the buyout firm, performed by Limited Partners added significant value to this analysis.<sup>143</sup>

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<sup>143</sup> Some of the sophisticated Private Equity fund of funds investors in the industry maintain advanced databases, in which they track biographies and performance of the key investment manager figures at the major Private Equity funds.

In the following, several testable hypotheses for the above outlined variable groups are presented, based on (i) analysis of Private Purchase Memoranda and due diligence materials of the Limited Partners, (ii) literature findings, and (iii) additional industry expert interviews. The variables developed for this analysis were designed with the goal to measure (to the extent possible) for each deal at each point in time, what the respective General Partner's team profile and manager characteristics were. The following figure summarizes the constructs analyzed in this chapter.<sup>144</sup>

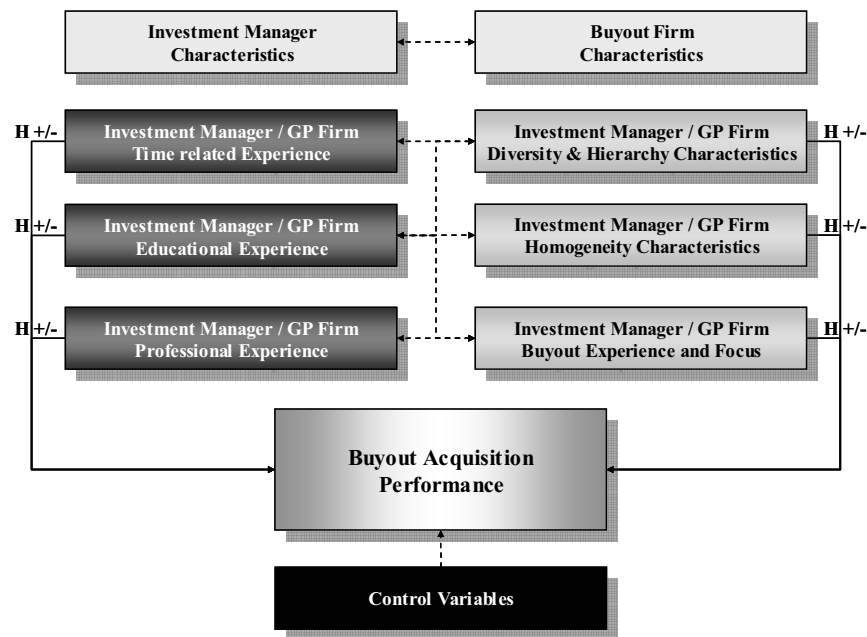


Figure 87: Investment Manager and General Partner Firm Drivers of Value Creation

#### 5.2.1.1.1. Time-related Experience

As in most professions, experience is expected to be a meaningful characteristic affecting buyout performance. In the context of acquiring and selling companies on a professional basis, this dimension becomes particularly relevant, as the performance of the “purchase and sale” process by General Partners is measured and contributes to the long-term success of the partnership. Experience can be further defined and operationalized: section two of this chapter will examine experience with respect to the transaction track record of General Partners in more detail. Variables tested in this section include the *average age* of investment managers and across the GP firm, *average years of experience in the Private Equity industry* as well as *average tenure* with the GP firm. Age is the broadest variable and is supposed to represent a synonym for average years of overall professional experience, i.e. as the average age of entry into the job market can be assumed to be in a small pre-defined range. The second variable, average years of experience in the Private Equity industry is likewise indirectly pointing to the amount of non-Private Equity experience.

<sup>144</sup> “Investment Manager / GP Firm buyout experience and investment focus” will be further expanded on in the next section.

Tenure with the GP firm demonstrates how long the investment professional or the team has been working together. A low number would suggest a young, expanding team or high turnover. Tenure therefore also serves as an indicator on how well experience and tacit knowledge could be shared within the GP firm team. Firm tenure heterogeneity has been found to be an important factor in related studies, as it influences the degree to which top management team (TMT) members use their different networks effectively (Athanassiou and Nigh 1999). In general, time-related experience as measure for tacit knowledge is expected to have a positive effect on buyout performance, hence it can be stated that

*H25/26/27.) Gross buyout deal performance is higher for transactions, in which the average age, Private Equity experience and tenure of investment managers and the GP firm team is high.*

#### *5.2.1.1.2. Educational Experience Profile*

Along Aristotle's line that "the roots of education are bitter, but its fruits are sweet", the education of Private Equity investment managers could be considered as an early principal driver for subsequent success in the buyout industry. Related studies have found that "top management team educational heterogeneity is pertinent, because it provides an indicator of the diversity of skills and cognitive processes, as well as basic knowledge, embedded in the TMT" (Bantel and Jackson 1989; Wiersema and Bantel 1992; Boeker 1997). Limiting the definition of education to university studies in this study, several dimensions will be considered. First, the *type of degree* studied, e.g. business, law, engineering, arts or other degrees, determine the type of acquired knowledge and skill set of the investment manager. It could be assumed that business and/or law studies are the more adequate preparation for the required skill set of investment managers (with respect to achieving higher performance). The *level of degree*, e.g. bachelor, master, MBA or PhD/JD degree, determines the depth, with which a specific subject has been studied. Similarly, the *number of (different) degrees* studied points to the diversity and intensity of knowledge acquired. Finally, the *university*, at which the degree was earned, may be of differing quality and hence could influence the level of education of the investment professional. It can therefore be expected that *Gross buyout deal performance is higher for transactions, in which on average*

*H28.) more investment managers had a business or law degree.*

*H29.) more investment managers had a higher than bachelor degree.*

*H30.) investment managers had a higher number of total degrees.*

*H31.) investment managers attended top ranked universities.*

#### *5.2.1.1.3. Professional Experience Profile*

Private Equity investment managers have very diverse professional backgrounds (see examples in section 5.2.2.3.). One of the frequent topics of discussion among Private Equity industry experts and fund managers is which type of professional experience profile contributes most value to the buyout firm team. The broad literature on the experience/diversity profile of top management teams (TMT) and/or board of directors suggests that a mix of complementary backgrounds leads to better

firm performance. Based on their assertion that organizations are “reflections of the values and cognitive bases of powerful actors,” Hambrick and Mason (1984) proposed that “organizational outcomes – strategic choices and performance levels – are partially predicted by managerial background characteristics”. Subsequent upper echelons research has drawn on a variety of theories, and indicates that the demographic characteristics of firms’ top executives are indeed related to a range of important organizational outcomes (Bantel and Jackson 1989; Wiersema and Bantel 1992). For instance, it has been argued that background diversity or heterogeneity is indicative of TMTs’ sociocognitive diversity, their skill sets, and the breadth of their social and professional ties (Finkelstein and Hambrick 1990; Finkelstein and Hambrick 1996). This heterogeneity of cognitions, skills, and ties is said to provide top management teams with diverse inputs and helps them be more responsive to environmental complexity and change (Bantel and Jackson 1989; Jackson 1992; Carpenter and Fredrickson 2001). Diverse backgrounds and skill sets have also been associated to successful board supervision in the context of effective corporate governance (Malik 1999; Macus 2002; Hilb 2002a), and to help TMTs to overcome the information overload, complexity, and domestic myopia that typically hamper globalization efforts (Ohmae 1989; Sanders and Carpenter 1998; Hilb 2002b).

Professional experience can only be considered as a proxy for the above described diversity. It is, however, also a very broad term as such, which includes more than the common definition of an employment relationship. Professional experience in the context of this study is therefore defined as the *investment manager’s network*, since it not only includes professional experience in accounting, banking, consulting, legal counsel or Private Equity, but also includes experience gained as manager, board member, in industry associations, in the public sector or in academia. Consequently, these “network categories” more adequately reflect the important cognitions, skills and relationships built by the investment manager prior to his engagement in Private Equity, which could prove highly beneficial when originating and executing buyout transactions. Among the various professional experience fields, some may be closer and more relevant to the buyout investment manager profession, e.g. experience in the financial services industry or elsewhere in Private Equity. It can therefore be expected that

- H32.) *Gross buyout deal performance is higher for transactions, in which the average size of the investment manager’s / GP firm team’s network (professional experience) is high.*
- H33.) *Gross buyout deal performance is higher for transactions, in which on average more investment managers of the GP firm team have acquired professional experience in the financial services industry or elsewhere in Private Equity.*

#### 5.2.1.1.4. *Diversity and Hierarchy Profile*

So far, diversity with respect to professional and educational experience of investment managers has been discussed. However, from an organizational point of view, the hierarchical structure of the buyout firm, i.e. how many *hierarchical layers* does it include and what is the *ratio of partners* to other investment professionals, could play an important role. In general, flat structures also support

a more fluid dissemination of information and knowledge, which benefits organizational learning. Hence, smaller organizations characterized by a *lower number of investment managers* may contribute to closer and more effective working relationships. Equally, the *average history of the GP firm team*, i.e. the time it has worked together, should produce important personal relationships among team members that benefit team culture and work processes alike. The latter argument is supported by research arguing that demographic similarity or homogeneity promotes behavioral integration among members of a team (O'Reilly, Snyder et al. 1993), while diversity could be a likely source of conflict and a deterrent to productive group functioning (Wagner, Pfeffer et al. 1984; O'Reilly, Snyder et al. 1993; Carpenter and Fredrickson 2001). However, others have argued that the selection and socialization processes common among TMTs are likely to dampen such conflict (Bantel and Jackson 1989). It can therefore be expected that

- H34.) *Gross buyout deal performance is higher for transactions, in which the average number of hierarchies of the investment managers / GP firm team involved in a transaction is low.*
- H35.) *Gross buyout deal performance is higher for transactions, in which the average number of junior investment manager professionals in the GP firm deal team involved in a transaction is high.*
- H36.) *Gross buyout deal performance is higher for transactions, in which the average number of investment manager professionals in the GP firm is low.*
- H37.) *Gross buyout deal performance is higher for transactions, in which the average joint deal history of the investment manager professionals in the GP firm deal team involved in a transaction is high.*

#### 5.2.1.1.5. Homogeneity Profile

As an opposing element to the benefits of diversity theory, investment professionals – as any human beings – are naturally more likely to favor colleagues with very similar experience backgrounds and/or age, as they can more easily establish interpersonal bonds. Homogeneity of management teams has also been found to be a factor directly related to managerial turnover (Wagner, Pfeffer et al. 1984). Although homogeneity can have important positive implications on team culture through stronger behavioral integration (O'Reilly, Snyder et al. 1993), it could also potentially be counter-productive with respect to diversity in thinking and a team's work approach, i.e. frequent repetition promotes development of organizational routines (Nelson and Winter 1982), which lead to quasi-automatic behavior, reducing the level of attention. The net effect between homogeneity and diversity, i.e. the impact on buyout value creation, could be an important indicator towards the way, in which buyout firms could be designing their recruitment strategy of investment professionals. This study has therefore developed homogeneity variables for all of the above discussed variables, based on the Hirfendahl index method. Results for these homogeneity variables will shed some light on the inherent contradiction between benefits of diversity and homogeneity. Based on the above discussion, it can therefore be expected that

*H38-46.) Gross buyout deal performance is higher for transactions, in which the homogeneity of investment manager professionals / GP firm deal team involved in a transaction with respect to age, Private Equity experience, tenure, history with the team, type, level and number of degree(s), universities and hierarchies, is high.*

#### 5.2.1.2. Methodology and Data

Data in this section is based on the primary dataset (“Limited Partners data”), gathered by the author, based on 3,009 leveraged buyout transactions undertaken by 84 General Partners and drawn from 252 funds between 1973 and 2003 that were collected from Private Purchasing Memoranda (PPMs) and due diligence material several large institutional investors (Limited Partners). However, the dataset is highly heterogeneous with respect to depth of data, as General Partners differ in their reporting approach. The biographies, although very heterogeneous, contain information on education and degrees, professional and other relevant experience, Private Equity experience, age, and tenure with the firm. The aggregation of this data offers far-reaching room for analysis of investment managers’ profiles, but the required information for this analysis regarding characteristics of individual investment managers and buyout firms is particularly sparse. First, investment manager biographies are by and large never complete for the above outlined categories. Secondly, the critical link between an investment manager, or team of managers, to a particular buyout is generally only rarely reported in PPMs, which provides the link between independent characteristics variables and the dependent variable IRR. Nevertheless, there will be results presented based on individual investment manager’s performance.

As a result of the above information gaps, an alternative methodological approach in this section will be to establish GP firm team profiles at the exact entry time of the focal buyout, i.e. based on the presented information on age, tenure, Private Equity experience, etc. from the PPM reporting year, it can be intrapolated what the experience profile of the investment manager team and its members was several years back. It should be noted that this approach neglects historical turnover among the team, if not reported in the PPM. However, turnover for senior members in Private Equity firms is commonly low. Following on this point, the reported biographies commonly are less detailed for junior investment manager professionals, if presented at all. As a consequence, in order to establish correct and critical team size data, additional desk research was performed on the buyout firm teams in order to strengthen the data validity.<sup>145</sup> The resulting sub-sample dataset for the analysis in this section consists of N=1,422 realized buyout transactions, for which one or more

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<sup>145</sup> The biographies sometimes mention all employees at a buyout fund. The sample does therefore not include any support staff (secretaries, etc.). It does, however, include professionals that carry out corporate functions for the fund, such as CFO, treasurer, etc., as these professionals are generally at the same time senior investment professionals. Selectively, the author has included senior professionals that are responsible for investor relations or other marketing roles, as he considers this an important function that impacts the success of a fund (e.g. indirectly through collecting capital during fundraising). However, the latter represent less than 1% of the sample. A few included investment professionals are considered “counsel”, and have a looser yet constant affiliation with the firm (e.g. consultants, advisors, legal counsel).

of the above variables is available. The database contains codified information on 1,282 investment professionals, working for 85 leveraged buyout funds, based on the Limited Partners' data. First, descriptive graphical results will be presented with respect to the sample of investment managers and buyout firms. Secondly, these characteristics will be linked to buyout performance. Finally, a complex regression model will estimate the combined explanatory power of the constructs summarized in table 47 towards variance in the dependent variable IRR performance.

<b>Constructs</b>	<b>Explanatory Variables</b>	<b>Operationalization Definition</b>
Manager/ Time Experience	<i>Average Age</i> <i>Average Tenure</i> <i>Average Private Equity Experience</i>	The average years of “experience” acquired by the buyout firm investment manager team prior to the year of the focal buyout
Manager/Team Professional Experience	<i>Sum of Network</i> <i>Share of Academia, Accounting, Administrative and Public Sector, Association involvement, Banking, Board memberships, Consulting, Law, Management functions, Private Equity, Other</i>	The percentage share of professional experience within the buyout team acquired by the buyout firm investment manager team until one year prior to the focal buyout
Manager/Team Education Background	<i>Sum of Degree Type</i> <i>Share of Arts, Business, Engineering, Law and Other Degrees</i> <i>Sum of Degree Level</i> <i>Share of Bachelor, Master, MBA, PhD/JD and Other Degrees</i> <i>Sum of Degree Order</i> <i>Share of 1st, 2nd, 3rd Degree</i> <i>Sum of Unis</i> <i>Share of individual Unis attended (not listed here)</i>	The percentage share of educational experience within the buyout team acquired by the buyout firm investment manager team until one year prior to the focal buyout
Manager/Team Diversity and Hierarchy	<i>Average History with Team</i> <i>Sum of Hierarchies</i> <i>Share of Partner, Senior, Junior Professionals on Deal</i> <i>Number of Managers</i>	The percentage share of investment professionals by hierarchy in the buyout firm one year prior to the focal buyout
Manager/Team Homogeneity	<i>Homogeneity of Age</i> <i>Homogeneity of PE Experience</i> <i>Homogeneity of Tenure</i> <i>Homogeneity of History with Team</i> <i>Homogeneity of Network</i> <i>Homogeneity of Degree Type</i> <i>Homogeneity of Degree Order</i> <i>Homogeneity of Degree Level</i> <i>Homogeneity of Unis</i> <i>Homogeneity of Hierarchy</i>	The homogeneity of buyout manager experience (as defined above) and team hierarchy structure within the buyout firm one year prior to the focal buyout

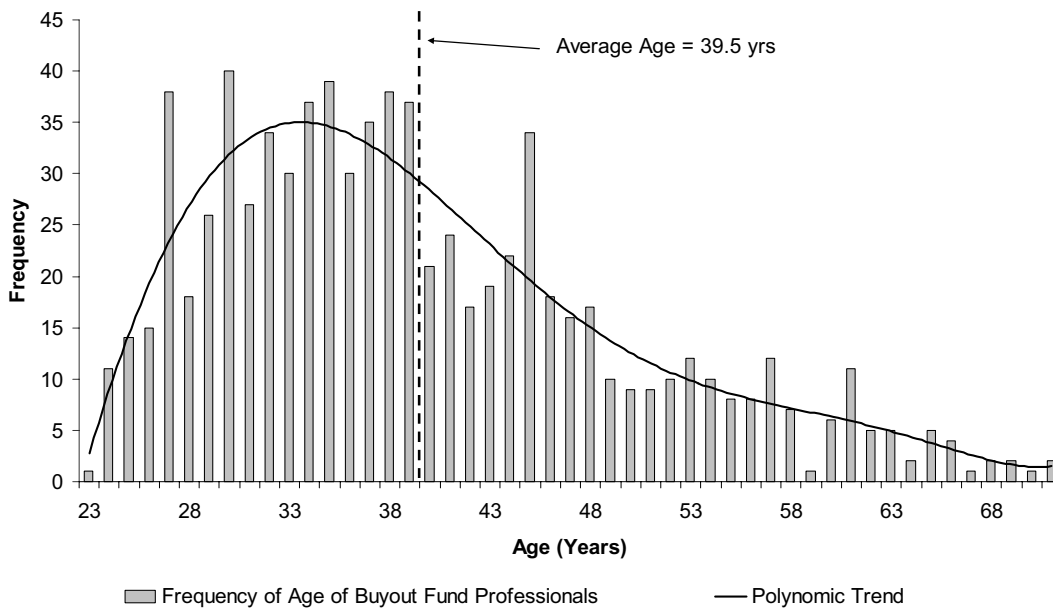
**Table 47: Operationalization of Buyout Team Characteristics Explanatory Variables**



## 5.2.2. Investment Manager Characteristics

### 5.2.2.1. Age, Tenure with the Firm and Private Equity Experience

The average age of buyout fund investment professionals calculated on a sub-sample of  $n=800$  investment managers was 39.5 years<sup>146</sup>. The minimum age relates to a junior investment analyst at the age of 23 years, the maximum age is 71 and is attributed to a buyout fund's partner, who joined his firm in 1983, and the standard deviation is 10.2 years.<sup>147</sup> Naturally, the distribution peaks around the more numerous junior investment professionals, approximately at the age of 33, and declines quickly from the age of 40, a time when mid-level fund professionals are either promoted to partner status or leave the firm. Between 49 and 58 years, the distribution remains constant, indicating that the partner promotion selection processes stops after the age of 48 on average, and that the number of successful partners that remain in their position does not fluctuate very much. Retirement more or less gradually begins from year 59 onwards.



**Figure 88: Distribution of Age of Buyout Fund Investment Professionals**

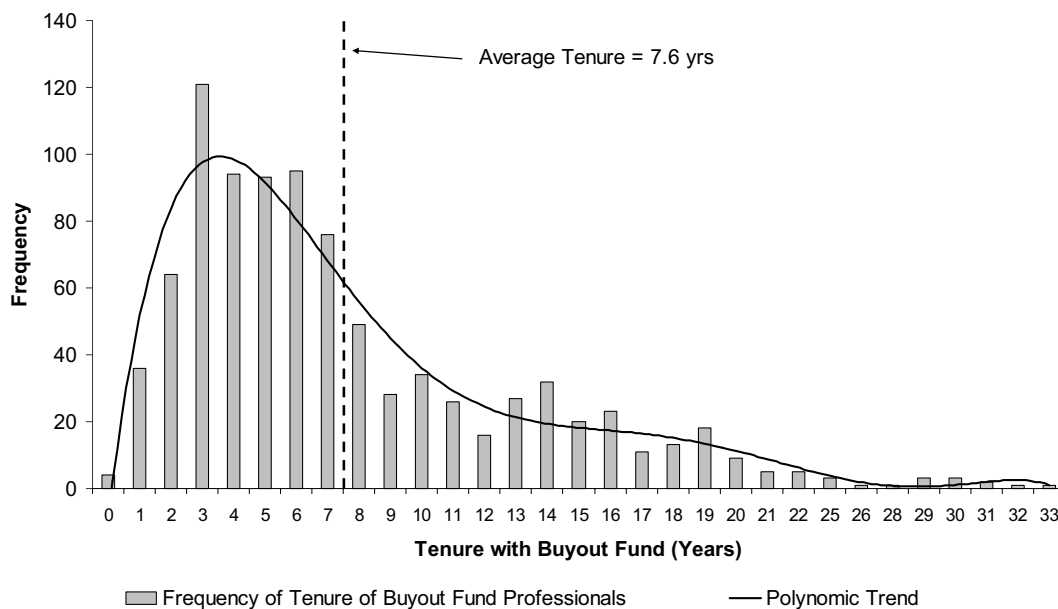
Source: INSEAD Buyout Investment Manager Database, analyzed by author (N=800).

The distribution of tenure of investment professionals at buyout funds naturally follows the trend observed for the age frequencies. The average tenure of 7.6 years for buyout fund investment professionals is calculated on a sub-sample of  $n=914$  investment managers, as of 2003. The minimum tenure was zero and must therefore relate to junior investment analysts hired in 2003.

<sup>146</sup> Due to the heterogeneous dataset on the 1,282 investment managers, sub-sample sizes will differ throughout this section.

<sup>147</sup> Due to the confidentiality agreements between the data providing Limited Partner as well as the author and the INSEAD Buyout Centre, no names of individual General Partners or investment professionals will be used in this study. Furthermore, it is clearly intended by the author to avoid making any specific references and to present non-aggregated findings that could identify either specific firms or individuals.

The maximum tenure of 33 years is attributed to a veteran European buyout fund partner, who joined his firm in 1970. The standard deviation is 5.6 years. The distribution reveals that (i) there are few remaining early founders of the buyout business that started before 1980, (ii) there was a steady increase in the number of buyout professionals during the 1980s, and (iii) there was a particular strong hiring of (junior) investment professionals between 1995 and 2000. As the tenure information results from the same funds over time, this strong increase in recent years can be interpreted as a reaction of (i) increased fund sizes, deal activity and average deal sizes that require more investment professionals to execute transactions, and (ii) a professionalization of buyout organizations, which traditionally were characterized as lean, non-hierarchic organizational structures.

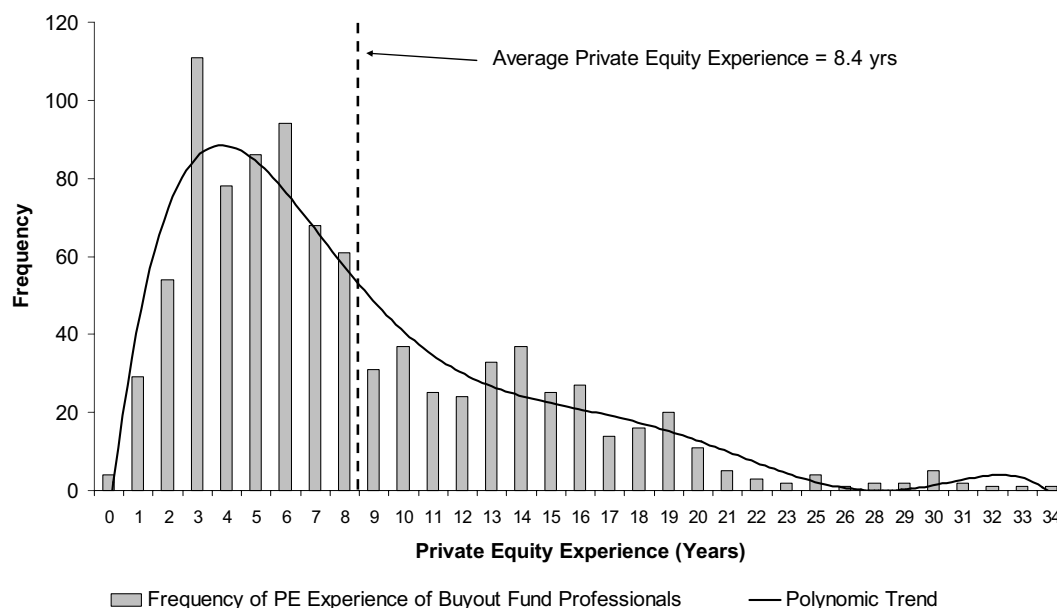


**Figure 89: Distribution of Tenure of Buyout Fund Investment Professionals**

Source: INSEAD Buyout Investment Manager Database, analyzed by author (N=914).

Likewise, the distribution of the total years of experience in the Private Equity industry is very similar to the tenure of investment professionals at buyout funds, as shown in figure 90. The average years of Private Equity experience among buyout fund investment professionals was 8.4 years, calculated on a sub-sample of n=914 investment managers, as of 2003. The minimum experience was zero again while the maximum experience rests with a veteran U.S. buyout fund partner, who starting working in the Private Equity industry in 1969. The standard deviation of experience is 6.0 years. In summary, we can conclude from the comparison of distribution and average tenure with distribution and average experience of buyout fund professionals that the turnover in this industry has traditionally been very low.<sup>148</sup>

<sup>148</sup> To clarify the interpretation, Private Equity experience does not necessarily need to equal at least tenure with the firm, since as a result of the turnover of professionals and senior experienced hires, the two



**Figure 90: Distribution of Private Equity Experience of Buyout Fund Investment Professionals**  
Source: INSEAD Buyout Investment Manager Database, analyzed by author (N=914).

#### 5.2.2.2. Education of Buyout Fund Investment Professionals

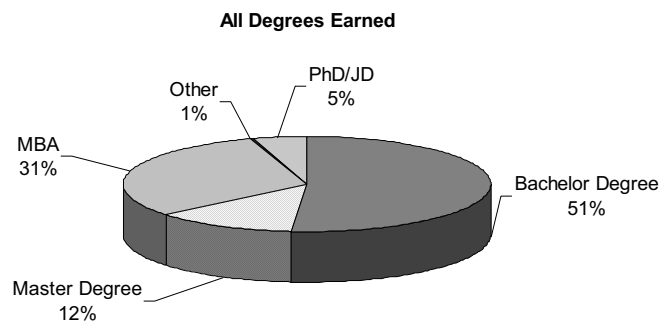
The level of education, professional qualification and overall personal skill set that is necessary to enter and succeed in the Private Equity industry is extraordinarily high compared to other industries. This is a result of the variety of tasks and roles that investment professionals need to cope with in day to day business. On the one side, strong analytical and financial skills and business judgment are compulsory to search for acquisition targets, execute transactions and monitor their performance subsequently. On the other side, strong interpersonal and negotiation skills are required to deal with the various parties – lawyers, bankers, accountants, consultants, portfolio company management and its shareholders – involved in transactions. Furthermore, specific industry knowledge may be mandatory if the buyout fund is specializing on specific industry sectors, such as media, telecom and technology, luxury goods or aerospace and defense.<sup>149</sup> Consequently, requirements and competition for investment manager positions is intense. The following results summarize the educational profile of buyout fund investment managers to provide an overview of their skill set.

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distributions can vary. Consequently, the comparison of the two distributions hints at potential hiring and turnover trends.

<sup>149</sup> US Private Equity firm Veronis, Suhler & Co. is specializing on media transactions, Providence Capital Partners on cable and telecommunications deals, the Italian Opera Fund focuses on buyouts in the luxury goods sector and Carlyle is famous for its expertise in the aerospace and defence sector.

### 5.2.2.2.1. Degrees Earned

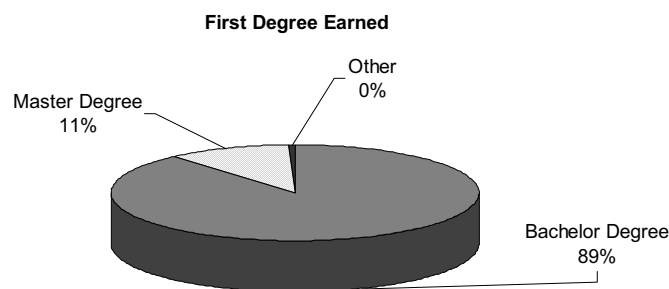
The analysis of the education of the 1,282 investment professionals captured in the database reveals an overall extremely high level of education, in terms of depth (number of degrees) and quality (ranking of schools attended). Considering all degrees earned by buyout fund investment professionals, i.e. without controlling for multiple degrees earned by managers, a high proportion of higher education can be found. In addition to the initial (generally bachelor) degree (51% of all degrees), at least 48% of all degrees earned were secondary (or tertiary) education degrees, i.e. master, MBA or doctoral degrees (PhD/JD).



**Figure 91: Distribution of all Degrees Earned by Buyout Fund Investment Professionals**

Source: INSEAD Buyout Investment Manager Database, analyzed by author (N=1,587).

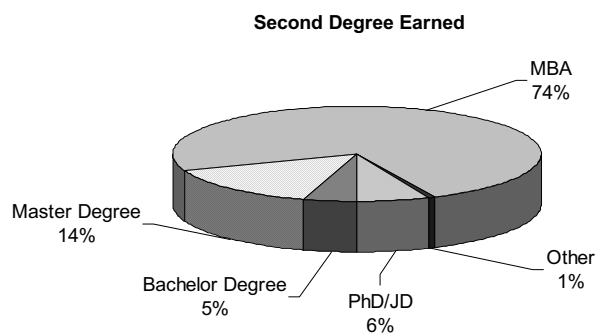
Splitting the degrees earned into three levels reveals that 89% of buyout fund professionals started with a bachelor degree, while 11% earned a master directly. This result is partially influenced by the difference between the Anglo-Saxon and continental European (Germany, France, Switzerland, Scandinavia, etc.) educational system, in which the first education degree is commonly completed with a master certification.



**Figure 92: Distribution of First Degree Earned by Buyout Fund Investment Professionals**

Source: INSEAD Buyout Investment Manager Database, analyzed by author (N=883).

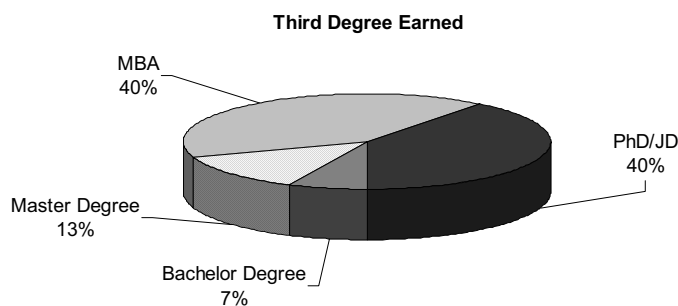
With respect to the second degree earned by buyout fund investment managers, a strong concentration on the MBA degree (74% of all secondary degrees) can be observed, while additional bachelor or master degrees (5% and 14% of all secondary degrees respectively) are less common. Notable is also the considerable concentration of PhD and JD (juris doctorate) degrees (6% of all secondary degrees) among investment managers.



**Figure 93: Distribution of Second Degree Earned by Buyout Fund Investment Professionals**

Source: INSEAD Buyout Investment Manager Database, analyzed by author (N=618).

The analysis of the tertiary degree earned shows that both the MBA and PhD/JD degree dominate on this level (40% of all tertiary degrees respectively). Buyout fund investment managers had prior typically earned at least one bachelor/master degree. However, the total number of degrees on the tertiary level is only n=86, hence the most common educational profile of fund investment managers involves a bachelor/master and MBA combination.

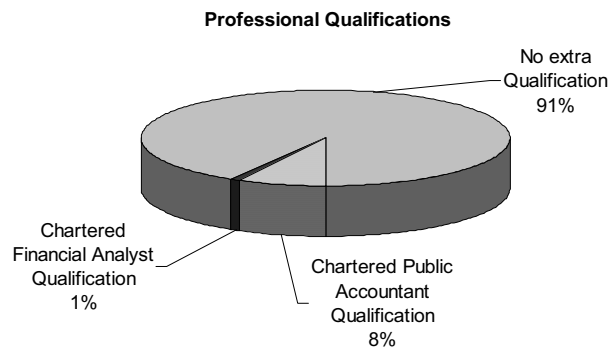


**Figure 94: Distribution of Third Degree Earned by Buyout Fund Investment Professionals**

Source: INSEAD Buyout Investment Manager Database, analyzed by author (N=86).

#### 5.2.2.2.2. *Additional Professional Qualifications*

The analysis of the buyout fund investment manager's educational background also captured non-university qualifications. These professional qualifications are generally completed during pre-buyout fund manager professions in banking or auditing. Eight per cent of investment managers hold a qualification as chartered public accountant (CPA) and one per cent are chartered financial analysts (CFA). The CPA qualification is an indication of the high level of financial analysis capabilities that buyout fund managers must bring to the job. The CFA qualification has become a very frequent among related types of asset management professionals; hence the low frequency among buyout fund professionals is a somewhat surprising result.

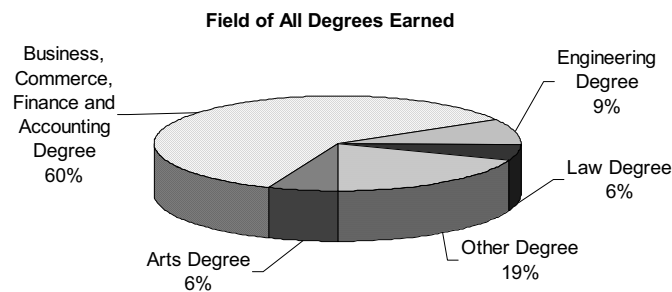


**Figure 95: Additional Professional Qualifications Earned by Buyout Fund Investment Professionals**

Source: INSEAD Buyout Investment Manager Database, analyzed by author (N=1,153).

#### 5.2.2.2.3. *Fields of Degrees Earned*

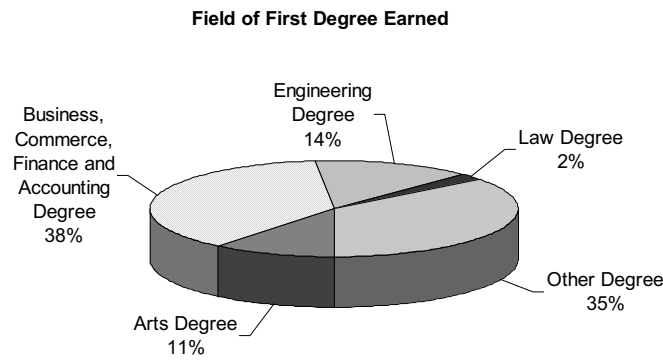
The analysis of the field of educational background of investment managers clearly indicates the focus on business, commerce, finance and accounting education (60% of all degrees earned) as key preparation for the Private Equity job. Technical knowledge, represented through 9% of engineering degrees earned, appears to be less critical for investment managers. Despite a strong component of negotiations and contract-making with financing banks and target sellers, the law degree (6% of all degrees earned) is also not very frequent among investment managers.



**Figure 96: Field of all Degrees Earned by Buyout Fund Investment Professionals**

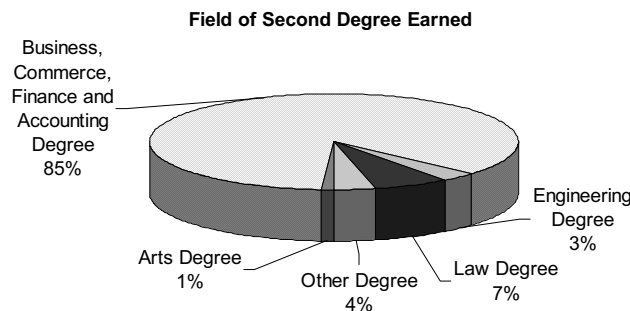
Source: INSEAD Buyout Investment Manager Database, analyzed by author (N=1,303).

However, examining the fields of education separately on the primary, secondary and tertiary level demonstrates that the diversity is far larger for the first degree. The arts degree (11% of all primary degrees), engineering degree (14% of all primary degrees) and high level of other degrees (35% of all primary degrees) indicate that two thirds of buyout fund managers also have a non-business background, which points to a broader than initially anticipated level of expertise in other (social) studies or technical expertise.



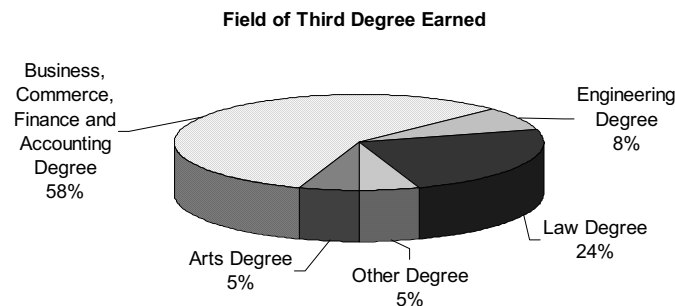
**Figure 97: Field of first Degree Earned by Buyout Fund Investment Professionals**  
 Source: INSEAD Buyout Investment Manager Database, analyzed by author (N=631).

The second degree is clearly dominated by business studies, as previously shown by the high frequency of MBA degrees earned. It therefore becomes clear that in contrast to the observed greater diversity on the initial degree, the subsequent completion of a business related degree can almost be considered as prerequisite for a career as buyout fund investment manager.



**Figure 98: Field of second Degree Earned by Buyout Fund Investment Professionals**  
 Source: INSEAD Buyout Investment Manager Database, analyzed by author (N=597).

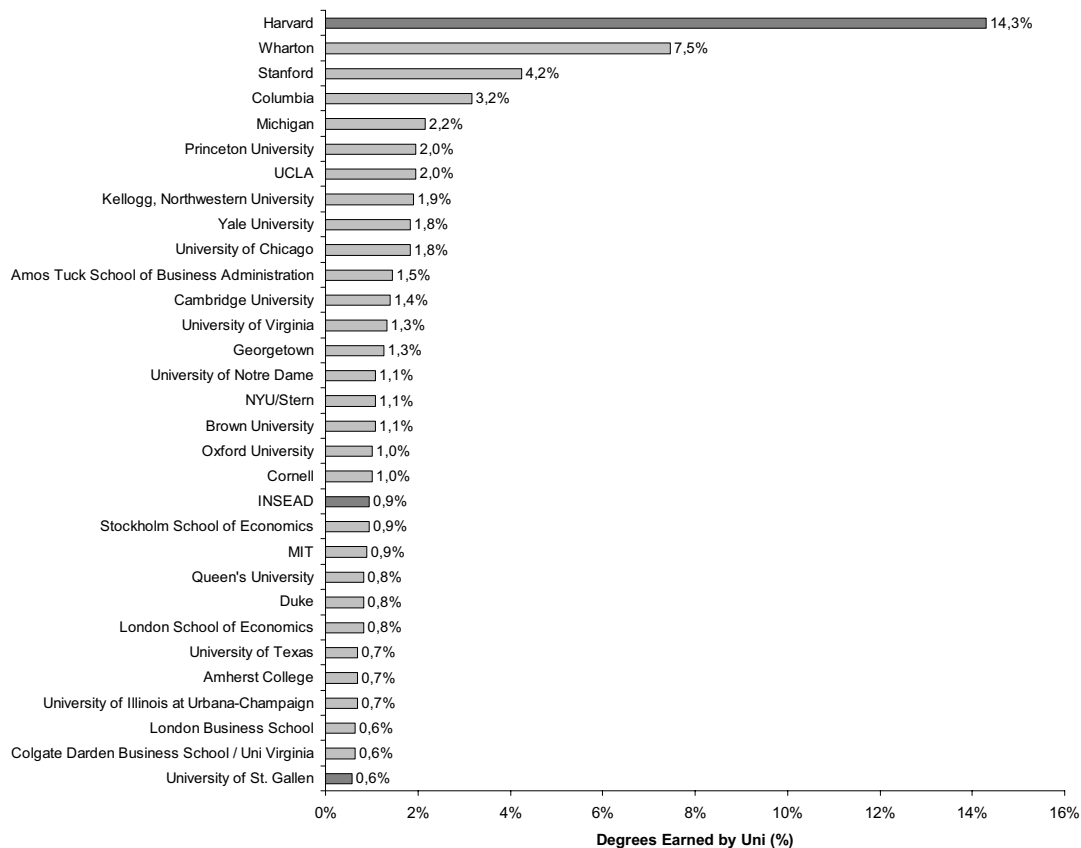
As demonstrated in the above degree analysis, the third degree earned is dominated by the MBA degree as well as (business, engineering, arts) PhDs and law doctorates (JDs), thus the business (58% of all tertiary degrees) and law degree (24% of all tertiary degrees) dominate the results for the third degree.



**Figure 99: Field of third Degree Earned by Buyout Fund Investment Professionals**  
 Source: INSEAD Buyout Investment Manager Database, analyzed by author (N=75).

#### 5.2.2.2.4. Buyout Investment Manager University Ranking

In addition to a great depth and frequency of higher education among buyout fund investment professionals, also the average quality of institutions visited by active professionals is at an extremely high level in this industry. Hence, the general notion that “only the best and brightest” business study professionals will receive the opportunity to follow a career in the buyout industry is substantiated by the analysis of universities attended. The below chart summarizes the frequencies of degrees earned at specific institutions. Over 14% of degrees earned by buyout fund professionals (globally) were therefore completed at Harvard University.<sup>150</sup> This is followed by Wharton (7.5% of all degrees), Stanford (4.2% of all degrees) and Columbia (3.2% of all degrees). The most frequently visited European universities and/or business schools were Cambridge University (1.4% of all degrees), Oxford University (1.0% of all degrees) and INSEAD (1.0% of all degrees). At the University of St. Gallen, buyout fund investment managers earned 0.6% of the total degrees earned (globally).



**Figure 100: Top 31 Universities – All Degrees Earned by Buyout Fund Investment Professionals**

Source: INSEAD Buyout Investment Manager Database, analyzed by author (N=1,581).

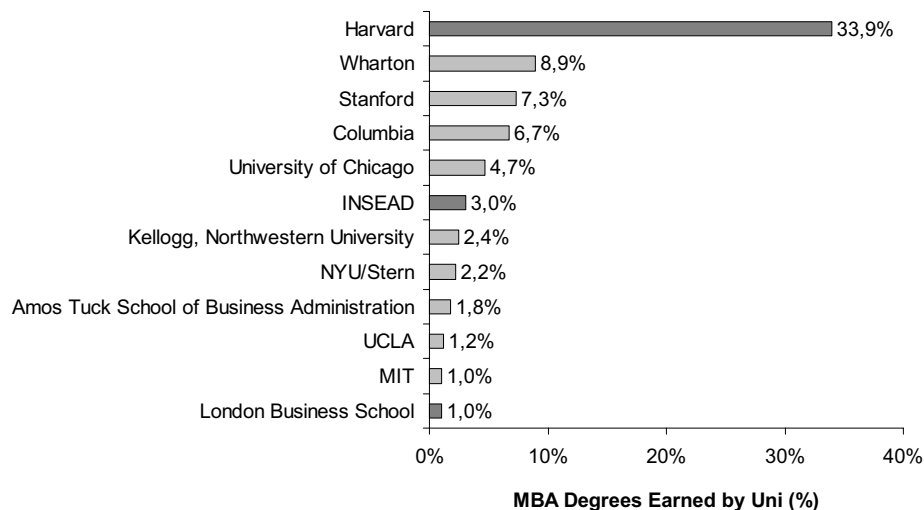
<sup>150</sup> Includes all faculties and degree levels, i.e. in this case Harvard Business School, Harvard Law School, Harvard Kennedy School of Governance and Harvard University. The same holds true for all other Universities.



These results have to be put into perspective to the underlying sample, which includes a majority of U.S. domiciled rather than European domiciled buyout funds and is therefore to some extent skewed towards U.S. schools.<sup>151</sup> However, also European buyout investment professionals frequently gain U.S. degrees, especially due to the higher density of top U.S. universities/ business schools that offer MBA courses. On the other side, the higher proportion of U.S. schools it is also enhanced through the effect that the average U.S. investment professional gains his undergraduate and (post)graduate (MBA or PhD/JD) degrees at different universities, while under the (continental) European education system investment professionals are more inclined to receive their undergraduate (if existent) and (post)graduate (master or PhD/JD) degrees from the same university.<sup>152</sup>

#### 5.2.2.2.5. Buyout Investment Manager Business School Ranking

The importance of receiving an MBA qualification for a career as buyout investment manager appears to be crucial, as demonstrated above. The results of the analysis with respect to which top business schools were attended by buyout fund investment professionals is very much comparable to the frequently publicized official business school rankings.<sup>153</sup> Most strikingly, the frequency ranking shows that more than a third (33.9% of all MBAs earned) of buyout investment professionals has gained their MBA at Harvard Business School. The clear dominance of the “Harvard Club” in the buyout industry is followed by Wharton (8.9% of all MBAs earned), Stanford (7.3% of all MBAs earned), Columbia (6.7%) and University of Chicago (4.7%). Among European business schools, INSEAD takes position six with 3.0% of all MBAs earned and London Business School (LBS) with 1.0%.



**Figure 101: Top 12 Universities – MBA Degrees Earned by Buyout Fund Investment Professionals**

Source: INSEAD Buyout Investment Manager Database, analyzed by author (N=492).

<sup>151</sup> Expressed as a split of underlying transactions, the ratio is approximately 60/40 for U.S./Europe.

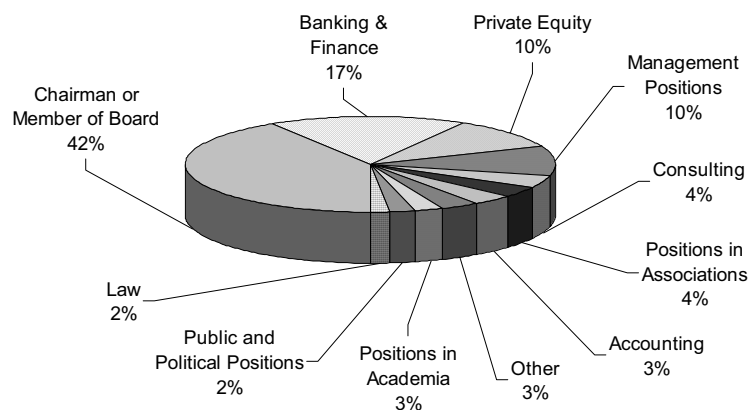
<sup>152</sup> For example, the master degree earned at the University of St. Gallen should count double (as undergraduate and master degree) in an international comparison.

<sup>153</sup> For example, the Financial Times or Newsweek business school rankings.

The dominance of Harvard Business School MBAs in the buyout industry certainly deserves further scrutiny. Explanations for this high density could either be seen in (i) HBS's most complete curriculum and/or superior faculty as preparation for a career in the buyout industry, or (ii) an unparalleled network system among Harvard alumni, which to a great extent participated in the early foundation of the buyout industry in the 1970s, and new graduates that gives recruiting preference to MBAs from this institution.<sup>154</sup>

### 5.2.2.3. Professional Experience and Network of Buyout Investment Managers

In addition to a high quality academic education, buyout fund investment professionals have assembled far-reaching experience on the job. They received professional training with the world's leading financial institutions, law firms, consultancies and in the industry. In addition, they developed strong political ties to the public sector and government agencies by assuming important positions. They also strengthen the link to academia to have first hand access to research as well as engage strongly in non-profit, social and charitable organizations. The following chart (figure 102) summarizes all of the nearly 4,800 positions held currently or in the past by buyout investment managers in the sample.<sup>155</sup>



**Figure 102: Network, Professional Experience and Current Positions of Buyout Fund Investment Professionals by Sector**  
Source: INSEAD Buyout Investment Manager Database, analyzed by author (N=4,768).

<sup>154</sup> Examples of well-known Harvard Business School MBA graduates that acted as founders of the buyout industry include Stephen A. Schwarzman, co-founder of The Blackstone Group, Sir Ronald Cohen, Chairman of Apax Partners and Daniel A. D'Aniello, co-founder of Carlyle. Joseph L. Rice III., co-founder of Clayton, Dubilier & Rice (CD&R) graduated from Harvard Law School.

<sup>155</sup> The data collection process from the Limited Partner data prohibited a strict differentiation between prior and current professional positions of investment managers, as many of these cannot be assigned to either period (e.g. engagement in industry associations and academia). Generally speaking, it is sensible to say that law, banking and finance, consulting positions were held in the past before joining the fund. So were most of the top management positions in corporations. Active portfolio management of the fund should not be considered as operational management on the company level, but rather supervision through board directorship. The board positions therefore include both, key board positions held in the past as well as positions held at (current) portfolio companies of the fund.

The majority of “Chairman or Member of the Board” positions held (42% of all positions held) are related to current and some of the major board directorship positions accepted prior to joining the fund. In general, several senior buyout fund investment managers gain board responsibilities (and chairmanship) at the time of the acquisition of the target. However, they may also sit on a range of boards at companies that are not portfolio companies of their fund. Management positions account for 10% of all positions (previously) held by investment managers, which mainly consist of positions of founder, president, chief executive officer (CEO), chief financial officer (CFO), chief operating officer (COO) as well as other top management positions, such as group or divisional heads.

Category	Sample Positions	Sample Firms/Institutions
<b>Banking and Finance</b>	Financial Analyst	Glodman, Sachs & Co
	M&A and Financial Sponsor Coverage	Morgan Stanley
	Head of M&A Department	Svenska Handelsbanken
	German M&A Team	WestLB Panmure
	Private Equity Team	Donaldson, Lufkin & Jenrette
	Managing Director	Drexel Burnham Lambert Inc.
	Partner	Lazard Freres & Co.
	Investment Analyst	Mutual Asset Management Ltd.
	Head of Specialised and Acquisition Finance Member	Hong Kong and Shanghai Banking Corp. (HSBC) J.P. Morgan Investment Management
<b>Private Equity</b>	Associate	The Carlyle Group
	Managing Director	Thomas H. Lee Company
	Associate	The Blackstone Group
	Board of Directors	AFIC
	Associate	Clayton Dubilier & Rice
	Director	INVESCO Ventures
	European Head	Goldman Sachs Mezzanine Partners
	Head of Country Office	3i
	Vice President	Citicorp Venture Capital
Vice President	DLJ Merchant Banking Partners	
<b>Consulting</b>	Senior Engagement Manager	McKinsey & Company, Inc
	Manager	Boston Consulting Group
	Managing Director	Booz, Allen & Hamilton, Inc
	Partner	Monitor & Company
	Co-head of Financial Service Practice Partner	Bain & Company Anderson Consulting
<b>Accounting</b>	Chartered Accountant	Price Waterhouse
	Partner	Coopers & Lybrand
	Member of Turnaround Team	Arthur Andersen & Co.
	CEO and President	Deloitte
Transaction Services Group	Ernst & Young	
<b>Law</b>	Partner	Simpson, Thacher & Bartlett
	Lawyer	Fried Frank Harris Shriver and Jacobson
	Managing Director	Weil, Gotshal & Manges LLP.
	Associate	Gibson, Dunn & Crutcher
	Law Clerk to Justice	United States Supreme Court

**Table 48: Examples of Positions and Institutions of Buyout Fund Investment Managers by Profession**

Source: INSEAD Buyout Investment Manager Database, analyzed by author.

With respect to professional background, the large majority of investment managers have worked in the financial services industry (17% of all positions held) before joining the buyout fund. To a very large extent, the main global investment banks dominate as former employers, but also regional (and European) and boutique corporate finance houses as well as some fund management and insurance companies served as grounds to gain professional experience. Furthermore, a significant number of buyout fund professionals have gained prior Private Equity experience before joining their fund (10% of all positions held). These prior Private Equity positions, on the one hand,

include other buyout funds, which supports the hypothesis that there is a certain amount of turnover in the industry. On the other hand, this category comprises a range of Venture Capital fund positions, suggesting that investment managers are also switching from the entrepreneurial start-up and venture investment side to the buyout investment business, which focuses on more mature companies. This category also contains positions held within the merchant banking operations of the large investment banks, which has been a natural hiring area for buyout firms.

The positions held by investment managers in the consulting industry (4% of all positions held) mainly concern the main global strategy consultancies such as McKinsey & Co., The Boston Consulting Group, Bain & Company, etc. Similarly, the key accounting positions (4% of all positions) were held at the “Big Four (Five, Six before mergers/bankruptcy)” accounting firms such as Price Waterhouse, Coopers & Lybrand, (former) Arthur Andersen, KPMG, Deloitte & Touche and Ernst & Young. By contrast, the diversity among prior positions held among the universe of law firms (2% of all positions) is very large. Table 48 provides further examples of positions and institutions, indicating the professional backgrounds of buyout investment managers.

The hypothesis that their strong network assists buyout fund professionals to enhance their competitive position, i.e. to originate superior proprietary deal flow of attractive target companies and/or to negotiate transactions favourably, finds evidence in the vast diversity of positions held – currently and in the past – in the non-financial community. First, investment managers have steady relations to the public sector and with government agencies (2% of all positions).<sup>156</sup> They held and/or maintain positions at high-ranking government committees, counsels and boards of directors of the (U.S.) Congress and Senate, government departments (trade, industry, and foreign relations), the central bank, the national stock exchanges, etc. Buyout fund professionals are therefore well-positioned to lobby their (investment) interests politically and may also contribute to initiate new legislation. Table 49 provides examples of positions and institutions of the corporate background and further network of buyout investment managers.

Furthermore, buyout firms sustain relationships with the academic world, generally through connections created at business schools (3% of all positions). They sponsor faculties and institutions and also engage in the curriculum themselves as lecturers. They frequently are appointed to the board of trustees of top universities’ funds. They are therefore at the forefront of research in the field of Private Equity, Venture Capital and Leveraged Buyouts and at the same time receive prime access to potential new hires. Finally, investment professionals actively maintain key positions in Private Equity industry associations or in national industry associations (4% of all positions held), thus retaining a platform to actively express and lobby their interests. In addition, it should be highlighted that this category also contains a large number of affiliations of buyout fund professionals, which relate to (personal and/or via fund) sponsorships of social, cultural, communal and charitable organizations.

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<sup>156</sup> This category also includes former members of the armed forces (mostly in the US).

Category	Sample Positions	Sample Firms/Institutions
<b>Board of Directors</b>	Member of the Board of Directors (Vice) Chairman of the Board	n/a
<b>Management</b>	President and CEO Chief Operating Officer Co-Founder CFO of Italian Subsidiary Executive Vice President Managing General Partner Vice President of Development	n/a
<b>Public and Political</b>	Secretary of Commerce Member of the Legal Advisory Member National co-chair Counsellor to the President U.S. Ambassador Head of Department Board Member Assistant Secretary for Financial Market Head of Energy Division Captain Commander Chairman	Nixon White House New York Stock Exchange President Clinton's cabinet Privatization Council President Clinton's Administration United Nations French Ministry of Industry St. Louis Federal Reserve Board U.S. Treasury World Bank U.S. Air Force U.S. Navy Steering Committee of the President's Working Group on Financial Markets
<b>Academia</b>	Member of the Board of Trustees Visiting Scholar Regular Lecturer Faculty Advisory Board Member Advisor in Research Studies	Rockefeller University Harvard Law and Business School University of Chicago Princeton University National Economic Research Institute University of Munich
<b>Associations</b>	Director Advisory Board Member Board of Directors Member President President and CEO Member of the Board of Directors Trustee Secretary	National Venture Capital Association European Venture Capital Association District of Columbia Bar National Financial Partners Corporation The Business Council Metropolitan Museum of Art J. Paul Getty Trust Hirshhorn Museum London Philharmonic Orchestra Swiss Private Equity & Corporate Finance Association

**Table 49: Examples of Positions and Institutions of Buyout Fund Investment Managers by Profession or Affiliation**

Source: INSEAD Buyout Investment Manager Database, analyzed by author.

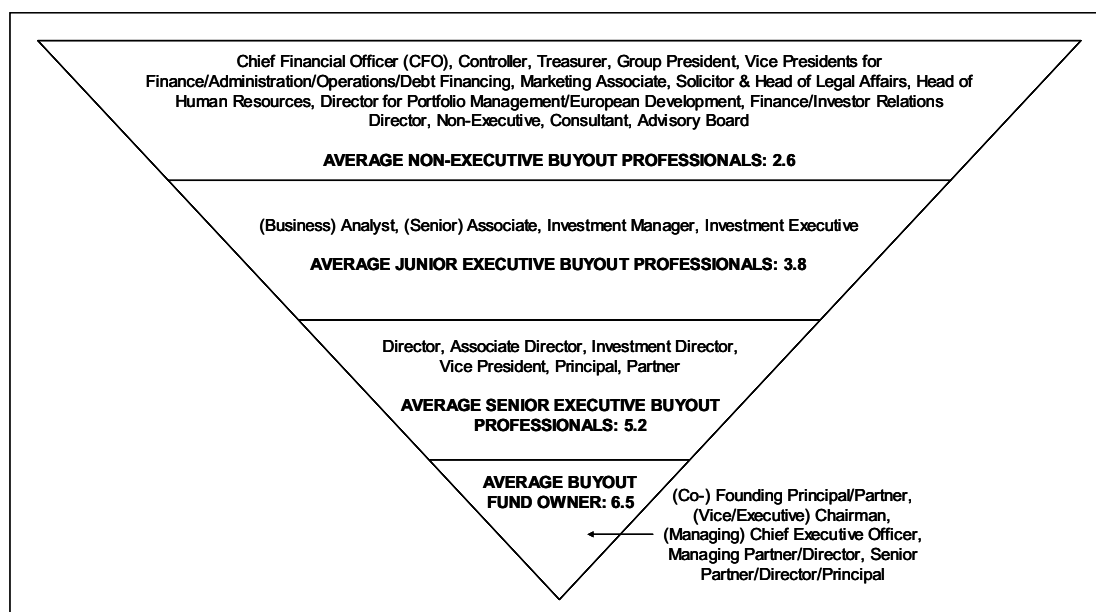
### 5.2.3. General Partner Firm Characteristics

#### 5.2.3.1. Average Buyout Firm Team Size and Hierarchy

Buyout funds are well-known to have very small, effective teams and flat hierarchies. In general, between one and two junior buyout professionals, analyst and/or associate, work(s) together with one senior buyout professional, either a director or partner, on a specific investment opportunity. The deal team is expanded according to the amount of due diligence work involved in a transaction and also depends on the deal's execution status, but even multi-billion dollar transactions are frequently handled by only a very small team of up to four or five buyout professionals. These extremely effective and efficient flat team structures allow an unproblematic flow of information between team members. The split of tasks within these teams is not necessarily defined narrowly, as even senior buyout professionals may get deeply involved in financial and business due diligence. Nonetheless, their main area of expertise is focused on generating deal flow, pitching ideas about potential transactions to senior corporate management and their shareholders,

networking within the financial community and to lead negotiations. Junior members are responsible for the in-depth analysis of potential targets. It is not unusual that annually up to 200 investment opportunities are evaluated for investment in depth by buyout firms and several hundred more are closely followed with respect to their financial performance and corporate events in order to make an eventual opportunistic approach successful.<sup>157</sup>

In general, a buyout fund's hierarchical structure consists of three levels, plus one level of fund support functions. The lowest level consists of junior investment professionals. Analysts are generally hired with 2-3 years of professional experience (mainly in banking and finance, but also consulting, etc.). They may either remain with the fund (more frequent in Europe), but often leave for business school (more frequent in the U.S.) after approximately three years. Associates are hired with top MBA degrees and similar experience. After three to four years, the first major promotion decision is taken with respect to investment director status.<sup>158</sup> While the analytical and execution tasks characterize the analyst and associate junior level, the director status involves management activities, including active deal origination, negotiations and transaction execution responsibility. After at least another five years, the buyout fund's partners decide about promotion to partner status. Partners are actively involved with deal origination and negotiations and they take ultimate decisions on opportunities through the fund's investment committee. Moreover, they also play an important role in representing the buyout fund towards current and potential new investors.



**Figure 103: Typical Buyout Fund Hierarchy and Functions with Average Number of Investment Professionals per Level**

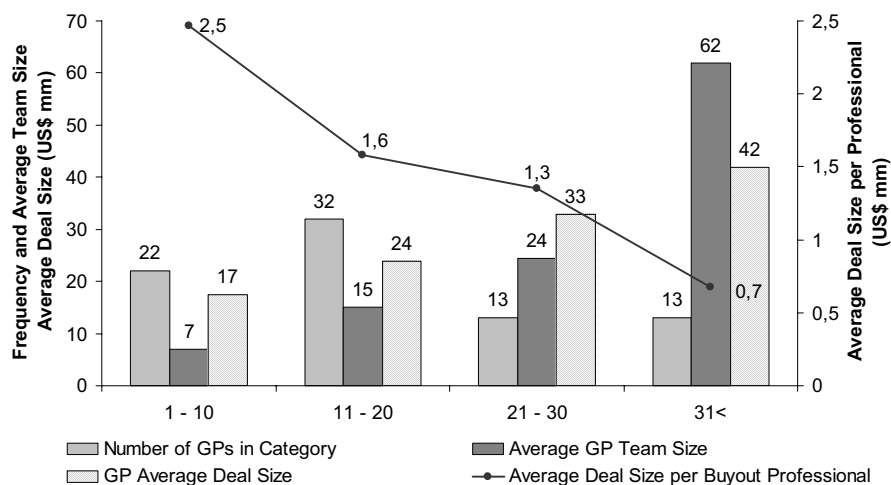
Source: INSEAD Buyout Investment Manager Database, analyzed by author (N=650).

<sup>157</sup> Source: expert interview with major U.S. Buyout Fund.

<sup>158</sup> Hierarchical position names vary across the Private Equity industry, see figure 103 below for an overview.

Besides the executive investment professionals, there is a range of management functions that support the fund. The extent of these functions may depend on the fund size and investment complexity, but frequent positions found include a group CFO, controller or portfolio (company) manager as well as a marketing and investor relations manager. With respect to staffing levels, the typical buyout fund resembles an inverse pyramid. On average, a buyout fund has 6.5 partners, 5.3 directors, 3.8 junior investment professionals and 2.6 corporate functions.<sup>159</sup> These numbers underline the high efficiency with which buyout organisations are operating.

The growth (in deal sizes), competition (by more players) and professionalization (e.g. seller's motivation and use of sell-side advice) in the buyout industry have increased the overall complexity of undertaking transactions. The emergent trend of auctions (compare section 4.3.9.1.) has reduced the overall success rate and ratio of acquired vs. targeted transactions for individual buyout funds. In addition, the supply and demand structure for buyout transactions has shifted unfavourably towards larger deal sizes. However, the market for small- and mid-cap transactions remains far larger than the large-cap and public to private market. The rapidly increasing fund sizes and therefore larger amount of capital to be invested has led buyout investment managers to constantly (i) target an ever-increasing number of acquisition opportunities, (ii) target larger deals to put more of the fund's money "at work". It should also be acknowledged that there is a materialistic incentive for investment managers to increase overall fund and deal sizes, as they equally participate in this growth through larger fund management fees and carried interests. These factors have made the recruitment of more junior and senior buyout fund professionals compulsory (as seen in the recent large increases in the graphs for age, tenure and Private Equity experience).



**Figure 104: Average GP Team Size and Size Category Frequency vs. Average Deal Size of Buyout Funds**

Source: INSEAD Buyout Investment Manager Database, analyzed by author (GP N=80).

<sup>159</sup> The average buyout fund team size is approximately 22, hence the missing 4 individuals in this presentation could not be statistically assigned due to lack of more detailed information. In general, these are more likely to be junior or support staff, as the underlying Limited Partner data source of Private Purchasing Memoranda tends to be more complete on biographies of the buyout fund's senior professionals.

The overall average buyout fund team has 22 buyout professionals. The majority of buyout funds have even smaller teams: among all buyout funds, 28% have between 1-10 professionals (average of 7) and 40% of all funds have between 11-20 professionals (average of 15). Only 16% of all funds have between 21-30 (average of 24) and 31 and more employees (average of 62). The latter category shows that in contrast to the on average small teams, some large funds have assembled significantly larger, more professionalized teams.

The illustration proves the hypothesis that larger deal teams also execute larger transactions. The average deal size undertaken by Buyout teams that are larger in size than 31 individuals was US\$ 42 million of committed equity capital, which compares to only US\$ 17 million among teams that consist of up to 10 buyout professionals. However, the average deal size per investment professional is steadily decreasing with increasing deal team size. This could potentially have far-reaching implications on remuneration of buyout fund professionals, as in contrast to expectations that through increasing fund and transaction sizes more rewards can be earned, the spread of those rewards across a larger number of professionals may not guarantee more absolute returns for the partners. In order to preserve their share, buyout fund partners may be inclined to distribute carry only to more senior employees. This expected response by large and heavily recruiting buyout funds can currently be observed through compensation trends in the industry, by which junior professionals only receive a fixed salary and capped performance based boni.

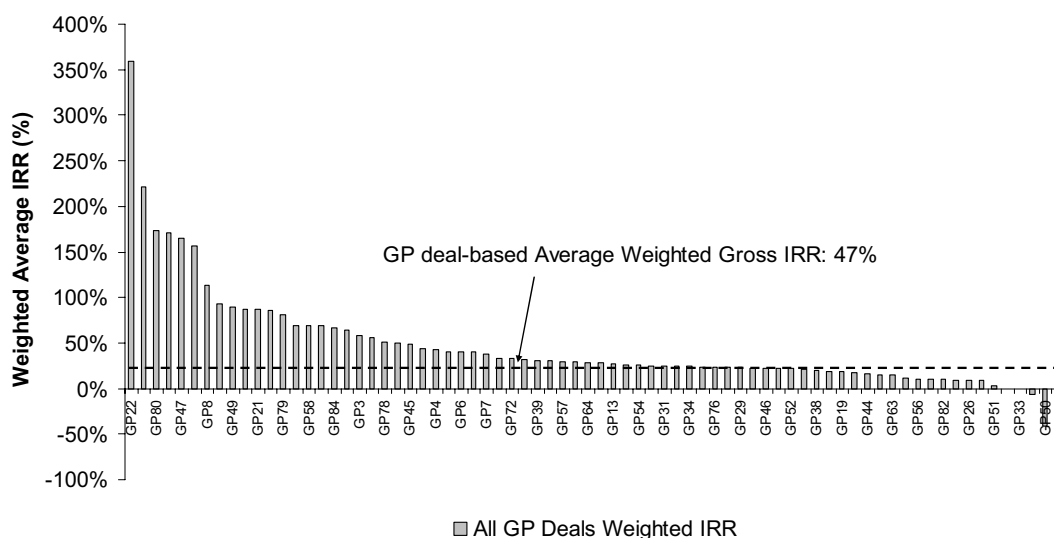
#### 5.2.4. Performance of Buyout Firms

In the first empirical chapter, it was established from the Limited Partners' data that buyouts appear to create superior value when compared to public market indices. On a more detailed view, some industries have demonstrated to offer more value creation potential and buyout returns are to some extent also dependent on economic cycles and industry dynamics. Moreover and to the latter point, there is clear evidence that financial accounting performance in the respective buyout deal's industry also determines the success of buyouts. Based on the Venture Economics dataset, overall (net) fund returns to investors of a large sample of buyout funds were also examined. However, so far, the question of how much value the General Partner (GP), i.e. the buyout organization with its team of investment professionals, is able to contribute to the value creation process remains unanswered. The next sections will therefore answer what the "GP effect" during the value creation process is, what the distribution of GP returns is and which of the GP's characteristics are driving superior returns.



### 5.2.4.1. Buyout Firm Returns

The weighted average gross IRR per GP is calculated based on all individual transactions undertaken by the respective firm.<sup>160</sup> The distribution of weighted average gross GP returns is broad. The average weighted gross IRR across all 73 GPs in the sample is 47%, with a standard deviation of 59%. The minimum GP return is -45% and relates to GP81, one of the largest U.S. Buyout Funds that also has a strong Venture Capital focus and had invested heavily in the information technology sector between 1997 and 2001. As a consequence of the bust of the technology bubble and a range of portfolio company defaults, the fund had to completely (-100%) or partially write off a large number of deals, or at best hold them at cost. The maximum return of 359% average weighted gross IRR was achieved by a U.S. mid-cap buyout fund that mainly invested in traditional sectors such as breweries, healthcare and the services sector, but also made highly successful investments in telecom and software companies. This average return should be considered with caution as the GP valued its 19 unrealized transactions at an average gross IRR of 395% as of 31 December 2002. Although the fund's 10 realized transactions – according to the fund's reporting – yielded a highly respectable weighted gross IRR of 163%, it remains highly questionable whether the GP's valuation of unrealized portfolio companies materializes as reported.



**Figure 105: Weighted Average Gross IRR based on all underlying Transactions by General Partner**

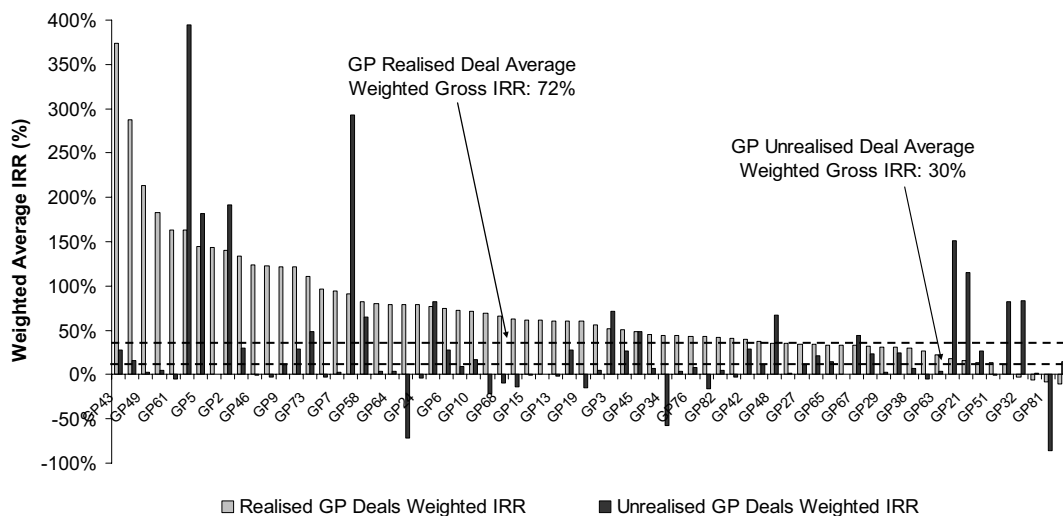
Source: INSEAD Buyout Investment Manager Database, analyzed by author (GP N=73; Deal N=3,100).

### 5.2.4.2. Realized vs. Unrealized Buyout Fund Returns

The above example highlights the necessity to scrutinize reported valuations of unrealized buyouts and their expected returns. A comparison of realized and unrealized transactions reveals the

<sup>160</sup> General Partners that have executed less than seven transactions have been excluded from the sample. Please note that this calculation does not represent fund returns, but takes into account all reported transactions of the buyout fund.

different level of return expectations of General Partners. Exceptionally high expected returns from unrealized transactions should generally be questionable. Even under conditions that there is solid evidence that exits may be highly profitable, the observed high valuations still point to aggressive accounting practices of some funds. There is an overall lack of detailed regulation with respect to valuation of unrealized transactions by either an U.S. or European regulator. However, a commission set up by the American National Venture Capital Association (NVCA) and the European Venture Capital Association (EVCA) in the early 1990s led to the publication of some generally accepted accounting guidelines for Private Equity transactions in 1993. Following the burst of the technology bubble (and alongside Private Equity portfolios' over-valuation), these initial guidelines were substantially expanded and/or further refined with the objective to create a common code of conduct, governing principles, valuation and reporting guidelines (EVCA 2003). In addition, in the U.S. the Private Equity Industry Guidelines Group (PEIGG), an independent organization consisting of General Partners, Limited Partners, accountants and other representatives, was formed in February 2002. Similar to EVCA, the group seeks to promote greater transparency and operating efficiency in the transfer of information among participants in the U.S. Private Equity sector by establishing a set of standard guidelines for the content, formatting and delivery of information (PEIGG 2004a). Their published valuation guidelines have been strongly endorsed by the U.S. industry association NVCA (PEIGG 2004b). Under the new guidelines, unrealized transactions shall generally be held at cost, unless a new financing round involves a market revaluation of the asset. In addition, comparable company analysis and/or market valuation guidelines allow assets to be marked to market when strong evidence is given that a lower or higher valuation according to market trading or transaction values may be more appropriate. This valuation exercise should at least be carried out twice a year and audited at least once.



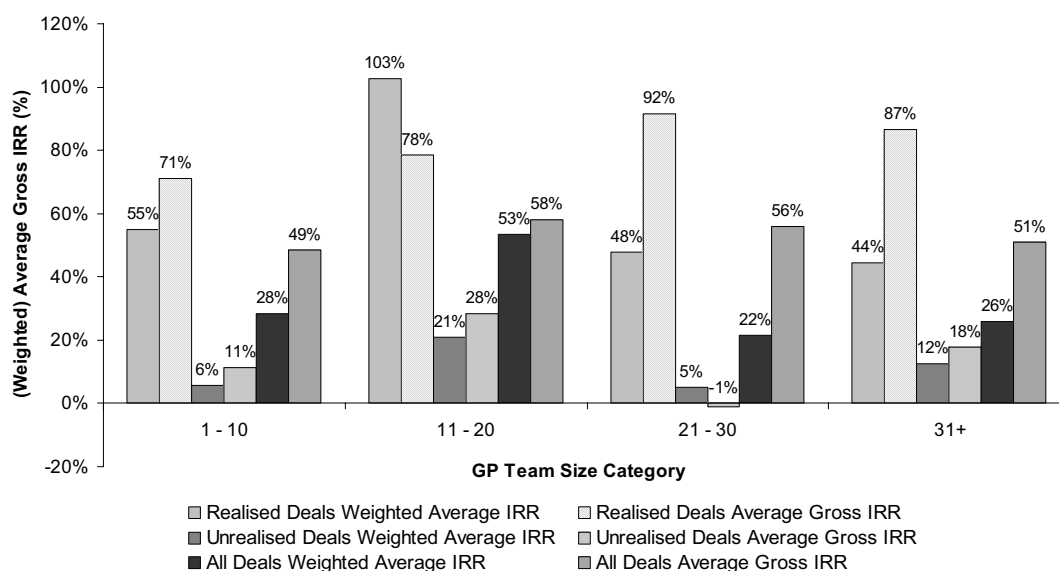
**Figure 106: Realized vs. Unrealized deal-based Weighted Average Gross IRR by General Partner**  
 Source: INSEAD Buyout Investment Manager Database, analyzed by author (GP N=69; Deal N=3,015).

However, as mentioned, the adoption of these guidelines is neither enforced by a regulator nor made compulsory by investors yet, which leads to a certain amount of residual uncertainty on the investor side when “unaudited” buyout fund data is presented. Nevertheless, assuming that some “generally accepted Private Equity accounting principles” were imposed by a regulatory or industry body and/or demanded by investors at some stage, and thus commonly implemented by buyout funds, the apparently high standard deviation of unrealized transaction valuations by various funds should diminish and would lead to a better overall transparency and comparability of returns.

The comparison of realized and unrealized transactions across all GPs underlines the variance in accounting procedures and hence IRR (see figure 106). The weighted average gross IRR of all realized and unrealized deals was 72% and 30% respectively, with a standard deviation of 149% and 94% respectively. The largest variance, and hence most aggressive accounting, relates to the above mentioned GP22 buyout fund, who values its unrealized deals at an average gross IRR at 395%, compared to 163% for his realized transactions. By contrast, the GP43 buyout fund has gained an average IRR of 373% on seven highly successfully realized transactions, but conservatively values its five unrealized deals at a modest 28% IRR.

#### 5.2.4.3. General Partner Team Size and Performance

In section 5.2.3.1. it was established that there is a positive relationship between a GP team’s size and its average investment size in transactions. However, a negative relationship of average deal size per buyout fund professional with increasing team size was found, i.e. the average deal size grew slower than the respective teams. This led to the assumption that, given similar return assumptions, the average return per employee is likely to be lower for larger funds.



**Figure 107: Weighted Average Gross IRR on Realized Deals by Buyout Firm Team Size**

Source: INSEAD Buyout Investment Manager Database, analyzed by author (GP N=80; Deal N=1,962).

The analysis of average returns to buyout funds according to team size finds significantly higher returns – when considering realized deals on a weighted average basis – of 103% for GP teams that have a team size between 11 and 20 buyout professionals, while returns of larger teams (with at least 31 professionals) are decreasing to 44%. This finding hints at the fact that there may potentially be an optimal team size for buyout funds. The most successful GP team size based on the historical Limited Partners' data therefore on average consists of 15 buyout professionals, undertaking transactions with an average investment size of US\$ 24 million (assuming a 3 to 1 debt to equity ration, this implies an average transaction size of US\$ 100 million, i.e. larger mid-cap deals). As an explanation for the high success of teams in the 11 to 20 buyout professional category, it could be argued that the higher complexity of larger organizations may adversely affect communication and flexibility within buyout teams.

However, another earlier finding was that team size correlates with average deal size. The analysis of average deal size categories had suggested that transactions between US\$ 20 and US\$ 30 million generate an average return of 48% (see section 4.3.6.). Given the significantly higher (weighted and non-weighted) average returns for teams with 11 to 20 professionals that undertake transactions with an average investment size of US\$ 24 million, it can be argued that these teams must be significantly more successful than their peers across a wider spectrum of deals (and deal size). The standard deviation on the team size sample's most successful (second) category is 176%, while the standard deviation on the most successful deal size category is 122%.

The results also hold true when considering all – realized and unrealized – transactions on a weighted basis. Nevertheless, on a non-weighted basis, buyout teams in the two larger categories with 21 to 30 as well as 30 and more professionals appear to out-perform their smaller competitors for realized deals (92% and 87% realized average gross IRR for the larger teams, compared to 71% and 78% for the two smaller teams). This, however, implies that they are less successful in undertaking mega-deals as the weighted IRR figure is lower. This is counter-intuitive as it would be expected that larger teams earn their credit (i.e. for being larger) by performing well on mega-deals. The contrary appears to hold true – buyout teams in the 11 to 20 professionals category display a much higher weighted than non-weighted return on realized transactions, which indicates that they are better placed to execute large transactions and generate superior value.

In summary, these findings have indicated that there could be an optimal team size for buyout firms from an organizational point of view, which is superior from a return perspective and to a large extent independent of the average investment size. From a theoretical point of view, the evidence shows that a non-hierarchical, flat and flexible team structure could be a clear value driver when executing buyout transactions, or in other words, buyout firm “professionalization” and constantly growing team sizes are not necessarily a guarantee factor for higher returns for buyout funds.

### 5.2.5. Performance of Investment Managers

In addition to the above analysis of General Partner buyout teams on the firm-wide level, the codification of the 1,282 individual investment professionals, working for 85 leveraged buyout funds, equally offers scope to analyze the performance impact of their education, experience and other personal characteristics, as outlined in the detailed biographies in the Private Purchasing Memoranda of the Limited Partners' data. In order to establish such an analysis, the data had to be screened with respect to an allocation of responsibilities by buyout fund professionals across the fund's portfolio companies. Although very heterogeneous in nature, the data offers insight into which buyout team member (generally partner or director) has led a certain transaction. Alternatively, information is provided on the board seats of investment managers in portfolio companies.<sup>161</sup> Nevertheless, this information is limited and could only be collected for 234 buyout investment professionals, overseeing 478 different portfolio companies.

There are two alternatives to establish the performance-characteristics relationship between managers. On the one hand, an average weighted and non-weighted return for each investment manager on all transaction in which the professional was involved can be calculated and compared to personal characteristics. This method avoids double counting, but strongly aggregates the actual universe of dependent and independent variables. Alternatively, a factor multiplication (of company return, multiplied with number of involved investment managers as well as number of characteristics) produces a non-aggregated explanation by all underlying independent variables.<sup>162</sup>

#### 5.2.5.1. Buyout Performance by Education

##### 5.2.5.1.1. Degree Level and Buyout Performance

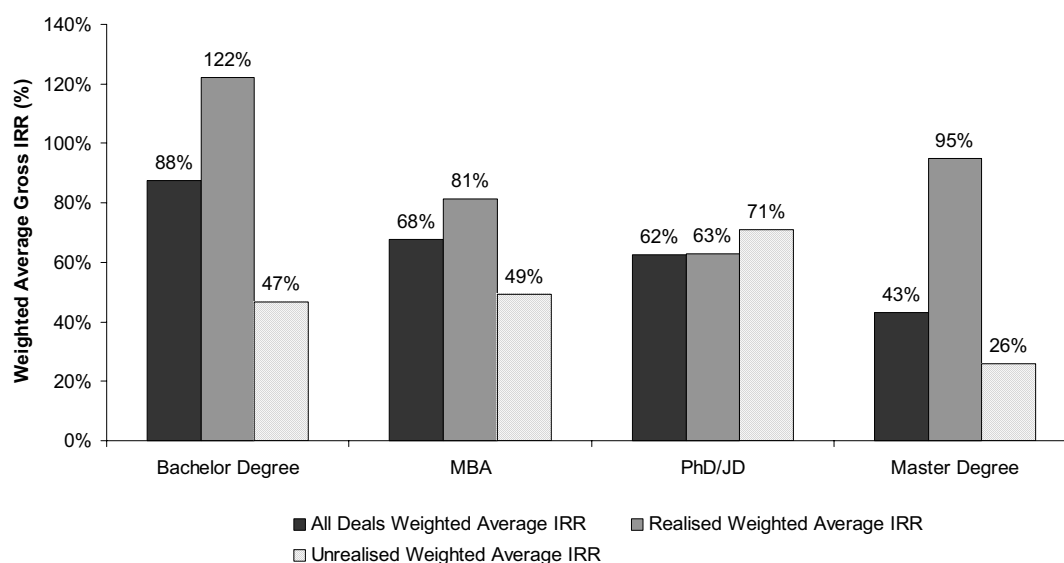
This section reveals which level, type and source of education of buyout investment managers is linked to higher returns in leveraged buyout transactions. The analysis could have implications for the recruitment strategy of buyout professionals, as it can statistically be predicted (based on these

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<sup>161</sup> It is common practice that those members of the buyout fund that were responsible for leading the transaction subsequently also sit on its board of directors, hence the information of board seats can be interpreted with deal responsibility, or at least, a meaningful control function with respect to the company's financial and eventually deal performance (IRR) according to the equity business plan.

<sup>162</sup> Due to the fact that some buyout funds allocate more than one investment manager to portfolio companies, the number of data points increases to 874 portfolio companies. Although this implies a double counting on 396 portfolio companies' returns, i.e. of the dependent variable IRR, across several managers, the focal object of this analysis would be the individual manager's education, experience and other characteristics profile, which is diverse for each manager. Hence, in order to preserve this diversity of personal characteristics, it could be justified to take all returns into consideration individually to gain a better picture of the overall characteristics-return profile of buyout managers. In essence, each company's IRR would be linked to (i) several investment managers, which have (ii) at least one, but in some instances several valid cases for the characteristic under review. Hence, the dependent variable IRR would therefore be explained and captured by all possible independent variables, i.e. characteristics of the various managers. However, it is generally relied upon the former presentation here, unless otherwise mentioned.

historical findings) how well different education profiles of investment managers are performing.<sup>163</sup> Despite the fact that education is linked to individual performance here, these findings also have to be interpreted within the larger buyout team context instead of standalone, as certain characteristics may be altered through the team environment and certain team configurations, e.g. team structures based on high diversity may be more successful (see team performance analysis in section 5.2.6.1.4.). The analysis shows that all investment managers in the sample have at least earned a bachelor degree. This degree level displays the highest weighted average gross IRR with 88%. Those managers, who have also gained an MBA degree, achieved an average return of 68% on their transactions, while PhD/JDs achieved 62% and master degree graduates 43% of weighted average gross IRR.<sup>164</sup> These findings are highly counter-intuitive as they imply that additional education actually diminishes returns accomplished on buyout transactions. With respect to differentiation between realized and unrealized returns, we (unfortunately) find that PhD/JDs display the lowest realized return with 63% and master degree graduates the highest post-undergraduate realized return of 95%. In addition, master degree graduates – given their strong performance on realized deals – also are highly conservative on their valuation of unrealized investments. A large majority of these successful non-MBA master degree graduates are engineers (but also other social science degrees), which leads us to a more in-depth analysis of degree type.



**Figure 108: Weighted Average Gross IRR on Deals by Individual Buyout Investment Professionals by Degree Level**

Source: INSEAD Buyout Investment Manager Database, analyzed by author (Degree N=273).

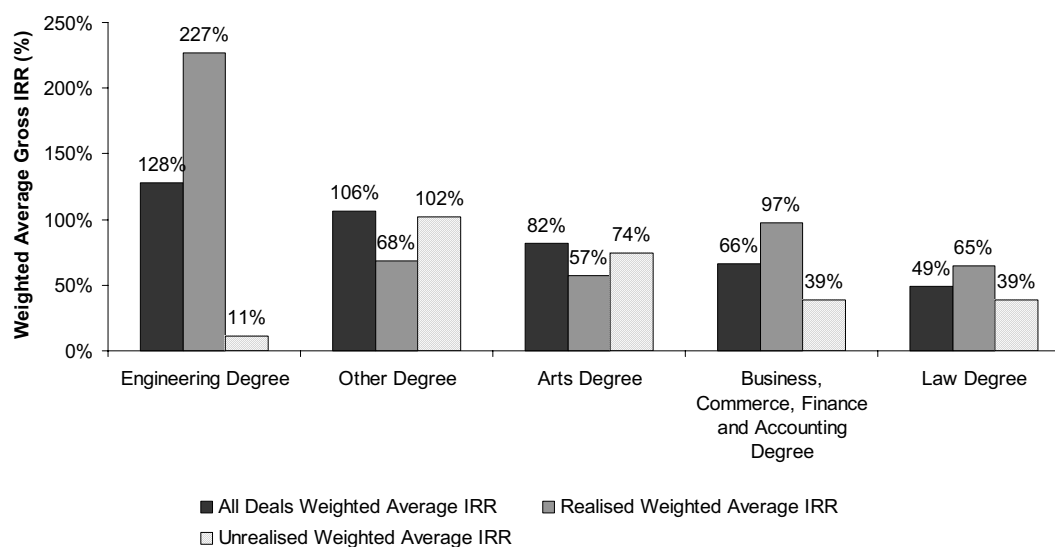
<sup>163</sup> The sample of investment managers, which demonstrates control (and return) responsibilities, is to some extent limited by the heterogeneity of the underlying data, i.e. either the characteristic under review or potentially a return profile, calculated on executed transactions of the investment manager, may not be disclosed in the Limited Partner data.

<sup>164</sup> The sample of realized and unrealized transactions intentionally includes the same investment managers and is differentiated only by their underlying return profile's investment status (hence, if a manager has both realized and unrealized transactions, he is represented in both samples). Consequently, realized and unrealized samples in one category may not net each other off, as seen for PhD/JDs, where the average return of all transactions is lower than both of its sub-samples.

### 5.2.5.1.2. Degree Type and Buyout Performance

The above strong results for master degree graduates, which to a large extent consist of engineering degrees, are supported by the findings on degree type returns. The engineering degree graduates in this sub-sample strongly outperform their peers with 227% of realized weighted average gross IRR, followed by business degree with 97% of realized IRR. Both law degree graduates (65% of realized IRR) and arts degree graduates (57% of realized IRR) perform worse.

The apparent return dominance of engineers is surprising, as this indicates that neither legal and negotiation skills nor business and financial analysis are the main driver for buyout success. Instead, the potentially deeper understanding of corporate (value chain) processes and technical product knowledge by engineers may be a success factor. Again, it also appears that engineers are inclined to value their unrealized investments (11% of weighted average gross IRR) in a highly conservative manner, either because their track record on realized investments allows them to conservatively reflect prospects for these investments, or because they are simply more risk averse in their evaluation of unrealized transactions than for instance business and law graduates.



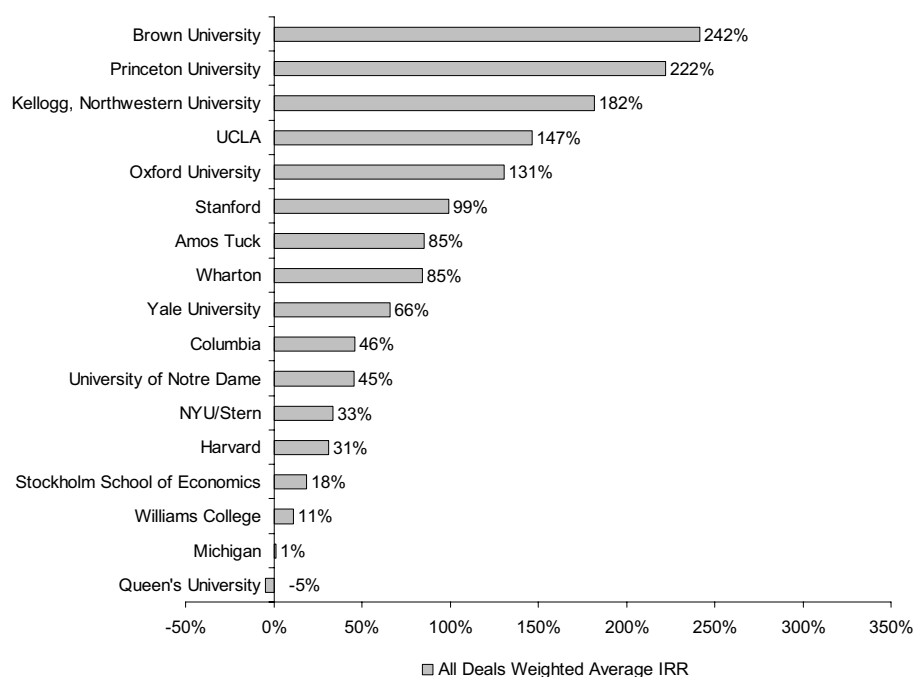
**Figure 109: Weighted Average Gross IRR on Deals by Individual Buyout Investment Professionals by Degree Type**

Source: INSEAD Buyout Investment Manager Database, analyzed by author (Degree N=221).

### 5.2.5.1.3. Universities and Buyout Performance

Not only may the level of education and type of degree studied affect the skill set of investment managers and ultimately buyout performance, but also its quality. Hence, there could potentially exist a link between visited institution and performance of investment managers, e.g. if certain institutions are more specialized in the education of future investment managers than others. The investment manager distribution characteristics had shown that nearly a third of all MBA graduates working as buyout fund investment professionals have gained their degree from Harvard Business School. However, taking into account all universities, the picture is slightly different.

The analysis of returns on all degrees earned across universities reveals that two universities, which are generally attended for undergraduate and master degrees, show the highest performance: Brown University (242% of weighted average IRR) and Princeton University (222% of weighted average IRR). These universities, together with the Northwestern University (182% IRR), UCLA (147%) and Oxford University (131%), demonstrate why bachelor degrees perform in this exceptionally strong manner (as seen in prior analysis above). Considering all degrees, the most frequent institution in the sample, Harvard University, only ranks thirteenth with 31% average weighted gross IRR. Nevertheless, the above analysis must be considered with regard to the sample size, which consists of N=180 degrees earned by investment managers. The average graduate number per University is 10.6, with a minimum of 4 graduates (NYU/Stern) and a maximum of 50 graduates (Harvard University). The average number of transactions per University is 31.1, with a minimum of 5 deals (Amos Tuck) and a maximum of 113 deals (Harvard University).



**Figure 110: Weighted Average Gross IRR on Deals by Individual Buyout Investment Professionals by attended University**  
Source: INSEAD Buyout Investment Manager Database, analyzed by author (Uni N=180).

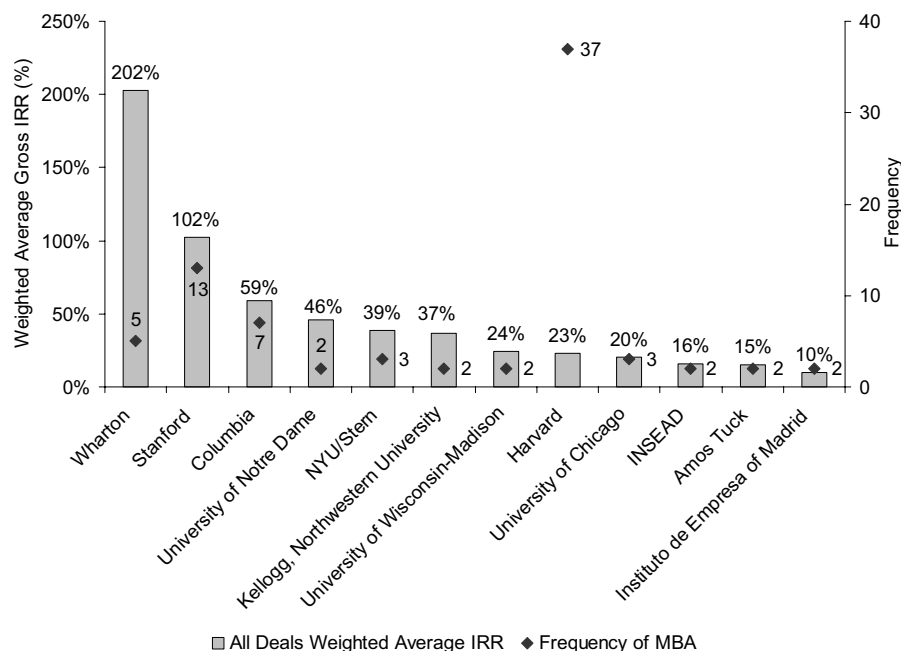
#### 5.2.5.1.4. Business Schools and Buyout Performance

Even more important for potential hiring decisions at buyout funds is the distribution of returns across Business Schools. The findings show that Wharton MBA graduates have gained the highest weighted average gross IRR of 202%, followed by Stanford MBAs with 102% IRR and Columbia MBAs with 59% IRR. Harvard Business School graduates in this sample only gained an average return on their buyout investments of 23%. This demonstrates that despite the fact that Harvard graduates dominate the buyout industry by number, they cannot claim credit for their high frequency with above average returns. Wharton's leading global position for supreme finance



education and finance MBA specialization to graduates wishing to work in the financial services industry is validated by these findings.

However, even more than the university rankings, the above findings from a statistical point of view can only be seen as indicative, as much larger sample sizes and longitudinal studies are required to further confirm these initial directional results (please refer to the statistics section 5.2.6.1.3. for statistical validation).<sup>165</sup>



**Figure 111: Weighted Average Gross IRR on Deals by Individual Buyout Investment Professionals by attended Business School**  
Source: INSEAD Buyout Investment Manager Database, analyzed by author (MBA N=80).

### 5.2.5.2. Professional Experience, Network and Buyout Performance

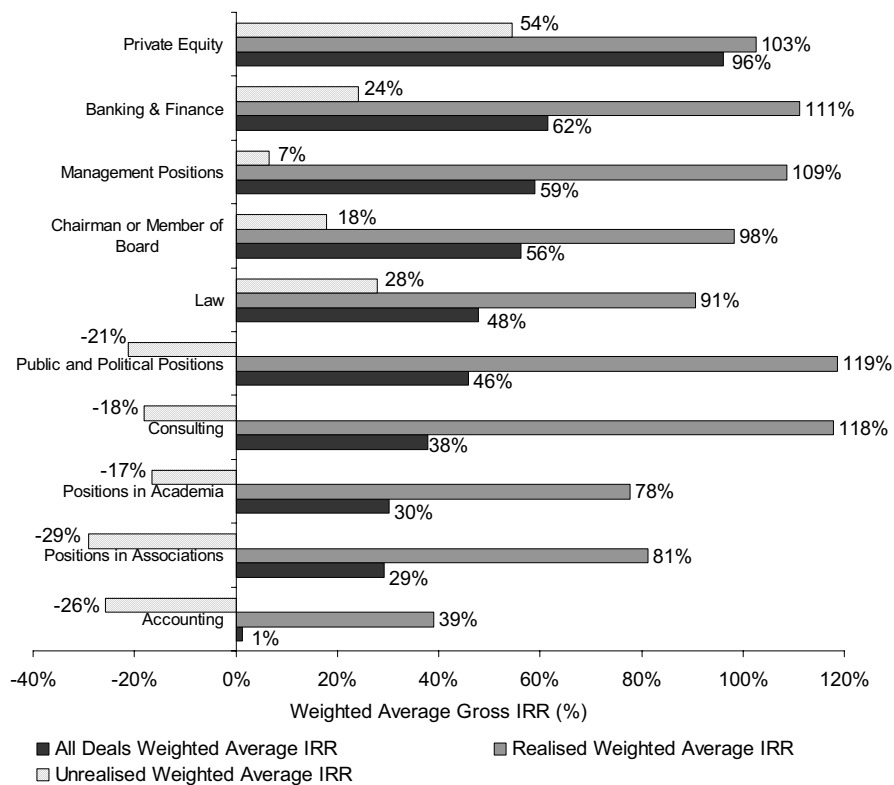
Having received indications on which type of education at which preferred university could influence achieving a higher average return on buyout investments, the remaining question is what type of professional education as well as additional involvement in institutions further enhances buyout performance.

With respect to professional background, investment managers that joined their current buyout fund and had previous experience in Private Equity lead the ranking with a weighted average gross IRR on all transactions undertaken of 96%. This is followed by banking and finance professionals with 62%, lawyers with 48%, consultants with 38% and accountants with 1% average IRR.

<sup>165</sup> A minimum of two MBA students and transactions are used here to limit the sample. At least N=15 would guarantee a sufficient level of diversification; hence, these results can only be considered for illustrative purposes.

However, taking into account only realized transaction, professional experience as consultant yields the highest return with 118%. The relatively low performance of investment managers with an accounting background is unexpected. This may indicate that a successful skill set of investment professionals must be considerably broader, i.e. may require more than strong financial analysis and due diligence/auditing capabilities – stereotypically – found among accountants.

In addition, operational management experience as well as training as a member or chairman of the board of directors of companies imparts superior returns on transactions undertaken by those investment managers, with 59% and 56% of weighted average gross IRR respectively. The comprehensive monitoring and control tasks of investment managers for portfolio companies, as well as strategic and operational influence on portfolio companies’ management are likely to make these prior and/or current professional positions a positive contributor to buyout success. Moreover, positions in academia and/or industry (and social) associations are less effective to increase buyout returns. On a relative basis, investment managers holding these positions yield less return with 30% and 29% of weighted average IRR respectively. These lower returns could hypothetically be interpreted in such a way that these extraordinary engagements may take away valuable time from investment managers, which could otherwise be used on the search, execution and control of buyout investment. However, it is not evident if these engagements may have a positive moderating role on some of the other categories, e.g. board positions.



**Figure 112: Weighted Average Gross IRR on Deals by Individual Buyout Investment Professionals by Position**  
 Source: INSEAD Buyout Investment Manager Database, analyzed by author (Position N=570).

By contrast, professional experience and/or contacts to political committees and the public sector do have a positive influence on buyout returns. This category shows the highest return on realized transactions with 119% of weighted average IRR. This particular strong performance could be explained in that sense that political connection may provide for preferential treatment in public sector auctions as well as exclusive, high-yielding proprietary deal flow.

### 5.2.5.3. Experience and Buyout Performance

The learning curve effect has been found applicable in a range of fields in economic studies. The concept of accumulation and standardization of similar processes may also be a success factors for buyout performance. In section 5.3. this experience effect will be analyzed extensively for the buyout organization on the firm level. In this section, some initial findings for the sample of individual buyout managers are presented with respect to the impact of time-dependent experience variables on performance.

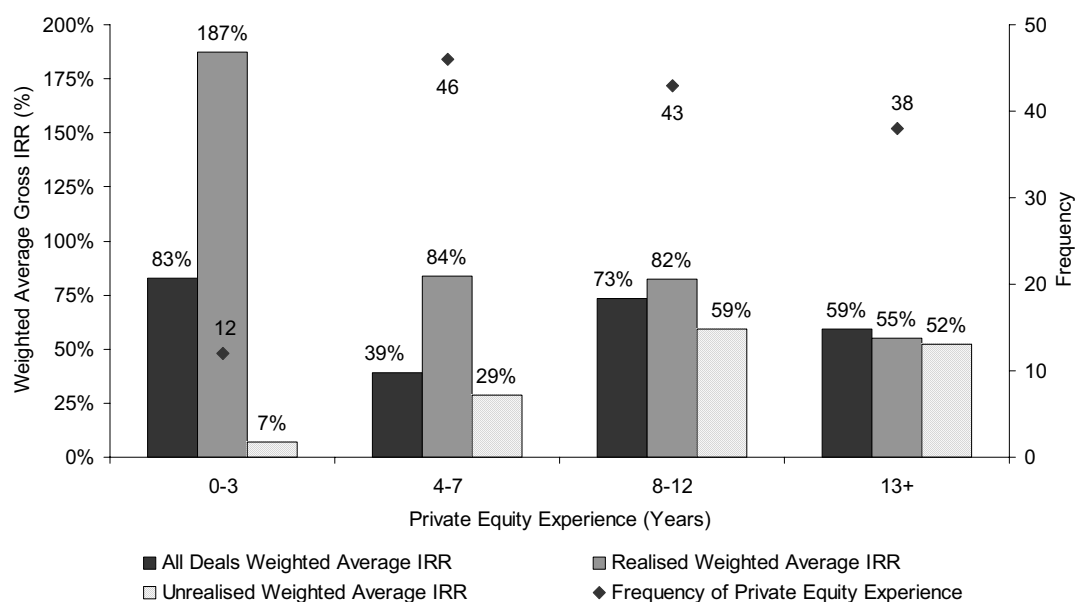
#### 5.2.5.3.1. *Private Equity Experience and Buyout Performance*

How many years of experience are required to generate high returns in buyout transactions? First, the years of experience of the buyout investment manager sample were categorized into for categories.<sup>166</sup> These categories should not uniquely be interpreted in a hierarchical manner as investment manager positions in the buyout industry can also be entered on higher hierarchical levels, e.g. as an associate or investment director.

The results are counter-intuitive to the learning curve idea. Considering realized returns only, they show a strong performance of 187% weighted average gross IRR for buyout investment managers that have up to three years of experience in the Private Equity industry. The returns are declining thereafter, with senior investment professional (partners) that have more than 13 years of Private Equity experience only showing a return of 55% on realized transactions. The underlying predictability of buyout returns can be considered high when comparing the small variance in realized, unrealized and total returns, ranging between 52% and 59% IRR across categories. Nonetheless, these results also have to be judged against the timing of this analysis and the economic cycle. The strong performance on realized buyout transactions of investment managers in the 0 to 3 year category can directly be related to the fact that these individuals have worked on particularly successful transactions (“stock market boom”) between 1997 and 2003, as most Limited Partners’ data was collected between 2000 and 2003. Hence, realized transactions yielded exceptional returns during this time, benefiting the first experience category.

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<sup>166</sup> For simplicity, the categorization was made according to a general hierarchy of buyout funds – 0 to 3 years for analyst and associate positions, 4 to 7 years for associate positions, 8 to 12 years for director and 13 and more years for partner positions. Note that this is not an analysis of experience by hierarchy though.



**Figure 113: Weighted Average Gross IRR on Deals by Individual Buyout Investment Professionals by Years of Private Equity Experience**

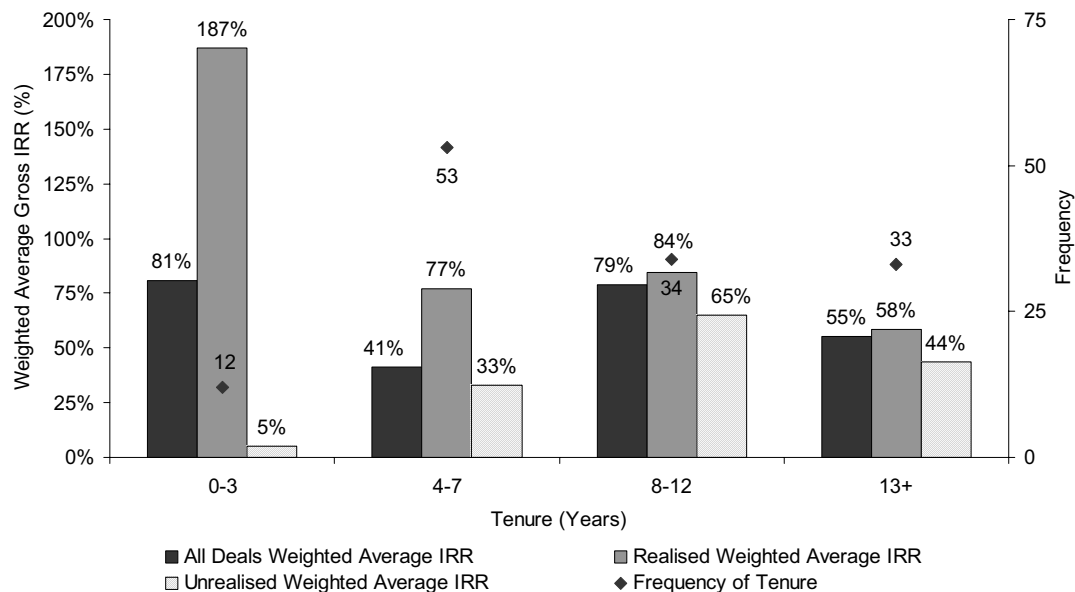
Source: INSEAD Buyout Investment Manager Database, analyzed by author (Private Equity Experience N=139).

#### 5.2.5.3.2. Buyout Firm Tenure and Buyout Performance

The analysis of tenure of buyout fund professionals and their transactions performance produces a very similar picture to the prior analysis of Private Equity experience, as most investment managers have gained this experience with only one buyout firm, indicating the general low turnover of buyout professionals. Neglecting the above discussed potential influence of economic and stock market cycles on performance, the high performance (81% weighted average IRR on all deals) of investment managers with tenure of 0 to 3 years could also be interpreted in such a way that these managers are extremely motivated when joining the buyout firm and seek to prove their deal-making capabilities. Having established themselves at the fund for more than 3 years without redundancy, their performance suddenly declines to 41% weighted average gross IRR. This return could either relate to senior investment managers or to associates (when interpreted according to hierarchies), who are set to receive greater deal responsibility as directors. Following the hierarchical path, the increase in deal performance of investment managers with tenure of 8 to 12 years could be related to (i) increased intrinsic motivation through higher or full transaction responsibility, (ii) increased extrinsic motivation as investment directors are compensated with carried interest on the transactions they undertake, (iii) increased awareness and reputation building against peers for partner promotion prospects.

The performance of buyout investment professionals with 13 and more years of experience drops significantly thereafter to an average weighted IRR of 55%. On the one hand, this could be interpreted from a hierarchical standpoint that partners in buyout funds may have lower pressure to perform well from a promotion perspective, as their position is (almost) safe. On the other hand, as

owners of the firm their extrinsic motivation should be highest. Consequently, the performance of a buyout fund may to a great extent rely on the motivation and incentive structure, as well as the contributions of other senior members (directors) in the team with low tenure, but high ambitions.



**Figure 114: Weighted Average Gross IRR on Deals by Individual Buyout Investment Professionals by Years of Tenure**

Source: INSEAD Buyout Investment Manager Database, analyzed by author (Tenure N=132).

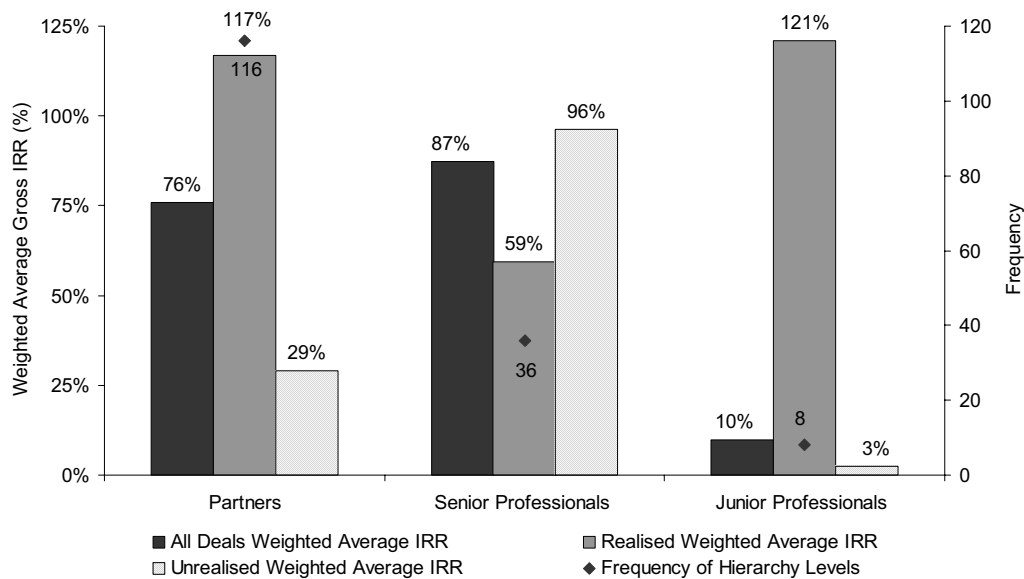
#### 5.2.5.3.3. Buyout Firm Hierarchy and Buyout Performance

The above findings on tenure finds further support by analyzing the transaction performance of buyout fund investment managers according to their hierarchy level. The results support the above finding that senior professionals in the buyout fund (i.e. investment directors/vice presidents) produce the highest weighted average return of 87%, when considering all transactions. However, their performance is bolstered by high valuations for their unrealized transactions (96% of weighted average gross IRR). Partners perform slightly less (76% average IRR) when considering all transactions, in line with the above findings on tenure. However, they demonstrate significantly higher returns on their realized transactions (117% average IRR). This could be the result of a (i) long investment history with a strong track record, (ii) learning curve of buyout transaction execution.<sup>167</sup>

However, it is noteworthy to mention the low return on unrealized transactions for partners of only 29%, especially compared to their senior investment professional colleagues. This piece of evidence could either relate to a more long-term investment history on the partner level, or be an indication of a more volatile and risk-oriented investment attitude of buyout partners. In support of

<sup>167</sup> With respect to the former argument, it has to be considered that most buyout funds under consideration in the Limited Partner data have a long track record of investments (no first time funds), in some instances dating back to the early 1980s or 1970s, in which return levels were potentially higher.

the latter argument, the average standard deviation of returns for partners is 87%, compared to only 23% for investment directors, hence indicating higher volatility on partner-led deals. The also decidedly volatile performance of junior investment professionals in the sample, with realized weighted average returns of 121% IRR and unrealized IRR of only 3%, is likely to be linked to the recent economic cycle between 1997 and 2003, during which realized investments (especially until 2000) performed extremely well, but a large majority of (unrealized) investments suffered from write-downs.



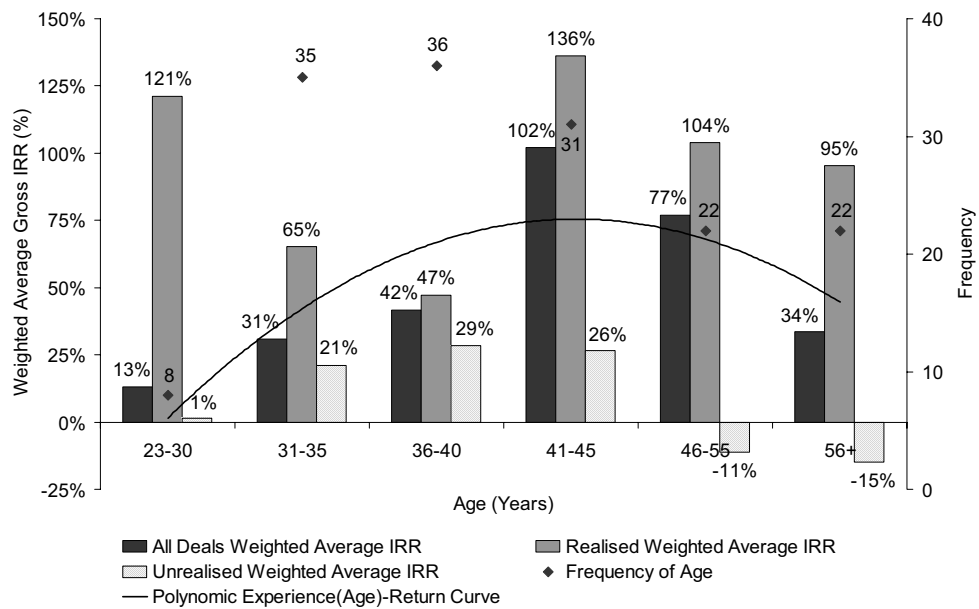
**Figure 115: Weighted Average Gross IRR on Deals by Individual Buyout Investment Professionals by Hierarchy**  
Source: INSEAD Buyout Investment Manager Database, analyzed by author (Tenure N=160).

#### 5.2.5.3.4. *Investment Professional Age and Buyout Performance*

The above findings on tenure and hierarchical performance show mixed results when seeking to establish an argument for a learning curve in buyout investments. Investment professionals on the partner level emerge as highly successful from a realized return perspective, yet also display the greatest volatility. This analysis presents findings on whether the age of investment professional has an impact on performance.

The results are stunning – the weighted average return on all buyout transactions undertaken by investment managers increases constantly from only 13% IRR for managers aged up to 30 years, 31% IRR for managers aged 31 to 35 years, 42% IRR for managers aged 36 to 40 years, reaching the highest performance of 102% weighted average IRR for managers aged 41 to 45 years. Thereafter, buyout performance begins to drop to 77% IRR for managers aged 46 to 55 years, further falling sharply to 34% IRR for managers older than 56 years. These results seem to indicate a natural performance peak for buyout investment managers at the age of 41 to 45. The constant increase in performance prior to this peak could be interpreted as a clear indication of a learning

curve effect in executing buyout transactions. Moreover, the constant drop in performance after the peak in the age category of managers aged 41 to 45 years indicates that increasing age could have an adverse effect on buyout deal-making. Especially the sharply increasing volatility for older investment managers, exhibited through the high negative returns on unrealized transactions, could be comprehended as a sign of misjudgment of investment opportunities, i.e. increasing failure rates (defaults), overpaying through “senior gut-decisions” rather than sufficient reflection on business fundamentals, or false and over-estimation of value creation potential at the buyout target. This declining trend in performance also holds true when only considering realized transactions.



**Figure 116: Weighted Average Gross IRR on Deals by Individual Buyout Investment Professionals by Age**  
 Source: INSEAD Buyout Investment Manager Database, analyzed by author (Age N=154).

In summary, this evidence supports a hypothesis of a direct impact of an investment manager’s education and experience profile on deal performance. Moreover, a learning effect in buyout transactions, based on the experience, tenure and age profile of the buyout professional, is influencing the value creation dynamics of this industry. These findings will now be further investigated through statistical analysis on the General Partner firm level.

## 5.2.6. Modeling the Buyout Firm and Team Manager Effect

In the previous section, the tested constructs (see overview in section 5.2.1.2.) have been exhibited and interpreted on a descriptive and graphical basis. The sample for the statistical analysis in this section consists of 1,422 realized and unrealized buyout transactions with a mean gross IRR performance of 44.8%.<sup>168</sup> The examination of the bivariate Pearson correlation matrix between the dependent variable IRR and the various independent buyout firm experience variables leads to several surprising results, which are discussed below.<sup>169</sup>

### 5.2.6.1. Descriptive Statistics

#### 5.2.6.1.1. *Manager/ Time Experience Effect*

Both the average tenure and average Private Equity experience of the investment manager team one year prior to the acquisition of the focal deal is significantly (at the 0.05 level; 2-tailed) and negatively correlated with buyout performance. This finding is, at first sight, counterintuitive to the results of the previous section, which had suggested that there exists an experience effect in leveraged buyouts. In the descriptive section to this chapter, it was established that there exists a concave relationship between age and performance, and that performance for high tenures and Private Equity experience categories are decreasing. Furthermore, it was established that senior investment professionals, aged 41-45, with 8-12 years of tenure or Private Equity experience and aspiring to become partner, demonstrate the best performance. This statistical result can therefore be interpreted as further evidence that the performance of buyout firm partners decreases after several years in the business. As a consequence, it could be inferred from the statistics that buyout firm partners are subject to (i) decreasing marginal extrinsic motivation, (ii) decreasing attention to the focal deal's idiosyncratic characteristics and myopic learning effects.

Moreover, both the tenure and Private Equity homogeneity variables are significantly (at the 0.01 level; 2-tailed) and negatively correlated. As they are calculated based on Herfindahl indices, i.e. the higher the Herfindahl index value the more homogeneous is the variable under consideration, it can be concluded that diversity of team members with a different number of years of experience is enhancing buyout returns. In conjunction with the above presented findings regarding average tenure and Private Equity experience in this direction, this finding would provide further evidence that the more successful teams also include junior and mid-level buyout professionals, hence supporting prior research on the benefits of heterogeneity and diversity among management teams (Bantel and Jackson 1989; Finkelstein and Hambrick 1990; Jackson 1992; Finkelstein and Hambrick 1996; Carpenter and Fredrickson 2001).

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<sup>168</sup> Previous analysis on the financial aspects of value creation throughout this study was limited to realized transactions. However, in this context of analyzing the team profile effect of buyout firms on their transactions, it is essential to include all transactions to ensure a complete picture. The lower average (valuation) return of unrealized deals reduces the sample's mean IRR.

<sup>169</sup> An analysis of the various control variables in the regressions is omitted here. See empirical chapter one for a general discussion of the market, acquisition and financial control variable effects.



#### 5.2.6.1.2. *Manager/Team Professional Experience Effect*

Which professional experience of investment managers within the team context enhances buyout returns? The results substantiate the earlier descriptive findings that a high share of professional background in Private Equity as well as management functions among teams of buyout investment managers significantly (at the 0.01 level; 2-tailed) and positively affects buyout returns. This finding demonstrates that successful buyout firms recruit investment professionals that have a proven track record as an excellent corporate manager.

That this skill set appears to be fundamentally stronger becomes even clearer when assessing alternative prior jobs of buyout managers: accountants are the worst performers, i.e. have a negative impact on performance of deals, in buyout firms, with highly significant ( $p < 0.01$ ) and negative influence on the dependent variable IRR. Likewise, bankers and consultants are also adversely affecting buyout firm results, however, only significant at the 0.1 level. The negative performance impact of bankers is surprising, as their returns on a graphical description were positive. One way of interpreting this finding is that bankers as such may be successful from a return perspective, but a high share of bankers in buyout firm teams might cause negative side effects. In other words, despite the fact that bankers on average create solid returns when analyzed individually, they may dysfunction in the team context. Several explanations could be found, e.g. team infighting, overconfidence on deals, etc, but would require further analysis.

#### 5.2.6.1.3. *Manager/Team Education Background Effect*

Does education matter with respect to buyout performance? The results to this question are mixed. First, there are more confirmative results – compared to the descriptive IRR results – with respect to which level of degree is positively correlated with deal IRR. Bachelor degrees are significantly ( $p < 0.05$ ) and positively correlated with buyout performance. This is not only in line with the robust descriptive results, but freely interpreted only makes sense as every investment professional at least has one bachelor degree and the sample mean IRR is solidly positive. However, there is also evidence that master degree graduates within the buyout team context are highly significant (at the 0.01 level; 2-tailed) and negatively affecting deal IRR. Both MBA and PhD/JD degrees are statistically non-significant, however, positively correlated with performance.

With regard to degree types, opposite results than observed in the descriptive section for individual investment managers are obtained. Both engineering and business degrees are significantly (at the 0.01 and 0.05 level respectively) and negatively affecting IRR within the team context. Weighed against the descriptive results on individual managers, business graduates are in line with lower performance, however, engineering graduates had performed best when analyzed on an individual basis. Their negative impact within the team context gives rise to potential further hypotheses regarding intra-team communication and (adverse) inter-buyout-manager relationships. Potential explanations may either be connected to the type of transactions (or buyout funds), i.e. in which engineers are predominately involved, or to personal characteristics associated with engineering graduates that affect team performance. With respect to the latter argument, potential conflicts

between or difficulties in decision making among business-/financially-trained and engineering-trained managers would be only one hypothetical example.

Descriptive and Correlation Statistics								
Variable (Dummy) Tested	N <sup>(1)</sup>	Minimum	Maximum	Sum <sup>(2)</sup>	Mean	Std. Deviation	Pearson Correlation	Sig. (2-tailed)
<i>Manager/ Time Experience</i>								
Average Age	1104	21,0	56,0	39656,9	35,921	5,3153	0,023	0,453
Homogeneity of Age (StDev)	907	,00	16,86	4694,45	5,17	2,81	-0,019	0,564
Average Tenure	1422	0	19	7599	5,34	3,222	-,057(*)	0,03
Homogeneity of Tenure (StDev)	1185	0	10	5072	4,28	2,317	-,105(**)	0
Average PE Experience	1422	0	23	7966	5,60	3,226	-,052(*)	0,048
Homogeneity of PE Exp (StDev)	1185	0	10	5217	4,40	2,301	-,096(**)	0,001
<i>Manager/Team Professional Experience</i>								
Sum of Network	1422	1	108	29227	20,55	16,866	-0,014	0,59
Share of Academia,	1422	,00	,50	15,21	,010	,039	0,013	0,615
Share of Accounting	1422	0	1	72	,05	,091	-,093(**)	0
Share of Adm. and Public Sector	1422	0	0	17	,01	,024	0,018	0,495
Share of Association Involvement	1422	,00	,50	71,15	,05	,076	-0,028	0,294
Share of Banking	1422	,00	1,00	270,41	,19	,19	-0,045	0,093
Share of Board memberships	1422	,00	,83	441,53	,3105	,29376	0,011	0,675
Share of Consulting	1422	0	1	148	,10	,121	-0,047	0,079
Share of Law	1422	0	1	21	,01	,077	-0,026	0,321
Share of Management Functions	1422	,00	1,00	94,828	,066	,126	,171(**)	0
Share of Other	1422	,00	1,00	119,16	,083	,133	-,069(**)	0,009
Share of Private Equity	1422	,000	1,000	152,561	,107	,145	,073(**)	0,006
Homogeneity of Network (Herf)	1422	,154	1,00	552,114	,388	,173	-0,01	0,715
<i>Manager/Team Education Background</i>								
Sum of Degree Level	1422	1	50	14087	9,91	7,216	-0,011	0,674
Share of Bachelor Degree	1422	,000	1,000	565,652	,397	,217	,056(*)	0,035
Share of Master Degree	1422	0	1	215	,15	,167	-,093(**)	0
Share of MBA	1422	,000	1,00	514,394	,361	,178	0,003	0,898
Share of Other	1422	0	0	31	,02	,073	0,01	0,713
Share of PhD/JD	1422	0	1	96	,07	,099	0,021	0,422
Homogeneity of Deg. Lev. (Herf)	1422	,254	1,000	624,683	,439	,181	0,006	0,832
Sum of Degree Types	1422	1	41	13665	9,61	7,099	-0,037	0,159
Share of Arts Degrees	1422	0	1	102	,07	,137	-0,01	0,713
Share of Business Degrees	1422	,00	1,00	844,35	,5938	,20323	-,054(*)	0,043
Share of Engineering Degrees	1422	0	1	157	,11	,148	-,072(**)	0,006
Share of Law Degrees	1422	0	1	51	,04	,085	0,049	0,066
Share of Other Degrees	1422	,00	1,00	267,04	,1878	,19127	,098(**)	0
Homogeneity of Deg Type (Herf)	1422	,250	1,000	757,084	,53241	,195653	-0,041	0,124
Sum of Degree Order	1422	1	51	15483	10,89	7,890	-0,022	0,407
Share of 1 <sup>st</sup> Degrees	1422	,0	1,0	689,8	,485	,1365	-0,003	0,912
Share of 2 <sup>nd</sup> Degrees	1422	,0	1,0	618,3	,435	,1144	-0,033	0,214
Share of 3 <sup>rd</sup> Degrees	1422	0	1	114	,08	,100	0,042	0,115
Homogeneity of D. Order (Herf)	1422	,3	1,0	671,7	,472	,1152	-0,024	0,358
<i>Manager/Team Diversity and Hierarchy</i>								
Sum of Hierarchies	1422	1	28	8180	5,75	4,070	-0,047	0,075
Share of Partners	1422	0	1	890	,63	,343	,116(**)	0
Share of Senior Professionals	1422	0	1	472	,33	,346	-,095(**)	0
Share of Junior Professionals	1422	0	1	60	,04	,116	-,057(*)	0,032
Homogeneity of Hierarchy Level (Herf)	1422	0	1	1072	,75	,230	,094(**)	0
Number of Managers	1422	1	28	8180	5,75	4,070	-0,047	0,075
Average History with Team	1422	-3	17	367	,26	1,195	0,014	0,609
Homogeneity of Average History with Team (StDev)	1185	0	10	723	,61	1,300	-0,047	0,108

(1) Total sample size of tested cases (all realized transactions).

(2) Number of cases where dummy variable = 1, i.e. number of transactions per variable tested.

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

**Table 50: Descriptive and Correlation Statistics on Buyout Firm Deal Experience Variables**

The latent influence of an investment manager's education on team atmosphere is further highlighted by the significantly (at the 0.1 level) and positively correlated performance of law graduates. Lawyers had shown the worst average returns when benchmarked on an individual's deal basis. However, within the team context, lawyers appear to have a positive influence on buyout returns, which could be either seen in their professional or their positive contribution to team culture, e.g. their expertise during transactions (negotiations), or their potentially more mitigating and consensus-driven team behavior. The homogeneity variable of degree type is non-significant (close to the 0.1 level; 2-tailed), however, it also directionally points to the fact that greater diversity among educational backgrounds in buyout teams is positively inspiring buyout returns. This is also further substantiated by the fact that the degree order variable, i.e. the number of degrees earned, for the 3<sup>rd</sup> degree is positively correlated with performance, albeit slightly below the 0.1 significance level. In other words, buyout managers who have earned more than average (i.e. three) degrees, potentially in different fields, positively contribute to buyout returns. The result can, in the same fashion, be understood as either a direct beneficial (professional) impact of a broader skill set and expertise of those managers, or within the team context, the ability through the broader background to better communicate with a larger group of different graduates.

Finally, the variable *average history with team* variable is calculated by taking the difference between total Private Equity experience and tenure with the firm. The resulting value measures to what extent the team consists of outsiders, i.e. investment professionals that have gained experience at another Private Equity fund before. The variable is positively correlated, which would suggest that adding outside professionals increases returns, however, the variable is non-significant. The homogeneity variable on average history with the team is negatively correlated and slightly above significance at the 0.1 level (2-tailed). The Hirfendahl-index-based variable reinforces the prior underlying variable, as it advocates that investment manager teams that only consist of members that started their career at the fund (e.g. "founder club") are less successful than those funds that also recruit outside investment professionals with additional valuable skills.

Only for illustrative reasons in this context, the correlation matrix also reveals significance levels between buyout performance and the various universities the buyout professionals in this sample have attended. Although these results have to be considered within the context of too small sample sizes, there is statistical significance for positive out-performance of the following universities: Georgetown ( $p < 0.01$ ), Uni Michigan ( $p < 0.01$ ), MIT ( $p < 0.01$ ) and Uni Virginia ( $p < 0.05$ ). By contrast, the number of significantly negative performing universities is high: Uni Cambridge ( $p < 0.01$ ), HEC ( $p < 0.1$ ), INSEAD ( $p < 0.01$ ), Institut d'Etudes Politiques Paris ( $p < 0.05$ ), NYU/Stern ( $p < 0.1$ ), Oxford University ( $p < 0.05$ ) and Stockholm School of Economics ( $p < 0.1$ ). These results are surprising for two reasons. First, most of the leading universities from a performance perspective that were exhibited in the descriptive section (on an individual investment manager performance basis), e.g. Brown, Princeton or Kellogg/Northwestern University, are non-significant. Furthermore, Oxford University is statistically significantly negatively correlated, but had above average returns on the descriptive section that was based on individual managers. These mixed

results suggest that they can only be seen as illustrative and that there is no clear picture regarding dominance of universities with respect to buyout performance.<sup>170</sup>

Descriptive and Correlation Statistics								
Variable (Dummy) Tested	N <sup>(1)</sup>	Mini- mum	Maxi- mum	Sum <sup>(2)</sup>	Mean	Std. Deviation	Pearson Correlation	Sig. (2- tailed)
<i>Manager/Team Education Experience – Unis</i>								
Sum of Unis	1422	0	44	10152	7,14	5,744	0,016	0,549
Homogeneity of Unis (Herf)	1391	,120	1,000	535,157	,38473	,245661	-0,001	0,97
Share of Amherst College	1391	0	0	2	,00	,010	-0,03	0,257
Share of Amos Tuck School	1391	0	1	24	,02	,068	0,012	0,653
Share of Brown University	1391	0	1	27	,02	,072	-0,004	0,881
Share of Cambridge University	1391	0	1	110	,08	,122	-,086(**)	0,001
Share of Colgate Darden	1391	0	1	8	,01	,043	-0,002	0,93
Share of Columbia	1391	,0	1,0	93,2	,067	,1422	0,007	0,803
Share of Cornell	1391	,00	,50	17,19	,0124	,04965	0,008	0,769
Share of Duke	1391	0	0	7	,01	,027	-0,033	0,215
Share of Georgetown	1391	0	1	34	,02	,052	,146(**)	0
Share of Harvard	1391	0	1	275	,20	,240	0,006	0,816
Share of HEC	1391	0	1	25	,02	,103	-0,048	0,072
Share of INSEAD	1391	0	1	76	,05	,136	-,095(**)	0
Share of Institut d'Etudes	1391	0	1	69	,05	,132	-,057(*)	0,034
Share of Kellogg, Northwestern	1391	0	1	35	,02	,073	0,027	0,308
Share of LSE	1391	0	1	16	,01	,060	-0,042	0,121
Share of Michigan	1391	0	1	28	,02	,079	,190(**)	0
Share of MIT	1391	0	1	79	,06	,166	,125(**)	0
Share of NYU/Stern	1391	0	0	1	,00	,013	-0,048	0,071
Share of Oxford University	1391	0	1	86	,06	,138	-,061(*)	0,023
Share of Princeton University	1391	0	0	7	,01	,027	-0,018	0,511
Share of Queen's University	1391	0	0	8	,01	,037	-0,012	0,662
Share of Stanford	1391	0	1	60	,04	,102	-0,012	0,651
Share of Stockholm School of Ec.	1391	0	1	20	,01	,083	-0,05	0,063
Share of UCLA	1391	0	1	6	,00	,040	0,042	0,116
Share of University of Chicago	1391	0	1	37	,03	,108	0,007	0,808
Share of Uni Illinois (Urb-Ch.)	1391	0	0	7	,01	,027	0,019	0,487
Share of Notre Dame	1391	,00	1,00	41,61	,0299	,11777	0,013	0,63
Share of University of Texas	1391	0	1	25	,02	,122	0,008	0,759
Share of University of Virginia	1391	0	1	30	,02	,078	,061(*)	0,024
Share of Wharton	1391	0	1	91	,07	,115	-0,023	0,388
Share of Williams College	1391	0	0	11	,01	,035	0,026	0,334
Share of Yale	1391	0	1	33	,02	,093	-0,022	0,407

(1) Total sample size of tested cases (all realized transactions).

(2) Number of cases where dummy variable = 1, i.e. number of transactions per variable tested.

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

**Table 51: Descriptive and Correlation Statistics on Buyout Firm Deal Experience Variables (Unis)**

#### 5.2.6.1.4. *Manager/Team Diversity and Hierarchy Effect*

Which of member buyout teams is contributing most to buyout success and is there an optimal team size? First, by investigating team size, the results suggest that the number of investment managers in a buyout firm team is significantly (at the 0.1 level; 2-tailed) and negatively correlated with IRR. This finding has two implications: overstaffed buyout firms and/or overstaffed deal teams lead to negative buyout returns. This trend would be similar to findings in section 5.2.3.1.

<sup>170</sup> The sample size is regarded sufficient for some of the top universities that have a high number of cases. Nonetheless, it needs to be acknowledged that despite the same set of investment managers, this statistical

(and 5.2.4.3.) that average returns per buyout professional (and according to deal team size) are decreasing with increasing buyout fund size (team size). Secondly, the correlations show that a high share of buyout fund partners in a deal is significantly ( $p < 0.01$ ) and positively, while a high share of senior and junior investment managers is significantly ( $p < 0.01$ ) and negatively correlated with deal IRR. These results are partially in contradiction to the above findings on tenure and Private Equity experience, which showed that these variables are negatively correlated with performance. Based on this trend, it was inferred that junior and senior investment managers may play an important role in value generation (based on the homogeneity variable). By contrast here, from a hierarchical and team composition point of view remains critical to have a high partner share involvement to guarantee deal success. This finding speaks in favor of the learning curve hypothesis by which the partners' higher frequency of repetitive deal-making leads to positive experience curve and performance effects. Also, the fact that partner involvement is positive does not contradict the fact that very long tenure and experience is negative; what could well be imagined is that "young" partners' involvement is positive, "old" partners' is not.

However, the homogeneity of hierarchy variable suggests that the more homogeneous a deal team is from a hierarchical point of view, and based on the prior finding the higher the ratio of partners to junior and senior investment professionals is, the better the deal performance. This could be understood as a counter-argument to diversity theory. The ideal deal team therefore appears to be a small team of young partners and senior investment managers. With respect to juniors, the findings can be understood as evidence why it may take a long time for junior buyout fund investment professionals to gain responsibility in transaction decision-making: their initial impact on the team during their "learning years" appears to affect the team's deal performance with lower returns.

#### 5.2.6.2. Coefficient Statistics Analysis

The coefficient statistics provide a complete overview of all variables utilized in the regression model. A range of control variables for entry and exit year, type and mode, as well as for countries and industries are introduced, in order to control for the various significant value creation effects found throughout the first empirical chapter.<sup>171</sup> These will not be further discussed at this point. With respect to the focal buyout team characteristics variables in this examination, a range of (significant) variables has been excluded from the regression model due to strong multicollinearity effects between them. Variables have therefore been added selectively, according to their bivariate significance levels. The remaining tolerances observed in the collinearity statistics are notably

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analysis differs from the descriptive section as is designed to capture buyout team characteristics, while the descriptive section is based on individual managers.

<sup>171</sup> Note that due to the smaller sample size available for the variables utilized in this regression analysis model, control variables may have changed slightly to the previous findings on the complete sample. The variables have been identified according to their significance and correlation with the dependent variable IRR in a bivariate correlation matrix (complete matrix omitted here). Please note that General Partner control variables are omitted here, as they are highly correlated with the variables under review. In other words, since the "GP effect" is being analyzed in detail in this section, it cannot be controlled for.

higher than in earlier regressions in this study, but are considered acceptable in this specific context as the various characteristics of investment managers regarding their education (degrees, universities), professional (prior jobs), and time (age, tenure, etc) experience profiles are naturally correlated to a certain degree. It was endeavored to cap variance inflation factors of the variable coefficients at 5.0 (maximum VIF is 4.683), well below the allowable cap of 10.0 suggested by Neter, Wassermann et al. (1985).

		Coefficients <sup>(a)</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
7	<i>Dummy Variables</i>							
	(Constant)	,243	,349		,696	,486		
	Entry Year 1983	1,943	,799	,069	2,431	,015	,795	1,258
	Entry Year 1984	2,547	,990	,074	2,572	,010	,776	1,288
	Entry Year 2000	,088	,118	,023	,746	,456	,686	1,457
	Entry Year 2001	,820	,212	,113	3,873	,000	,751	1,332
	Exit Year 1989	2,126	,807	,075	2,634	,009	,780	1,283
	Exit Year 1990	2,343	,978	,068	2,396	,017	,796	1,256
	Exit Year 2001	-,294	,119	-,090	-2,478	,013	,480	2,082
	Exit Year 2002	,101	,147	,022	,688	,491	,618	1,617
	SFTCS	,333	,126	,073	2,647	,008	,842	1,188
	SPFIN	,997	,280	,093	3,561	,000	,941	1,063
	U.S./Canada	,152	,142	,053	1,074	,283	,266	3,763
	ACQUISITION	,270	,110	,086	2,459	,014	,521	1,919
	BANKRUPTCY (Mode)	-1,865	,520	-,093	-3,586	,000	,941	1,062
	PRIVATE EXIT	,394	,233	,061	1,689	,091	,482	2,073
	PUBLIC EXIT	,970	,210	,131	4,625	,000	,799	1,252
	UNREALISED (Mode)	-,454	,110	-,145	-4,134	,000	,518	1,931
	NEGOTIATED SALE	-,047	,216	-,008	-,217	,828	,431	2,318
	UNREALISED (Type)	,029	,173	,006	,168	,867	,504	1,986
	<i>GP Characteristics Variables</i>							
	Number of Managers	-,005	,015	-,013	-,341	,733	,416	2,406
	Homogeneity of Tenure (SD)	,011	,031	,018	,352	,725	,253	3,953
	Share of Junior Professionals	-1,615	,425	-,132	-3,799	,000	,525	1,905
	Homogeneity of Average History with Team (StDev)	-,026	,041	-,024	-,650	,516	,460	2,172
	Average Tenure	,010	,019	,021	,506	,613	,358	2,792
	Share of Law Degrees	,056	,748	,003	,075	,940	,389	2,573
	Share of Other Degrees	,736	,453	,089	1,625	,104	,214	4,683
	Homogeneity of Degrees	-,940	,377	-,098	-2,496	,013	,417	2,400
	Share of 3 <sup>rd</sup> Degrees	,861	,700	,051	1,229	,219	,366	2,733
	Share of Bachelor Degrees	-,138	,377	-,019	-,367	,714	,235	4,255
	Share of Engineering Degr.	,503	,521	,044	,964	,335	,301	3,326
	Share of Accounting	-,457	,806	-,029	-,566	,571	,246	4,067
	Share of Private Equity	,219	,616	,018	,356	,722	,242	4,133
	Share of Management Funct.	3,689	,741	,220	4,977	,000	,325	3,075
	Share of Banking	-,350	,354	-,036	-,990	,323	,494	2,026
	Share of Georgetown	,939	1,191	,033	,788	,431	,371	2,693
	Share of INSEAD	,304	,356	,031	,854	,393	,485	2,062
	Share of Institut d'Etudes Pol.	-,096	,582	-,009	-,165	,869	,217	4,605
	Share of Uni Michigan	2,173	,585	,131	3,715	,000	,513	1,950
	Share of MIT	,660	,931	,036	,708	,479	,252	3,975
	Share of NYU/Stern	-2,972	2,737	-,029	-1,086	,278	,895	1,117
	Share of Oxford University	,371	,546	,033	,679	,497	,275	3,639
	Share of Uni Virginia	3,078	,667	,145	4,615	,000	,651	1,536

(a) Dependent Variable: Gross IRR Performance

Table 52: Coefficients and Collinearity Statistics on Buyout Firm Team Experience Variables

The analysis of the buyout team characteristics variables shows that significance levels are considerably lower for several of the variables that had shown high Pearson correlations. The standardized Beta coefficient for a high share of junior professionals in a buyout firm ( $p < 0.01$ ) team is related to a negative performance impact on IRR. The homogeneity of degrees standardized Beta coefficient is negative and significant in the model ( $p < 0.05$ ) which suggests that a greater diversity of degree types, i.e. business, engineering, law, arts and other degrees, are associated with higher buyout performance. The standardized Beta for a high share of management function experience is 0.22, and therefore the single most important General Partner characteristic variable to explain buyout performance (significant at the 0.001 level). This finding entails a strong recommendation to the recruitment strategy of buyout funds: the common pools consisting of numerous bankers, consultants and lawyers at LBO firms would benefit from adding corporate managers, who have gained operational and industry specific knowledge, to their investment manager teams.

#### 5.2.6.3. Linear Regression Models Analysis

The linear regression model describing the explanatory strength of the buyout firm team characteristics variables is strong. Considered individually, all individual regression models are highly significant ( $p < .001$ ), with F values ranging between 9.093 for model 5 to 11.901 for model 3 (models omitted here). When considering the change statistics of the nested models 1-7, it can be observed that the stepwise introduction of control variables in all models 1-7 is highly significant ( $p < .01$ ), reaching a total adjusted R square of 24.9% in model 7. In other words, this regression model explains about one quarter of all variance in buyout returns. The combined control variables in this analysis, as exhibited in model 3, reach 14.3%.<sup>172</sup> Therefore, the total contribution to the model's explanatory strength through the GP characteristic variables is 10.6% (in this sample).

Model 4 introduces the first set of GP characteristic variables, consisting of the GP time-dependent/experience, hierarchical, team size and team structure variables. The introduction leads to a small improvement of adjusted R square by 0.8% to 15.1%. The change in F value of 3.267 is significant at the 0.01 level (2-tailed). This underlines that the organization structure of buyout funds, their team structure configuration and buyout experience profile have a small, but significant impact in itself on the value generation process carried out by the fund's investment professionals.

Model 5 introduces the GP team education background variables, which leads to an improvement of adjusted R square by a further 1.5% to 16.6%. The change in F value of 4.476 is highly significant at the 0.001 level (2-tailed). This result provides important evidence for both the General Partner's recruitment activities and Limited Partner's due diligence scope: the education profile of investment managers is important to the extent that the level and number of degrees earned, the type of degree (major), and most critically, the combination of different education

backgrounds (diversity) is quintessential for a buyout fund's success. For instance, the low frequency of law, arts and other degree graduates compared to business (and engineering) graduates in the buyout industry is not justified from a return standpoint.

Linear Regression Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,253(a)	,064	,058	1,381353	,064	10,008	8	1168	,000
2	,311(b)	,096	,088	1,359048	,032	13,884	3	1165	,000
3	,395(c)	,156	,143	1,317386	,060	11,693	7	1158	,000
4	,410(d)	,168	,151	1,310986	,012	3,267	5	1153	,006
5	,432(e)	,187	,166	1,299288	,019	4,476	6	1147	,000
6	,497(f)	,247	,225	1,252608	,060	22,771	4	1143	,000
7	,525(g)	,275	,249	1,232958	,029	5,590	8	1135	,000

- (a) Predictors: (Constant), Entry and Exit Year Dummies.  
 (b) Predictors: (Constant), above, plus Industry and Country Dummies.  
 (c) Predictors: (Constant), above, plus Entry and Exit Type/Mode Dummies.  
 (d) Predictors: (Constant), above, plus Homogeneity of History with team, Average Tenure, Homogeneity of Tenure, Share Junior Investment Professionals, Number of Managers.  
 (e) Predictors: (Constant), above, plus Share of Engineering Degrees, Share of Law Degrees, Share of Other Degrees, Share of Bachelor Degrees, Homogeneity of Degree Type  
 (f) Predictors: (Constant), above, plus Share of Management Functions, Share of Banking, Share of Accounting, Share of Private Equity  
 (g) Predictors: (Constant), above, plus Universities: Share of NYU/Stern, Share of University of Virginia, Share of Michigan, Share of INSEAD, Share of Georgetown, Share of Oxford University, Share of MIT, Share of Institut d'Etudes Politiques de Paris.

**Table 53: Linear Regression Model on Buyout Firm Deal Experience Variables**

Model 6 introduces the professional experience variables of investment manager teams, which leads to a very high improvement of adjusted R square by 5.9% to 22.5%. The immense change in F value of 22.771 is significant at the 0.001 level (2-tailed). The large improvement in the explanatory strength of the overall GP characteristics regression model in this 6<sup>th</sup> step emphasizes the magnitude of buyout manager's professional experience on success in leveraged buyouts. As highlighted in the correlation and coefficient analysis, deal performance depends to a large extent on prior professions, e.g. accountants demonstrated an adverse effect in the team context, while corporate managers and investment professionals from other Private Equity funds clearly seem to add value. From a practical standpoint, some of these findings, if developed further, could be embraced as recruitment recommendations for buyout funds.

Finally, Model 7 introduces the variables on (significant) attended universities by investment managers, which leads to a further substantial improvement of adjusted R square by 2.4% to 24.9%. The change in F value of 5.590 is significant at the 0.001 level (2-tailed). The improvement in the explanatory strength of the overall GP characteristics regression model in this 7<sup>th</sup> step suggests that universities have an influence on buyout returns. However, no logical pattern could be observed from this small sample of universities in the sample.<sup>173</sup>

<sup>172</sup> The combined explanatory strength of control variables is lower here than in section 4.3.10.3., as GP control variables have been omitted as these indirectly represent the focal variables in this analysis.

<sup>173</sup> The low number of universities in the regression model compared to the available universe of variables relates to strong multicollinearity effects between universities and other GP characteristic variables, i.e.



The introduction of each group of buyout firm characteristics variables in this nested multivariate regression model led to a significant improvement in (i) the explanatory strength (R square) and (ii) the model's fit (F value) towards an elucidation of leveraged buyout performance. Combined with the findings in the following section 5.3. on buyout experience and learning (curve) processes at General Partners, it can be concluded that buyout performance is clearly driven by a "GP effect". Besides the market, financial and acquisition related control variables introduced in this study in order to control for entry and exit conditions and (industry) financial performance, future analysis of leveraged buyouts should equally focus on the human factor as key lever. As shown by these exploratory results, by means of systematically analyzing and understanding the dynamics of buyout firms and their investment managers, a great extent of variance in leveraged buyout performance can be explained.

### 5.2.7. Summary of Findings

This section has shown important findings with respect to investment manager and buyout firm characteristics, and their impact on performance. First, education has been identified as one area through which buyout professionals can differentiate themselves and the return characteristics of the fund. Buyout professionals typically undertake a combination of undergraduate degree and an MBA from one of the leading business schools, although there is also a high frequency of triple degree, including PhDs and JDs. Among most frequently visited institutions, Harvard University clearly dominates the Private Equity industry with most graduates (14.3% of all degrees and 33.9% of all MBAs). From a return perspective (within the team context), results are very mixed, but the bivariate correlations suggest that both a high share of business and engineering degrees in a buyout team are adversely affecting returns, while law and other degrees have a positive impact. Business degrees were expected to perform well alongside with lawyers in the team context, hence variable hypothesis H28 has to be rejected. The homogeneity variable substantiates the fact that educational diversity among buyout teams is benefiting returns. Also, the correlation suggest that master degree graduates appear to perform worse than other graduates in the team context, however, viewed from an individual buyout professional perspective, both engineers and master graduates do achieve high returns. Since only bachelor degrees performed significantly and positively, it cannot be stated that higher education generally has a positive effect on returns, hence variable hypothesis H29 has to be rejected. Also, variable hypothesis H30 has to be rejected as a higher number of degrees was statistically not clearly favorable. Nevertheless, the 3<sup>rd</sup> degree category was the only one to demonstrate positive correlations and was slightly below the significance level of 0.1 (2-tailed).<sup>174</sup> Variable hypothesis H31 can generally be accepted, as both the descriptive and statistical test made explicit that managers attended the world's top universities

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most universities had to be excluded. Moreover, coefficients are non-significant, hence, no recommendation such as to answer the question of which universities represent the best educational basis for successful buyout managers can be made at this point in time.

<sup>174</sup> The third degree consisted of 40% MBA and PhD/JD degrees each.

when compared to frequently published university rankings. However, the still limited sample size could not offer firm conclusions with respect to which universities would be recommendable for buyout manager education.

With respect to the professional experience of investment managers it can be stated that the diversity is immense and that they receive professional training from the world's leading financial services, consulting, accounting and law firms. The analysis also reveals that investment managers have created a network across academia, industry associations, government-linked bodies and even charitable organizations. From a returns perspective, on an individual basis, investment professionals with prior Private Equity, banking and finance or corporate management experience perform well. Within the buyout firm team context, a higher share of Private Equity and management experience continue to show very positive correlations with performance, but banking, consulting and especially accounting perform dismal. Variable hypothesis H33 therefore has to be rejected, as banking experience did not prove to be buyout return enhancing. This leads to the conclusion that recruiting strategies of buyout funds may not be optimal, i.e. that a lack of diversity within the team affects returns. However, the variable for size of network showed that broad professional experience in the team was negatively correlated and not significant, hence variable hypothesis H32 has to be rejected. Practically this result could imply that buyout firms not necessarily rely on an excessively large network, but probably rather "the right one".

The time experience variables age, tenure and Private Equity experience, have produced results contradictory to expectations. From the descriptive findings, it could be established that after a certain age of buyout partners, their acquisition performance declines consistently. For tenure and years of industry experience, it appears as if senior investment professionals, aspiring to become partner, as well as young partners perform better than more experienced partners. This may lead to the assumption that both intrinsic and extrinsic motivation, as described by Amabile (1988) and Amabile, Hill et al. (1994), does have a certain peak. Within the team context, the correlation statistics support the fact that those partners with longest tenure and Private Equity experience adversely affect returns. Hence, variable hypotheses H25-H27 have to be rejected, which had suggested that higher experience would lead to higher returns. However, the team hierarchy and diversity correlations revealed that a high share of junior professionals has an adverse effect, a higher share of partners a positive effect on performance. Variable hypothesis H35 therefore has to be rejected. In line with this finding, deals performed better when there was a lower amount of different hierarchies involved, which in conjunction with the prior finding speaks against junior professionals. Variable hypothesis H34 can thus be accepted.

The descriptive findings demonstrated that there may be an optimal buyout firm team size. Historically, the most successful GP team size based on the Limited Partners' data on average consisted of 15 buyout professionals, undertaking transactions with an average investment size of US\$ 24 million (assuming a 3 to 1 debt to equity ration, this implies an average transaction size of US\$ 100 million, i.e. larger mid-cap deals). This is substantiated by the fact that buyout firm teams

with a high number of investment managers perform worse, which leads to acceptance of variable hypothesis H36. However, it can be reasoned that the increase of fund sizes may shift the “optimal deal team size” to a larger number in the future. There appears to be no clear argument for team diversity according to age or position. However, there was directional statistical evidence that the impact of new members to the team with prior Private Equity experience resulted in a positive performance effect, but this result was non-significant, which leads to rejection of variable hypothesis H37.

The homogeneity construct led to mixed results as well. In contrast to the above mentioned positive influence of a lower, i.e. more homogenous, amount of hierarchies, non-homogenous tenure and years of Private Equity experience are favorable. Hence, this does support a certain degree of diversity of professionals in the team, but due to the findings for experience, successful teams should rather consist of younger than older partners. As a consequence, all variable hypotheses regarding homogeneity have to be rejected, except for H46.

The linear regression analysis suffered from high multicollinearity between the investment manager and GP firm characteristics variables, and hence, the explanatory power was inhibited due to the fact that a very limited amount of variables could be introduced. Nevertheless, in combination with a range of control variables, a quarter of variation in buyout performance could be explained. Among the constructs, especially professional experience appears to affect performance and only to a lower extent education, team structure, time experience and team homogeneity.

### **5.3. Modeling the Buyout Firm Experience Effect**

In the first empirical part of this study, it was established that market and acquisition related, as well as several financial drivers, especially with respect to entry and exit conditions of buyouts, have an effect on the value creation process of leveraged buyout transactions. The initial analysis of General Partner performances had shown that (i) there is a great variance in returns between different General Partners, (ii) some General Partners are significantly performing better (or worse) than their peers (see section 5.2.1.). In this chapter, it was so far highlighted that the factors “GP team” and “Buyout Investment Manager” are both contributing to explaining buyout performance through a set of personal and firm-wide characteristics. Despite some mixed findings, it was generally recognized that the assembled experience of investment managers, especially partners, in buyout firms is a critical determinant of buyout success or failure. In this section, a further statistical test will be performed in order to further understand the buyout firm’s “deal experience” construct. The deal-making capability of buyout firms will be tested by introducing several “buyout experience” variables designed to capture the respective buyout firm’s investment history relative to its success. This test is eventually designed to receive a better understanding of investment strategies of buyout firms and to demonstrate which strategies potentially add the highest value.

#### **5.3.1. Test Setting**

This section intends to analyze whether buyout firms undergo a learning curve effect on their various leveraged buyout acquisitions, i.e. whether buyout firms with more transaction experience achieve higher returns, and if they do, under which conditions. Yelle (1979) has introduced the notion of the learning curve effect, which has been studied in a range of areas in the social sciences. However, learning-by-doing in the sense of the common learning-curve effect vitally depends on the characteristics of the task to be mastered. In order for the learning-curve effect to be successful, both a sufficient frequency and similarity of the task under review – may it be production processes, corporate acquisitions or leveraged buyouts – are a necessary prerequisite to accrue tacit knowledge and develop competencies within the respective organization that can be effectively reapplied. As a consequence, the learning curve development may be inhibited if the characteristics of the task require overly complex organizational capabilities, which are especially necessary in strategic acquisitions that are exposed to far-reaching organizational change and integration processes.

By contrast, leveraged buyouts represent a distinctive type of corporate acquisition. In comparison to strategic acquisition, buyout firms undertake acquisitions at a far larger rate (as this is their “task”). Organizational change in these standalone acquisitions, e.g. in form of restructuring, cost reduction or growth strategies, is generally designed to create and monetize value for the investing fund over a short and limited time horizon. By contrast, strategic acquisitions usually require a

range of long-term and complex organizational integration activities in order to extract synergies that merit the acquisition per se. The long-term nature of strategic mergers and acquisitions through the accompanying integration processes also makes it more difficult to assess their performance. However, the performance of buyouts can straight-forwardly and objectively be evaluated through the consistently employed dependent variable IRR in this study. Leveraged buyouts therefore represent an ideal test setting to analyze whether the high frequency of deal-making of buyout funds leads to learning curve effects and better performance.

Three main constructs will be measured to assess the learning experience and investment behavior effect among buyout firms. First, the buyout acquisition experience magnitude of buyout firms will be examined, i.e. the frequency of prior buyout transactions according to total number of deals, number of deals in a certain industry, number of deals in a certain deal-size class, number of deals in a certain geographic region/country and number of deals that used a certain exit route. This procedure allows expanding the scope of analysis into the investment behavior of buyout funds. Alongside, it can also be investigated to what degree the current focal transaction is similar (i.e. homogeneity of focal buyout) or dissimilar (novelty of focal buyout) compared to all prior investments that a buyout fund has executed, again within the deal characteristic categories set out above. The results are expected to provide valuable recommendations for practitioners – buyout firms and their investors – with respect to which investment strategies and what type of focus leads to superior returns.

#### 5.3.1.1. Tested Variables and Hypotheses

With respect to the construct of buyout acquisition experience magnitude, it would be expected – according to the traditional learning-curve argument – that a higher amount of previous deal experience, measured by total number of executed deals or according to specific deal types, will have a positive direct effect on the available “acquisition knowledge” in buyout firms. Consequently, it can be expected that

*H47a.) Gross buyout deal performance is higher for transactions, in which there is a larger number of previous transaction experiences of the buyout firm with relevant prior buyout deals, as there is a larger stock of available applicable knowledge in the firm.*

Conversely, it needs to be considered that a large buyout acquisition experience magnitude could also have adverse effects. Frequent repetition promotes development of organizational routines Nelson and Winter (1982), which lead to quasi-automatic behavior, reducing this level of attention. A low level of attention in turn increases the risk of superstitious learning and inaccurate application of insights gained from prior buyout deal experiences. This leads to the expectation that buyout acquisition experience magnitude at buyout firms may also have a negative impact on performance:

*H47b.) Gross buyout deal performance is lower for transactions, in which there is a larger number of previous transaction experiences of the buyout firm with relevant prior deals due to the lower level of attention to the idiosyncratic characteristics of the focal buyout deal.*

The amount of applicable knowledge and the level of attention do not only depend on the sheer quantity of prior buyout deal experiences, but also on their quality, namely the similarity between past transactions and the focal deal as well as the homogeneity with past experiences. With respect to the degree of novelty of the focal deal, it can be expected – according to learning curve theory – a ceteris paribus negative impact, as the present amount of applicable knowledge in the buyout firm developed through prior deal experiences differs and hence should be negatively related to task performance:

*H48a.) Gross buyout deal performance is lower for transactions, in which there is a greater degree of novelty of the focal deal compared to previous deal experience of the buyout firm, as there is a smaller stock of available relevant transaction knowledge.*

On the other side, novelty of the focal deal could also have a beneficial effect. The more obvious the differences are between the focal deal and previous deal experiences, the greater the probability that the buyout firm will recognize these differences and pay attention to the particularities of the focal deal. Hence, transaction novelty may increase ceteris paribus the level of attention to the deal and reduces the danger of suboptimal performance due to superstitious learning or the inaccurate application of insights gained from prior deal experiences:

*H48b.) Gross buyout deal performance is higher for transactions, in which there is a greater degree of novelty of the focal deal compared to previous deal experience of the buyout firm, as there is a higher level of attention to the idiosyncratic characteristics of the focal buyout deal.*

Likewise, it is expected that the degree of similarity of prior buyout deals is an important determinant of complex organizational capabilities. Homogeneous task experiences, i.e. the repeated execution of various similar deals in the buyout context, facilitate the accumulation of knowledge (March, Sproull et al. 1991). Therefore, it would ceteris paribus be expected to find a positive relationship between buyout deal experience homogeneity and deal performance:

*H49a.) Gross buyout deal performance is higher for transactions, in which there is a greater degree of homogeneity between the focal deal and previous deal experiences in the buyout firm, as there is a larger stock of available applicable knowledge within the firm for similar buyout deals.*

Again, the potential opposite effect of deal experience homogeneity needs to be acknowledged. Deal experience homogeneity contributes ceteris paribus to the rapid development of organizational routines (Nelson and Winter 1982), but may also lower the level of attention to the

idiosyncratic characteristics of the focal deal, which in turn could have a detrimental impact on task performance.

*H49b.) Gross buyout deal performance is lower for transactions, in which there is a greater degree of homogeneity between the focal deal and previous deal experiences in the buyout firm, as there is lower attention to the idiosyncratic characteristics of the focal buyout deal.*

In summary, it has been established that buyout acquisition experience magnitude, homogeneity and novelty of the focal deal can all exert a positive or negative (direct) effect on acquisition performance. The reason for this apparent paradox lies in the differential influence that each of these three variables has on the two components of complex organizational capabilities: the applicable stock of “deal-making knowledge” and the level of attention to the idiosyncratic characteristics of the focal buyout deal.

### 5.3.1.2. Methodology and Data

Contrary to previous sections in this study, this section will not present data on a descriptive graphical basis, as this is less useful in this context. Instead, the test relies exclusively on regression analysis.

<b>Explanatory Variable</b>	<b>Operationalization Definition</b>
<i>Overall Experience Magnitude</i>	The number of buyouts completed by the buyout association prior to the year of the focal buyout
<i>Experience Magnitude within Industry Category</i>	The number of buyouts completed by the buyout association prior to the year of the focal buyout in the same industry category as the focal buyout.
<i>Experience Magnitude within Country</i>	The number of buyouts completed by the buyout association prior to the year of the focal buyout in the same country as the focal buyout.
<i>Experience Magnitude within Size Category</i>	The number of buyouts completed by the buyout association prior to the year of the focal buyout in the same size category as the focal buyout.
<i>Experience Magnitude within Exit Mode</i>	The number of buyouts completed by the buyout association prior to the year of the focal buyout in the same exit mode as the focal buyout.
<i>Novelty of Industry</i>	The percentage of buyouts completed by the buyout association prior to the year of the focal buyout that took place in a different Industry category.
<i>Novelty of Country</i>	The percentage of buyouts completed by the buyout association prior to the year of the focal buyout that took place in a different country category.
<i>Novelty of Size</i>	The difference between the size of the focal buyout and the average size of all buyouts completed by the buyout association prior to the year of the focal buyout.
<i>Novelty of Exit Mode</i>	The percentage of buyouts completed by the buyout association prior to the year of the focal buyout that took place with a different exit mode.
<i>Industry Homogeneity</i>	The sum across all industry categories of the squared percentages of buyouts completed in each industry category by the buyout association prior to the focal buyout.
<i>Country Homogeneity</i>	The sum across all country categories of the squared percentages of buyouts completed in each country category by the buyout association prior to the focal buyout.
<i>Size Homogeneity</i>	The standard deviation of the size of all buyouts completed by the buyout association prior to the focal buyout.
<i>Exit Mode Homogeneity</i>	The sum across all exit mode categories of the squared percentages of buyouts completed in each exit mode category by the buyout association prior to the focal buyout.

**Table 54: Operationalization of Explanatory Variables**

The above discussed homogeneity and novelty variables for buyout transactions have been developed by calculating Hirschfeld indices, whose resulting values range between 0 (not homogeneous; completely novel) and 1 (completely homogeneous; not novel). In some instances, also standard deviations, i.e. the required degree of variance from the mean, have been utilized to measure these constructs on the respective variables. The sample for this analysis consists of 1,130 realized and unrealized buyout transactions with a mean gross IRR performance of 61.4%.<sup>175</sup> Several control variables that were developed in empirical part one will be introduced in the test. Table 54 summarizes the above developed independent variables to measure the hypotheses in the regression model.

### 5.3.2. Test Results

#### 5.3.2.1. Descriptive Statistics

The examination of the bivariate Pearson correlation matrix between the dependent variable IRR and the various independent buyout firm experience variables leads to some surprising and controversial results. First, the *number of previous deals* is negatively and significantly (at the 0.1 level; 2-tailed) correlated with gross IRR performance. Moreover, the *number of previous exits*, i.e. the realized transactions among all prior deals, is negatively and highly significantly (at the 0.01 level; 2-tailed) correlated with the dependent variable IRR.

Descriptive and Correlation Statistics								
Variable (Dummy) Tested	N <sup>(1)</sup>	Mini- mum	Maxi- mum	Sum <sup>(2)</sup>	Mean	Std. Deviation	Pearson Correlation	Sig. (2- tailed)
<i>Experience Variables (only)</i>								
Previous Deals Number	1130	0	243	35431	31,35	42,916	-0,052	0,079
Previous Exits Number	1130	0	207	26360	23,33	36,222	-,091(**)	0,002
Same Country Number	1130	0	155	18371	16,26	22,145	0,043	0,151
Same Industry Number	1130	0	55	5139	4,55	8,530	-0,03	0,32
Same Exit Mode Number	1130	0	191	9393	8,31	28,626	-,065(*)	0,029
Same Size Number	1130	0	90	16431	14,54	22,270	-,096(**)	0,001
Novelty Country (Percentage)	1130	0	1	1	,00	,030	0,017	0,574
Novelty Industry (Percentage)	1130	0	1,8	558,5	,494	,4095	0,024	0,414
Novelty Exit Mode (Percentage)	1130	0	1	115	,10	,302	,094(**)	0,002
Novelty Size	1130	0	275,32	12365,55	10,94	21,75	,075(*)	0,012
Homogeneity Country	1130	0	4	657	,58	,516	,116(**)	0
Homogeneity Industry	1130	0	1,0	291,7	,258	,2883	0,016	0,597
Homogeneity Exit	1130	0	3	690	,61	,500	-0,003	0,917
Homogeneity Investment <sup>(3)</sup>	1130	0	103,28	12370,27	10,94	15,46	-0,004	0,884
Valid N (listwise)	1130							

(1) Total sample size of tested cases (all realized transactions).

(2) Number of cases where dummy variable = 1, i.e. number of transactions per variable tested.

(3) Measured as Standard Deviation of Initial Investment.

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

**Table 55: Descriptive and Correlation Statistics on Buyout Firm Deal Experience Variables**

<sup>175</sup> Previous analysis throughout this study did not include unrealized transactions. However, in this context of analyzing the experience of buyout firms, it is essential to include all transactions to ensure a complete experience profile.



Also, a high number of prior deals in the *same size* as well as *same exit mode* categories display negative correlations with the dependent variable, significant at 0.01 and 0.05 levels (2-tailed) respectively. Likewise, the opposite novelty variables for using *different (novel) exit routes* and executing transactions in *various (novel) deal sizes* is positively and highly significantly (at the 0.01 and 0.05 level respectively) correlated with buyout performance. Finally, there is a strong and significant ( $p < .01$ ) correlation for *country homogeneity* of buyout deals, which implies that focusing on one geographical region may be advantageous from a return perspective.

#### 5.3.2.2. Coefficient Statistics

The coefficient statistics provide a complete overview of all variables utilized in the regression model. As pointed out above, a range of *control variables* are introduced, e.g. for *entry and exit year, type and mode*, as well as for *countries, industries and General Partners*, in order to control for the various significant value creation effects found throughout empirical chapter one.<sup>176</sup> These will not be further discussed at this point. With respect to the focal experience variables in this examination, two variables – *number of previous total exited deals* and *number of previous same exit deals* – have been excluded from the regression model due to the strong multicollinearity effects caused by them. The remaining tolerances observed in the collinearity statistics are acceptable, with variance inflation factors generally below two. Noticeable but tolerable exceptions are found among the experience variable, e.g. *same size* (VIF 3.3) and *number of total previous transactions* (VIF 2.8).

The analysis of these experience variables shows that the *number of prior transactions* undertaken by a buyout fund has a positive and significant (at the 0.05 level) impact on performance on the current deal (high standardized Beta coefficient of 0.097). This is directionally opposite to the Pearson correlation results and must be attributed to the importance of introducing the control variables. This finding in general provides support for variable hypothesis H47a and rejects variable hypothesis H47b, suggesting that a learning effect among leveraged buyouts as a special type of corporate acquisitions exists. However, the variable's coefficient measuring the number of prior deals in the same size category is significantly (at the 0.05 level) and negatively affecting buyout performance. This result is counter-intuitive to the widespread industry expert opinion, as it implies that buyout fund should not focus all their deals on one specific deal size segment (e.g. mid-caps). However, this result can also be interpreted in a more straight-forward way. As the variable suggests that different deal sizes are favorable, it simply reflects what most successful buyout firms would do anyhow – they constantly raise larger funds and enter into larger deals. In other words, those funds that did not have an outperforming track record would also be unable to raise larger funds at the same pace and can only invest in more similar sized deals. Assuming that

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<sup>176</sup> Note that due to the smaller sample size available for the variables utilized in this regression analysis model, control variables may have changed slightly to the previous findings on the complete sample. The variables have been identified according to their significance and correlation with the dependent variable IRR in the bivariate correlation matrix (complete matrix omitted here).

the latter funds' performance lacks behind those funds that are able to attract more capital and quickly raise larger funds, the statistical direction of this variable is comprehensible.

Coefficients <sup>(a)</sup>							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
7	<i>Control Variables</i>						
	(Constant)	,370	,095		3,918	,000	
	Exit Year 2002	-,745	,206	-,104	-3,619	,000	,823 1,215
	Entry Year 1998	,478	,143	,094	3,333	,001	,845 1,184
	Entry Year 1983	,618	,327	,050	1,892	,059	,956 1,046
	Exit Year 1989	1,290	,267	,128	4,832	,000	,960 1,042
	Entry Year 1985	,504	,247	,056	2,037	,042	,908 1,102
	Entry Year 1984	,758	,272	,075	2,790	,005	,928 1,078
	Exit Year 2001	-,395	,136	-,084	-2,897	,004	,810 1,235
	Entry Year 1996	,331	,124	,073	2,670	,008	,905 1,106
	Entry Year 1999	,552	,182	,086	3,029	,003	,840 1,190
	Entry Year 2001	1,782	,731	,067	2,437	,015	,881 1,135
	Entry Year 1997	,243	,123	,056	1,979	,048	,851 1,175
	Industry SPFIN	,542	,239	,061	2,264	,024	,934 1,071
	Industry INFOH	,683	,231	,079	2,962	,003	,938 1,066
	Industry SFTCS	,845	,178	,128	4,740	,000	,928 1,077
	Industry FSTPA	,996	,549	,049	1,815	,070	,940 1,064
	Industry TELCM	,573	,202	,078	2,833	,005	,893 1,119
	GP 56	1,565	,849	,048	1,843	,066	,980 1,021
	GP 12	,968	,460	,056	2,104	,036	,957 1,045
	GP 75	2,043	,861	,063	2,373	,018	,953 1,050
	GP 42	1,880	,417	,123	4,503	,000	,906 1,104
	GP 2	,960	,558	,047	1,719	,086	,909 1,101
	GP 22	3,443	,473	,199	7,284	,000	,907 1,102
	GP 70	,872	,286	,085	3,049	,002	,877 1,140
	GP 81	-1,268	,217	-,236	-5,832	,000	,411 2,434
	BANKRUPTCY (Type)	-1,559	,700	-,059	-2,228	,026	,962 1,040
	Germany/Austria/ Switzerland	1,030	,374	,074	2,755	,006	,927 1,079
	PUBLIC EXIT	,326	,149	,068	2,188	,029	,704 1,420
	ACQUISITION	,310	,098	,096	3,153	,002	,732 1,365
	<i>Tested Variables</i>						
	Homogeneity Industry	-,280	,167	-,059	-1,681	,093	,540 1,850
	Homogeneity Exit	-,099	,104	-,036	-,950	,342	,459 2,180
	Homogeneity Investment	-0,00	,003	-,001	-,031	,975	,597 1,676
	Homogeneity Country	,036	,094	,013	,378	,705	,532 1,881
	Previous Deals Number	,003	,001	,097	2,259	,024	,362 2,759
	Same Country Number	,003	,002	,042	1,078	,281	,455 2,198
	Same Industry Number	-,002	,006	-,014	-,386	,699	,509 1,966
	Same Size Number	-,006	,003	-,105	-2,217	,027	,299 3,339
	Novelty Country (Percentage)	,176	1,215	,004	,145	,885	,955 1,047
	Novelty Industry (Percentage)	-,052	,117	-,016	-,442	,659	,546 1,831
	Novelty Exit Mode (Percentage)	-,128	,146	-,028	-,874	,382	,641 1,560
	Novelty Size	,006	,002	,089	2,910	,004	,721 1,388

(a) Dependent Variable: Gross IRR Performance

Table 56: Coefficients and Collinearity Statistics on Buyout Firm Deal Experience Variables

The above finding is further enhanced through the *size novelty* variable, which is highly significant ( $p < .01$ ) and displays a strong positive standardized Beta coefficient of 0.089. These results lead to the rejection of variable hypothesis H48a and to the acceptance of variable hypothesis H48b. In other words, the introduction of novel, changing (generally increasing) deal sizes leads to a higher

level of attention of the buyout firm to the idiosyncratic characteristics of each deal, and therefore leads to higher buyout performance. This is also logical from a practical view point, as the intrinsic motivation of buyout investment managers is likely to be higher when they are more or less constantly allowed to work on the “new largest deal” for their buyout firm.

With respect to the homogeneity variables, it can be established that *homogeneity of industry*, i.e. how similar is the focal deal’s industry to prior deals’ industries of the buyout firm. The standardized Beta coefficient for this variable is negative (-0.059) and significant at the 0.1 level. In essence, this finding supports variable hypothesis H49b and rejects variable hypothesis H49a. By only focusing on one certain, or a small group of related industries, the buyout firm risks losing attention to deal specific characteristics. As a consequence, it may tend to feel over-confident about a particular transaction due to its strong sector expertise, which could lead it (i) to make unrealistic assumptions about real value generation potential, (ii) to pursue relatively less attractive targets than it would with a neutral industry perspective, or (iii) to overpay. However, this finding to some extent contradicts current buyout industry trends of larger funds, which set up industry teams on selective target industries in order to assemble strong industry expertise. It is also contradictory to the emergence of industry specialist funds<sup>177</sup>. As a consequence, the specialization trend may only be appropriate if the group of chosen target industries by the buyout firm is large enough to be able to invest opportunistically into industries that demonstrate the highest potential at any given time. As a reminder, in section 4.4., it was clearly established that favorable entry conditions for buyouts are industry-dependent, hence investing only in a too narrow group of industries limits opportunistic choice.

### 5.3.2.3. Linear Regression Models Analysis

The linear regression model describing the explanatory strength of the buyout firm experience variables is very strong. Considered individually, all individual regression models are highly significant ( $p < .001$ ), with F values ranging between 13.851 for model 7 to 19.267 for model 3 (individual models omitted here). When considering the change statistics of the nested models 1-7, it first can be observed that the stepwise introduction of control variables in models 1-4 is highly significant ( $p < .001$ ) on each level, reaching an adjusted R square of 22.5% in model 4. As observed in several tests beforehand and in the expanded control variable analysis in section 4.3.10.3., the control group already explains more than a fifth of all variance in buyout returns (22.5% in this sample). Model 5 introduces the homogeneity variables, which leads to an improvement of adjusted R square by 0.4% to 22.9%. The change in F value of 2.599 is significant at the 0.05 level (2-tailed). Model 6 introduces the experience variables (except for same exit and number of exited deals, due to multicollinearity considerations), which leads to an improvement of adjusted R square by a further 0.5% to 23.4%. The change in F value of 2.760 is significant at the 0.05 level (2-tailed). Finally, model 7 introduces the novelty variables, which leads to a further improvement of

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<sup>177</sup> Compare footnote 149.

adjusted R square by 0.4% to 23.8%. The change in F value of 2.475 is significant at the 0.05 level (2-tailed). The introduction of each group of buyout firm experience variables in the nested multivariate regression model therefore led to a significant improvement in (i) the explanatory strength (R square) and (ii) the model's fit (F value) towards an elucidation of leveraged buyout performance.

<b>Linear Regression Model Summary</b>									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,271(a)	,073	,064	1,315968	,073	8,049	11	1118	,000
2	,335(b)	,112	,099	1,291024	,039	9,724	5	1113	,000
3	,470(c)	,221	,204	1,213440	,109	19,359	8	1105	,000
4	,494(d)	,244	,225	1,197879	,023	8,224	4	1101	,000
5	,501(e)	,251	,229	1,194415	,007	2,599	4	1097	,035
6	,508(f)	,258	,234	1,190601	,007	2,760	4	1093	,027
7	,515(g)	,265	,238	1,187401	,007	2,475	4	1089	,043

(a) Predictors: (Constant), Entry and Exit Year Dummies.  
 (b) Predictors: (Constant), above, plus Industry Dummies.  
 (c) Predictors: (Constant), above, plus GP Dummies.  
 (d) Predictors: (Constant), above, plus Entry and Exit Type/Mode as well as Country Dummies.  
 (e) Predictors: (Constant), above, plus Industry Homogeneity, Exit Homogeneity, Investment Homogeneity, Country Homogeneity.  
 (f) Predictors: (Constant), above, plus Same Industry Number, Same Country Number, Previous Deals Number, Same Size Number  
 (g) Predictors: (Constant), above, plus Novelty Country (Percentage), Novelty Size, Novelty Exit Mode (Percentage), Novelty Industry (Percentage)

**Table 57: Linear Regression Model on Buyout Firm Deal Experience Variables**

### 5.3.3. Summary of Findings

The analysis has shown that several variables relating to acquisition experience of buyout firms has statistically proven to impact buyout performance. First, in the regression context the number of previous deals undertaken by buyout firms has a positive influence on IRR. The findings generally support the hypothesis that learning (curve) processes on the General Partner firm level constitutes an important factor in the value creation process in leveraged buyouts. In simpler terms, it indirectly supports the fact that buyout funds that have been in the business for longer are also the more successful ones. Likewise, the finding that transactions in the same deal size category are adversely affecting returns is in support of the fact that successful buyout funds are over time constantly increase their fund and deal sizes. From this perspective are frequently voiced concerns in the Private Equity industry regarding exacerbating growth in fund sizes to be rejected.<sup>178</sup>

The other key finding from the analysis is that an investment focus strategy by buyout funds on a narrow range of industries can not be recommended, as this adversely affects the level of returns.

<sup>178</sup> However, there are other factors, such as lower deal flow in the large cap segment as well as more frequent use of auctions that may inhibit return growth in the future. Also, compare results in empirical chapter one.

As demonstrated in earlier results in empirical chapter one, buyout funds successfully take advantage of industry financial and entry and exit conditions. As a consequence, by limiting the investment choice to fewer industries, opportunistic investing is replaced through more gradual investment along the industry cycles, which deteriorates the average level of returns. In addition, investment criteria may be lowered for acquisition targets in a certain industry as buyout firms may become over-confident with respect to their value creation strategies. Moreover, in the bivariate correlations, investment in one geographic region was established to be favorable. In summary, these results contributed to accepting the main hypothesis of this study that there is a “GP effect” in leveraged buyouts, which positively influences buyout returns.

## 5.4. Conclusions

The second empirical chapter in this study has explored a so far nearly un-researched field in Private Equity research – the characteristics and performance of individual investment managers as well as buyout firms. The research model of this study had been designed, partially based on industry expert views, in order to reflect – besides the crucial investment track record – also the buyout firm team as one of the main drivers of value creation. The results in this chapter validate the model’s design: among the investment manager professionals, several key characteristics were established that led to higher performance. Education with respect to level, type and number of degrees as well as the institution, at which the degrees were gained, demonstrated to be significant factors. Professional experience had an even higher impact in the regression tested model, in specific with very positive influence of investment managers who had worked at another Private Equity fund beforehand or, more unexpectedly, were active as corporate managers at some stage before joining the team. Other prior experience, especially accounting, but also banking and consulting surprisingly proved to have adverse return effects on average. Besides the investment manager characteristics, it was found that also the firm’s structure and team composition plays a crucial role. The distribution of returns suggested that there may be an optimal team size, as larger teams performed weaker. Within the teams, junior professionals did not contribute positively to team performance and overstaffed teams were also disadvantageous. Instead, small, non-hierarchical and effective teams with a (younger) investment management partner demonstrated to be the optimal structure. There were clear indications that older buyout professionals after a certain age, tenure and/or years of experience, have an adverse effect on performance. This finding led to the conclusion that the intrinsic and extrinsic motivation of younger buyout professionals is higher. In general, team diversity with respect to education, professional experience, and years of outside Private Equity experience appears to be directionally leading to higher buyout returns. However, significance levels could not support the diversity argument to the desired extent.

In addition to the investment manager and firm characteristics, the second major test in this chapter examined the question whether a positive learning effect exists in buyout firms from their deal-making activity. The findings spoke in favor of the learning curve theory, i.e. a larger amount of

deals as well as an increasing (non-homogenous) deal size contributes positively to performance. This has been interpreted as being consistent with the reality of buyout fundraising activity, as successful funds tend to be in the industry for a longer period, and have been able to continuously increase capital commitments, which eventually led to increased deal sizes. The second key conclusion from the General Partners' investment track record was that their investment focus should not be narrowed to a low number of industries, as this limits the buyout managers in their ability to act opportunistically according to most favorable, relative industry conditions. The existence of sector-focused funds would therefore not be supported or encouraged through this analysis.

This empirical chapter has commenced the analysis of the "GP effect" in leveraged buyouts. Having so far established the "characteristics" and "experience" components of buyout firms and their managers, the final analysis in this study will now scrutinize the "strategic" component of the GP effect on a more micro perspective at the buyout target company level. Consequently, the third and final empirical chapter will focus both on the operational characteristics of acquired target companies and will further explore the various strategic levers with respect to value creation taken by buyout firms.

# 6. Empirical Part III – Buyout Strategies

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## 6.1. Introduction

In the first chapter of empirical results, it was established that leveraged buyouts as part of the Private Equity investment asset class do create superior value when compared to public markets. This finding was achieved based on (i) the control population dataset from Venture Economics, which included fund return data, as well as (ii) the Limited Partners' primary dataset of individual buyout transactions. The analysis further highlighted under which exogenous (i.e. market and acquisition related) conditions buyout transactions were more likely to be successful. Moreover, an analysis of the key financial accounting patterns – both on the target company level and with respect to its underlying industry financial dynamics at the time of deal entry and exit – had revealed where the value creation in buyout transactions stems from. From both the Venture Economics fund return analysis as well as the deal level findings, it became evident that the variance of success between individual deals, funds and the various General Partners was considerable.

In the second chapter of empirical results, it was established that value creation potential in leveraged buyouts is not only financially driven, but also depends to a large extent on the buyout firm and its team of investment managers that are undertaking the transaction. Consequently, the chapter had shed light on the non-financial, human factor “Buyout firm and its Investment Professionals” in more detail. This factor proved to be an equally important driver in the buyout value creation process as the performance results of General Partners differ considerably. Clear links were established between buyout performance and certain (i) characteristics and profile of buyout firm investment team professionals, (ii) characteristics and profile of buyout firms as an organization and its team structure. In essence, investment managers' education, professional and age/deal experience profile, their position as well as the firm's organizational structure in general influences buyout success. Moreover, the existence of an experience-based learning effect of buyout firms in executing transactions was tested successfully. This led to initial conclusions with respect to the question whether a focused investment strategy followed by the buyout firm regarding type of deal leads to superior value creation.

However, the findings on the “GP effect” in the value creation process gained from the second empirical chapter are only the first step: the GP effect must also be analyzed with respect to particular strategic actions taken by the investment managers and their firm during buyout transactions. In other words, the buyout target's characteristics, the buyout firm's distinctive strategies taken at the time of entry and exit of the acquisition as well as over the holding period will eventually determine value generation accomplishments in each deal. The third empirical chapter will therefore analyze these strategic decisions in more depth. The goal is to gain further

insight towards answering the question of which buyout investment focus/strategies are the most successful.

### 6.1.1. Test Setting

Similar to the investment manager and GP firm characteristics analyzed in the second empirical chapter, the quantity of possible strategic and managerial decisions and hence universe of value drivers and testable variables is almost infinite. This study has identified and focuses on three key areas that may influence value creation:

- Target Company Characteristics
- Deal Decisions and Characteristics
- Acquisition Process and Strategic Events

This chapter therefore represents the closest, micro-level perspective to an examination of drivers of value creation in this study. For the above outlined areas of analysis in this chapter, there will in the following be a description of tested variables and brief discussion of “variable hypotheses” with respect to the variable’s potential impact on buyout performance, followed by detailed statistical regression analysis as well as summary interpretation of results.

#### 6.1.1.1. Tested Variables and Hypotheses

The below discussed constructs on the one side represent some of the key due diligence areas, which Private Equity fund of funds industry experts consider as relevant when analyzing the value contribution of General Partners. In addition, several variables have exclusively been developed based on the literature review on value creation in section 2.5. of this study and will be discussed within this context. The amount of information provided by the General Partners about their transactions is highly heterogeneous and remains generally sparse. The presentation of buyouts in private purchase memoranda mainly serves marketing purposes and must therefore be considered as biased at least to a certain degree. Additional due diligence of these transactions performed by Limited Partners, especially highlighting some of the negative deal attributes, added significant value to this analysis.

In the following, several exploratory hypotheses for the above outlined variable groups are presented, based on (i) analysis of Private Purchase Memoranda and due diligence materials of the Limited Partners, (ii) literature findings, and (iii) additional industry expert interviews. The variables developed for this analysis were designed with the goal to measure (to the extent possible) which target company characteristics, deal decisions and post-acquisition management processes contribute to value creation. The following figure summarizes the constructs analyzed in this chapter.



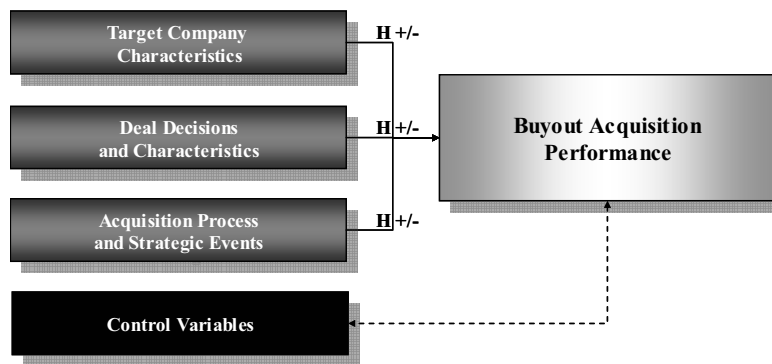


Figure 117: Strategic Drivers of Value Creation

#### 6.1.1.1.1. Target Company Characteristics

In the first empirical chapter, buyout targets were classified according to their respective industries, which offered initial insights about key targeted industries by buyout firms. Nevertheless, no further insights about the specific company characteristics with respect to business strategy, market position, etc. have been analyzed so far. However, it can be expected that buyout firms in their evaluation of target companies pay particular attention to company specific characteristics in support of their investment decisions. The following variables have therefore been developed in order to examine key business characteristics from an investor perspective.

*How international should a successful buyout target company be operating?* From a buyout investor perspective, the more global the operations of a target company are, (i) the higher could be the potential for organic growth through greater penetration of (new) foreign markets with the company's products and services, however, (ii) the greater also the volatility/risk through increased exposure to fundamentally different market cycles/dynamics, accompanied by a higher degree of complexity required for due diligence, monitoring, control and strategic direction in certain countries. It can therefore be expected that

*H50.) Gross buyout deal performance is higher for target companies, which are operating on a global basis due to their ability to penetrate more markets with their products and services, thus reducing their dependency on a single domestic market.*

*Which type of goods do successful buyout targets sell?* Although the answer to this question is to a large extent dependent on the respective industry the company is operating in, the "LBO strategy deal data sub-sample" in this chapter should demonstrate similar trends as observed both among the control population dataset (compare section 4.2.2.6.), as well as the Limited Partners' dataset (compare section 4.3.4.). These sections had shown a general trend by which the service sector performed best, followed by the consumer and industrial sectors. It is therefore expected that

*H51.) Gross buyout deal performance is higher for target companies, which are operating in the service sector than for companies in the consumer and industrial product sectors.*

*Do companies operating in stable industries guarantee buyout success?* The industry cycle dynamics of buyout targets is one of the most scrutinized factors in due diligence by buyout investors and their financing parties. Highly cyclical industries are frequently avoided as highly leveraged companies face a substantial risk of default when exposed to cyclical downturns. During the recession of the late eighties and early nineties, a range of corporate defaults were triggered due to inadequate capital structures, i.e. an imbalance between assumed risk exposure and ability to withstand sudden cyclical decline in business, stock market and industry performance. On the contrary, as seen from the results in section 4.4., clever acquisition timing by buyout managers at the beginning of a cyclical recovery imparts above average returns. It can therefore be expected that

*H52.) Gross buyout deal performance is higher for target companies, whose business environment is more cyclical, as – according to efficient market theory – a higher compensation for risk is required to compensate investors, and buyout firms may be able to take better advantage of cyclical upturns.*

*Does higher market share necessarily lead to better performance?* Porter (1985) has demonstrated that there are several business strategy options in order to secure a competitive advantage in an industry: (i) a high growth strategy to gain economies of scale allows companies to move into the cost leadership position, taking significant market share, (ii) a diversification strategy that relies on high quality, customer-tailored products and services, or (iii) a niche strategy, by which a company's business strategy is aimed at achieving a unique position in a segment, almost free from competition. A non-defined and not well-pursued strategy approach may lead to a "stuck in the middle" position. However, buyout firms frequently refer to their desire to acquire "industry leaders" as these targets are perceived to enjoy highly defensive and stable characteristics. It is therefore expected that

*H53.) Gross buyout deal performance is higher for target companies, which have gained a higher market share in their respective industry/markets.*

*Which generic business strategy leads to the highest buyout returns?* Based on the above market share hypothesis, it could follow that the relationship between market share and return may also be dependent on business strategy. However, according to Porter, no generic business strategy can be considered superior to another despite the fact that niche strategy target companies tend to have small market shares, while diversifying and especially low cost producing companies aim for higher market shares and/or industry leadership. As *ceteris paribus* no strategic option should be superior, it is therefore expected that

*H54.) Gross buyout deal performance is not significantly higher for target companies, independent of their chosen generic business strategy.*

*How fragmented and competitive should an industry of a potential buyout target be in order to generate superior returns?* The target company's industry structure and its overall competitiveness, e.g. determined by the number of industry players and entry barriers, could be important indicators

of buyout returns. As traditional micro-economics theory would suggest, a non-concentrated market structure with intense competition is less likely to attain return levels found in monopolistic or oligopolistic market structures. It is therefore expected that

*H55.) Gross buyout deal performance is higher for target companies, whose industry structure is characterized as non-concentrated, i.e. with a lower number of active industry players.*

*How broad should a buyout target's product range be to support high returns?* In general, it could be assumed that a broader product range would attract a larger customer base and therefore easily lead to higher potential revenues. However, larger product ranges also inherit elevated cost bases for research and development, marketing and sales and production, as only lower economies of scale can be realized across the numerous variants. On the other hand, although the production and marketing cost structure position of firms with single/small and similar product assortments is favourable, it may be more vulnerable to fluctuations in customer demand and preference. Pioneering work by Chandler (1962) and Ansoff (1965) established the motivations for corporate diversification and the general nature of the diversified firm. Rumelt first investigated the relationships among diversification strategy, organizational structure, and economic performance, highlighting differences in performance according to the degree of “relatedness” (of products, markets, etc.) (Rumelt 1974; Rumelt 1977). Nathanson and Cassano (1982) were among the first to find that increasing product diversity was negatively correlated with performance, which contributed to initiate the subsequent discussion during the late 1980s and early 1990s on firm's core competencies. It can therefore be expected that

*H56.) Gross buyout deal performance is higher for target companies, whose product and service portfolio is limited and focused, as the benefits of product diversification do not outweigh the associated diversification costs.*

*How diversified should a buyout target's customer base be from a return perspective?* The size of a company's customer base is commonly reliant on the firm's product portfolio and chosen generic business strategy. According to Porter (1985), strong bargaining power from customers can adversely affect an industry's attractiveness; and therefore the buyout target's ability to generate attractive returns. Consequently, the larger and broader a company's customer base, the better its ability to break into numerous markets with its products and services, and hence, the lower the expected bargaining power of individual customers. However, sales, marketing and distribution costs would ceteris paribus be higher. Also, single or few customers could guarantee a more in-depth relationship between both parties, with a healthy level of inter-dependencies. In line with Porter (1985), it is expected for the strategy buyout sample that

*H57.) Gross buyout deal performance is higher for target companies, whose customer base is broad, as the bargaining power and dependency on individual customers is moderate.*

*Does a multiple distribution channel approach pay off for buyout targets?* The majority of industries are defined through their unique distribution systems, which may involve wholesale intermediaries, retailers, external or direct sales forces. In many industries, new distribution channels such as business-to-consumer and business-to-business internet-enabled sales channels as well as direct marketing activities, such as call centres, have gained importance to reach new customer groups. It is therefore expected that

*H58.) Gross buyout deal performance is higher for target companies, who use multiple distribution channels in order to reach a maximum amount of customers.*

*Which prior organizational structure increases the value creation potential post acquisition?* There are arguments that both organizational structures, standalone businesses and businesses out of larger entities, could be beneficial. Buyout targets that were standalone businesses often represent “less complicated” acquisition targets with respect to degree of organizational change: since the business has been operating as a standalone business, it is ensured that a minimum of functional organizational structure is in place at the time of acquisition. On the contrary, buyout targets that were part of a larger entity, i.e. dependent on a larger corporate parent company, are more likely to face far-reaching organizational change post buyout: several critical corporate functions such as IT, human resources, finance/banking relationships, financial reporting and controlling, etc. may have to be improved or newly implemented post acquisition by the new shareholders and their management team. Nevertheless, despite these organizational hurdles, corporate spin-offs offer significant potential for value creation. The new organizational structure at the buyout target with more direct and open interaction between owners and governance presents managers of post-buyout companies with an atmosphere, which is less constrained with corporate bureaucracy and centralism (Lowenstein 1985; Jensen 1989a; Hoskisson and Turk 1990; Taylor 1992; Butler 2001; Wright 2001)<sup>179</sup>. “Buyouts provide the imagery as a creative way to reintroduce an entrepreneurial drive in the publicly held firm” (Singh 1990), as managements feels and acts as entrepreneurs under the new organization, relieved from constraints of a corporate headquarters and thus encouraged to make independent decisions (Bull 1989; Jensen 1989a; Houlden 1990; Kester and Luehrman 1995; Weir 1996). It is therefore expected that

*H59.) Gross buyout deal performance is higher for target companies, which had been part of a larger entity, as the value creation potential and introduction of an entrepreneurial spirit should outweigh extra organizational improvement efforts.*

*Which prior corporate governance structure supports a higher potential for value creation in leveraged buyout transactions?* Buyout firms are active investors that bring about radical change in their acquired target companies. Jensen (1989a) describes an “active investor” as a person or party who “monitors management, sits on boards, is sometimes involved in dismissing management, is

<sup>179</sup> Wright et al. (2001) highlighted that managers of pre-buyout organizations felt discouraged if their business division frequently provided profitable and innovative investment opportunities, which were in turn given low attention and the management was provided with limited discretion, because their division was not regarded of central importance to the parent organization (see also Weir 1996, Beaver 2001).

often intimately involved in the strategic direction of the company and on occasion even manages”. The greater concentration of equity in the hands of active investors therefore encourages closer monitoring and leads to a more active representation in the board of directors compared to pre-buyout governance structures (Lowenstein 1985; Jensen 1989a; Jensen 1989b; Smith 1990a). The monitoring of management and the increased involvement by members of the board offers the opportunity to obtain direct access to confidential company information. Essentially, portfolio companies’ management is generally being evaluated on a regular basis (Palepu 1990; Anders 1992; Cotter and Peck 2001). Therefore, it could be argued that the more radical the change in corporate governance at a buyout target is with respect to monitoring and control, the larger should also be the potential for value creation through interest alignment according to agency theory. It can therefore be expected that

*H60.) Gross buyout deal performance is higher for target companies, which had a lower degree of monitoring and shareholder activism prior to the buyout.*

*To what extent does the prior ownership structure of a buyout target determine the transaction’s value creation potential under new buyout firm ownership?* The problem of ownership concentration and management control was first discussed by Berle and Means in their image of ownership in a modern corporation (Berle and Means 1932). It was further developed for the field of corporate finance by Jensen and Meckling (1976) and Grossman and Hart (1982) by showing that the intrinsic problem of separation of ownership and control may also have far-reaching corporate performance implications. More recently, La Porta, Lopez-de-Silanes et al. (1998) find in their study on ownership concentration across 27 of the wealthiest countries that ownership concentration is widespread, i.e. that corporations are not generally widely held, and that this ownership concentration must be seen as a risk for exploitation of minority shareholders. Previously more widely held targets should thus demonstrate on average better performance than targets with insufficient separation of management and control. It can therefore be expected that

*H61.) Gross buyout deal performance is higher for target companies, which had a more widely held ownership structure before acquisition, as the closer supervision of management may have instilled more effective shareholder values.*

#### *6.1.1.1.2. Deal Decisions and Characteristics*

Following the buyout firms’ evaluation of target companies according to company-specific characteristics (as outlined above) and a general verdict to pursue the acquisition, each deal involves distinctive strategic decisions and rationales both from the buyer, but also (implicitly) by the seller. The following variables have therefore been developed in order to examine some of these motivations both from an investor and prior owner perspective in more detail.

*What is the appropriate portfolio company management incentive strategy in order to maximize returns for the buyout firm?* According to Cotter and Peck (2001), buyout transactions “provide a “carrot” and a “stick” mechanism to ameliorate agency costs”. Buyout associations conduct changes in the ownership and governance structure to provide incentives (the “carrot”) in order to

align the interests of all parties involved and to reduce agency costs after the buyout (Bull 1989; Jensen 1989b; Lichtenberg and Siegel 1990). Managers are encouraged (if not forced) to increase their share in equity ownership in the company to a significant level (Muscarella and Vetsuypens 1990).<sup>180</sup> It is expected that this increase in the equity stake of the management directly increases the personal costs of inefficiency (Smith 1990b) and reduces their incentive to shirk (Jensen and Meckling 1976; DeAngelo, DeAngelo et al. 1984; Smith 1990a; Weir and Laing 1998). Furthermore, the change in status, from manager to co-owner could increase financial performance because it gives managers a positive incentive to look for efficiency gains and smart strategic moves (Phan and Hill 1995; Weir and Laing 1998).

On the contrary, increased managerial ownership in equity can result in a decrease in financial performance due to managerial risk aversion and the potential under-diversification of the managers' wealth (Fama and Jensen 1985; Morck and Shleifer 1988; Holthausen and Larcker 1996). Furthermore, Demsetz (1983) and Fama and Jensen (1983a) argue that if managerial equity ownership is concentrated, the manager may have effective control over the organization and disciplining mechanisms such as the market for corporate control and managerial labour markets may be rendered ineffective, which could result in a decline in performance as well (Holthausen and Larcker 1996). However, it is questionable whether this so-called entrenchment hypothesis also holds for management in buyout companies, as it remains doubtful whether the buyout firm's dominant influence over the target and its focus on financial performance can be undermined by management's entrenchment. It is therefore expected that

*H62.) Gross buyout deal performance is higher for target companies, at which buyout firms have implemented significant changes in the ownership and governance structure, specifically through a substantial usage of management co-ownership.*

*As a consequence, how much equity should a General Partner offer to its buyout target's management, if deciding to offer equity participation?* There are several studies on ownership and performance of both board members and management. Morck, Shleifer et al. (1988) evaluated the relationship between board ownership and market valuation (proxied by Tobin's Q) in a sample of 371 Fortune 500 firms. They found that Tobin's Q rises as board ownership increases from 0 to 5%, falls as ownership rises further to 25%, and then continues to rise, although much more slowly, as board ownership rises beyond 25%. One interpretation of these results is that in general the alignment of interests between the management and shareholders via board ownership is positively appreciated by the capital markets. However, between 5 to 25 % board ownership the positive effects emanating from the convergence of interest hypothesis is offset by incremental negative entrenchment effects (Morck, Shleifer et al. 1988; Dahmen 2001). Chang and Mayers (1992) could overall confirm these empirical findings when analyzing the effects on shareholders' wealth

<sup>180</sup> Managers are commonly offered a substantial stake in the equity of the company at favourable conditions ("sweet equity"). As a consequence, due to the high amount of the total investment compared to their personal net worth, managers usually have to take big financial risks to participate in the buyout ("pain equity") (Kitching 1989, Wright et al. 1992a, Beaver 2001, Samdani et al. 2001).

through an increase in managerial voting rights. The results suggest that shareholders reap the largest incremental benefits when managers and directors initially control between 10% and 20% of the outstanding votes. The benefits appear to be smaller when initial control is less than 10% or more than 20%. When managers or directors control 40% or more of the outstanding share, a negative market reaction to the announcement of executive stock ownership programs could be registered (Chang and Mayers 1992). It could, again, be argued that beyond 40 % of managerial control the entrenchment costs outweigh the benefits of a stronger alignment of interests between shareholders and management (Dahmen 2001). It is therefore expected that

*H63.) Gross buyout deal performance is higher for target companies, whose management receives approximately between 10% and 20% of initial total equity in the transaction.*

*Is there evidence that managers exploit their information asymmetry advantage in buyouts?* Leveraged Buyouts have been widely accused to simply exploit insider information to create value in the transaction (DeAngelo, DeAngelo et al. 1984; Lowenstein 1985; Wright and Coyne 1985; DeAngelo 1986; Lehn and Poulsen 1989; Opler 1992; Wright, Robbie et al. 1998). In the eyes of critics, value is created merely through the exploitation of private information that induces a market correction in the value of the assets involved (Singh 1990). However, there are various arguments to support the fact that information asymmetries cannot be a major source of value creation in buyouts, but rather contribute to managers' motivation to initiate a buyout (Lee 1992). Kaplan (1989b) in his early landmark study on management buyouts found that the majority of transactions are not completed by the existing management team.<sup>181</sup> It is therefore expected that

*H64.) Gross buyout deal performance is not significantly higher for target companies, independent of whether the transaction represents a MBI or MBO, with the latter case accusingly representing an opportunity to exploit asymmetric information.*

*Does proactive deal sourcing lead to higher returns?* A similar analysis in the first empirical chapter (section 4.3.9.1.) on entry types had revealed that negotiated sales, i.e. exclusively negotiated transactions, performed best followed by deals offered through buy-side intermediaries. Deals entered by auction performed worst on average. The analysis in this section separates the variable "negotiated sales" further into three categories: (i) proactive deals, in which buyout fund managers opportunistically approach acquisition targets on their own behalf, (ii) deals sourced through the GP management network, i.e. through their existing network established through board representations, management contacts, industry associations, portfolio company management, etc., (iii) deals sourced through the GP parent's network, which applies to those buyout funds that are part of larger (financial) institutions and receive acquisition ideas internally.<sup>182</sup> Based on these

<sup>181</sup> See section 2.3.5.1. for a detailed discussion.

<sup>182</sup> Most of the world's major financial institutions maintained merchant banking arms. A range of these banks, including Deutsche Bank and UBS, have recently (after shareholder and analyst pressure) disposed of their Private Equity portfolios due to the burdensome impact on earnings from asset write-downs during the cyclical downturn that commenced in 2000. Some of the largest financial institutions and investment

circumstances, LBO firm professionals could therefore have more direct and timely access to critical information through their network and are able to interpret it faster than the average market participant, hence enabling them to make quick decisions regarding acquisitions (Fox and Marcus 1992). Therefore, attractive target companies can be identified and approached before other potential bidders are alerted about this specific acquisition opportunity (Wright and Robbie 1996). The alternative category includes all transactions generated through buy-side intermediaries, such as business brokers and investment banks, which frequently “shop” their ideas with several buyout firms. It is therefore expected that

*H65.) Gross buyout deal performance is higher for target companies, which have been acquired as a result of a negotiated sales process, i.e. through proactive approaches or by leveraging existing relationships maintained by the general partner or its management team.*

*Who are the sellers of more profitable buyout transactions?* The implication of this question is twofold. First, a certain category of sellers may actually be the source of superior assets, which offer the largest potential for the acquiring buyout fund to create value. Secondly, a certain category of seller may sell their companies on average at more attractive prices, which allows the buyout fund to capture significant value already at the outset of the deal. Considering the latter point, LBO firms have proven to have developed excellent deal negotiation skills. A study shows that financial buyers consistently paid less for their acquisitions than did trade buyers during the 1990s (Butler 2001). As a consequence, it can be assumed that the less experienced and sophisticated the buyout firm’s counterparty is in negotiations, the higher the potential value creation benefit from the negotiation phase. Especially when the real asset value is difficult to determine, e.g. in conglomerate spin-offs, favourable prices may be achievable. It is therefore expected that

*H66.) Gross buyout deal performance is higher for target companies, which have been acquired from less sophisticated, non-financial institutions, as these may lack a comparable level of negotiation skills or educated view on disposable asset values.*

*Do additional investors add to or inhibit value creation in buyout transactions?* Buyout investors frequently team up when pursuing investment opportunities. This behaviour can be the result of the fact that (i) the predicted total transaction size is too large for a single buyout fund, as equity commitments in any specific investment are limited by the fund’s terms and conditions for the purpose of diversification of risk, (ii) a team of buyout funds sees a higher chance of success to win the targeted asset (e.g. in competitive auctions) by teaming up, (iii) a combination of financial and/or industry specific expertise is required for particularly complex industries.<sup>183</sup> The involvement of strategic co-investors may also offer a clear exit strategy. The results in section

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banks that continue to operate Private Equity investment arms include J.P. Morgan Chase, Credit Suisse First Boston, Goldman Sachs, Morgan Stanley and Merrill Lynch.



4.3.5. regarding buyout performance according to acquired ownership percentage had shown that minority (and majority control) investments performed very well, leading to an overall convex relationship. However, the advantages through an amalgamation of expertise and financial power may also be reduced to some extent through additional communication needs and consensus-building among General Partners. In other words, quick decision-making could be hampered if there are numerous co-investing parties involved in a transaction. Nevertheless, it is expected that

*H67.) Gross buyout deal performance is higher for target companies, which benefit from a single or limited number of co-investors, due to an amalgamation of expertise and superior combined financial power.*

*Is it beneficial for the buyout target when the previous owner stays involved in the business?* On the one side, the previous owner's involvement could guarantee a certain degree of continuity for the business; the valuable tacit knowledge bound to individual owner-manager(s) or director(s) would not be lost immediately (Barney 1986). Moreover, if the previous owner was a corporation, an existent indispensable business relationship on the supply or demand side as well as other organizational corporate inter-dependencies could be worth strengthening going forward. On the other side, the continued involvement of previous owners, especially in management, could restrain the required level of organizational change, strategic redirection and effectiveness of value creation measures. As a consequence, a continued involvement by the seller through equity participation could be more constructive than an active operational/managerial influence. It is therefore expected that

*H68.) Gross buyout deal performance is higher for target companies, which do not retain a significant involvement of prior owners as managers, as the value creation implementation process may be inhibited by resistance for radical corporate change.*

*What is the seller's rationale for disposing from a business, and which implications does this have on acquisition performance?* The reasons why shareholders may decide to dispose of a company could be plentiful, including strategic redirection of the business, financial problems, succession issues and regulatory requirements. The overriding question is why should a seller dispose of a good business (unless for a good price)? It could be argued that the higher the internal or external pressure for the seller to dispose of a business (quickly), the less favourable the realized price, and in turn, the larger the upside potential for the acquiring buyout firm. It could therefore be expected that

*H69.) Gross buyout deal performance is higher for target companies, which have been acquired by the buyout firm while the seller was under divestment pressure.*

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<sup>183</sup> It can frequently be observed that large buyout funds team up with smaller specialized funds in highly knowledge-intensive transactions, e.g. in the telecommunication, technology and media sector. These smaller co-investing funds would generally seek holding a minority stake (up to 25% of equity).

*How do buyout funds evaluate a transaction opportunity and which target characteristics ensure strong returns on investment?* There exists a range of factors that can support an investment decision. First, according to the hypothesis of the “market for corporate control” (Manne 1965; Jensen and Ruback 1983), different management teams compete for the control over companies. Based on agency theoretical considerations, this view sees corporate takeovers primarily as a mean to exchange inefficient management teams and to improve the company’s performance by putting in control a more efficient management team. Secondly, with respect to cost-cutting potential, a substantial literature has developed that shows that buyout transactions have a positive effect on the operational performance of target companies (Baker and Wruck 1989; Bull 1989; Jensen 1989a; Kaplan 1989b; Lichtenberg and Siegel 1990; Muscarella and Vetsuypens 1990; Singh 1990; Smith 1990a; Long and Ravenscraft 1993c; Ofek 1994; Smart and Waldfogel 1994; Phan and Hill 1995; Holthausen and Larcker 1996; Weir and Laing 1998). Thirdly, constant improvements in operational effectiveness to achieve superior profitability is necessary, but usually not sufficient (Porter 1996). Hence, LBO firms not only rely on operational improvements to increase value in buyout investments, but also aggressively seek to boost revenues. Fourthly, (Butler 2001) found that financial buyers consistently paid less for their acquisitions than did trade buyers during the 1990s. One explanation is that LBO firms have developed excellent deal negotiation skills. They are tough negotiators and tend to negotiate downward from a price that had earlier been accepted in principle during the due-diligence phase: once they find themselves the sole bidder, they are skilled at discovering problems (for instance off-balance sheet liabilities, such as environmental liabilities, outdated equipment that requires higher capital investment, etc.) in the seller’s business offer (Butler 2001). Finally, in section 4.4.5., it was demonstrated that buyout firms are also successful anti-cyclical investors, taking advantage of business cycles in target industries. It can therefore be expected that

*H70.) Gross buyout deal performance is higher for target companies, for which buyout firms have been able to identify management or operational inefficiencies, lucid growth strategies or benefits from favorable external market conditions at the time of the acquisition.*

#### *6.1.1.1.3. Acquisition Process and Strategic Events*

It has so far been discussed how the target company’s business characteristics, the relationship between General Partners and its portfolio company management (based on incentive, ownership or management structure) as well as decisions around the planning and execution of the leveraged buyout transaction may influence acquisition performance. However, the final set of defined variables captures actual value creation strategies implemented by the buyout fund post acquisition, which are fundamentally determining the extent to which the business can be improved. This section discusses which key strategic decisions may lead to superior performance.

*What are the core strategic and organizational decisions in a buyout transaction and what influence do they have on performance?* Firstly, the LBO firm plays an important role in re-establishing or reinforcing the strategic focus of the buyout target. LBO firms work with buyout

managers to make decisions that increase the strategic distinctiveness and eventually improve the competitive positioning of the company. They put emphasis on restoring strategic focus and on an overall reduction of complexity (Seth and Easterwood 1993; Phan and Hill 1995). Decisions are made with respect to markets to operate in and products to compete with, conducting changes in pricing, product quality, customer mix and customer service as well as on the reorganization of distribution channels if required (Muscarella and Vetsuypens 1990). Secondly, in section 6.3.1.8., it is established that the motivation to purchase a company due to observed inefficiencies caused by the existing management team had produced high returns on investment. If the hypothesis of the market for corporate control (Manne 1965; Jensen and Ruback 1983) holds, it should in this analysis be observed that turnover of inefficient management leads to superior returns in buyouts. The abolition of existing stark management inefficiencies and a sweeping strategic redirection may therefore offer a far larger degree of value creation potential than incremental improvements, e.g. to the company's marketing strategy. It is therefore expected that

*H71.) Gross buyout deal performance is higher for target companies, in which senior management is exchanged and aggressive strategic change is implemented.*

*What type of actual strategy implementation leads to superior results in buyouts?* Firstly, as an important feature to reduce agency costs and to generate value, buyout firms make considerable use of top management incentive plans and co-ownership in order to align management's interest. Equity holdings of top managers increase the cost of shirking and consuming perquisites for them (Smith 1990a). Leveraged buyouts specifically, with their limited life and foreseeable liquidation of the investment, create a situation in which equity holdings of top managers are better suited to align interests between managers and shareholders and thus to enforce shareholder-wealth-maximizing behavior than otherwise possible (Baker and Montgomery 1994). The introduction of new incentive systems is therefore expected to be among the most important strategic implementations when measured with a view on buyout returns. Secondly, as discussed above, the introduction of new marketing and pricing strategies, as well as improvements in R&D, IT and reporting systems, may offer considerable scope to improve the acquired business. In line with variable hypothesis H71 regarding an assumed supremacy of radical abolition of management inefficiencies, it is therefore also expected that

*H72.) Gross buyout deal performance is relatively higher for target companies, in which buyout firms implement an effective incentive plan through equity participation and co-ownership.*

*Which acquisition and disposal activities of target assets and resources represent value enhancing strategies?* Among the principal ways to increase cash flow generation in leveraged buyouts is to make more efficient use from corporate assets (Bull 1989). Following the buyout, management swiftly starts to tighten the control on corporate spending (Anders 1992; Holthausen and Larcker 1996). Kaplan (1989b) and Smith (1990b) report significant increases in operating cash flows. On the one hand, capital productivity is improved through adjustments in the management of working capital, i.e. via an acceleration of the collection of receivables, a reduction in the inventory holding

period and in some instances through an extension of the payment period to suppliers (Baker and Wruck 1989; Muscarella and Vetsuypens 1990; Singh 1990; Smith 1990b; Long and Ravenscraft 1993a; Kester and Luehrman 1995; Samdani, Butler et al. 2001). On the other hand, according to the free cash flow theory, the incentive realignment will lead managers to divest low-synergy assets and to cease spending cash on poor investment decisions (Grossman and Hart 1982; Jensen 1986; Jensen 1989a). Hence, buyout management slashes unsound investment programs and disposes of assets that are unnecessary or underutilized (Phan and Hill 1995). There are several options for asset and capacity optimization available. First, through facility consolidation programs, buyout funds are close down unprofitable operations, thereby reducing slack capacity and/or rebuilding the necessary capacity at more profitable sites. Secondly, instead of a facility consolidation program, the General Partner may opt for a relocation of facilities to low cost sites (or countries).

Thirdly, the human resource factor intensity can be substantially reduced in buyout transactions. Shleifer and Summers (1988) argue that hostile takeovers and other control transactions can transfer value to shareholders from employees by breaking implicit contracts, i.e. by firing workers and/or reducing their wages, with those employers. However, Kaplan (1989b) showed that the median change in employment after buyouts is only 0.9%, and for a sub-sample of buyouts that do not make any divestitures, employment actually increases 4.9%. Similarly, employment growth in the KKR portfolio of companies has increased from 2.3% per annum prior to the buyout to 4.2% after the buyout (KKR 1989). Fourthly, the General Partner may decide not only to close down particular facilities, but to dispose of entire parts or divisions of the buyout target, which he considers non-core (or not profitable enough). These asset disposals can also be regarded as partial exits, as they may lead to a substantial cash inflow that is either utilized to decrease leverage or could be distributed back to the buyout fund through a special dividend.<sup>184</sup>

Alternatively, instead of merely downsizing the business, buyout funds have a range of options to create value in leveraged buyouts by expanding the target's business reach. Muscarella and Vetsuypens (1990) outlined the complexity of strategic growth options and marketing drivers available to the buyout firm – including the decision regarding geographic scope of the firm, i.e. the question of which markets to compete in. Through their diverse network of portfolio companies, with global operations and in-depth knowledge and experience of business development, General Partners are able to apply best practices to acquisition targets and expand the business geographically. Furthermore, the General Partner can employ joint ventures and strategic alliances to further enhance geographical reach on the one side, and to acquire new skills and capabilities on the other.

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<sup>184</sup> During the leveraged buyout boom of the 1980s, one frequently employed strategy of financial investors was “asset stripping”, in which an undervalued target firm (often a conglomerate) was acquired and subsequently sold “in pieces”, as the acquiring investor (e.g. buyout fund) assumed that the value of the sum of the parts was higher than the combined entity (“conglomerate discount effect”). This strategy can be rarely observed anymore nowadays (partially due to the development of “Buyout management ethics”).

As another growth strategy, LBO firms may decide to undertake add-on acquisitions of either new lines of business or to expand business scope in such areas in which distinctive competences and resources are strong compared to competition (Easterwood, Seth et al. 1989; Liebeskind and Wiersema 1992; Seth and Easterwood 1993). Some buyout transactions are intended from the beginning to accomplish a “buy-and-build” strategy, in which LBO firms undertake an initial buyout investment in a fragmented and/or sub-scale market to build a nucleus (Samdani, Butler et al. 2001). Several LBO firms have focused on buy-and-build strategies, thereby leveraging their industry know-how in successive acquisitions, which may lead to a consolidation in that market segment (Seth and Easterwood 1993; Baker and Montgomery 1994; Allen 1996; Wright 2001).

Although both value creation strategies – divestment/asset disposals and resource reductions vs. investment/add-on acquisitions and expansionary activity – are in apparent contrast, it is not obvious that either strategy may be superior, e.g. based on their equal observed frequencies in the buyout industry; thus it can therefore be expected that

*H73.) Gross buyout deal performance is not significantly higher for target companies, independent of whether the buyout firm’s pursued value creation strategy is based on a “add-on/expansionary” or “disposal/cut-back” strategy and its respective accompanying measures.*

#### 6.1.1.2. Methodology and Data

The complexity of required analysis and statistical data codification of strategic decisions in leveraged buyout transactions (or any merger or acquisition) is particularly multifaceted and tedious. Each transaction in this study’s “strategy” sub-sample of 478 (274 realized and 204 unrealized) leveraged buyouts has been evaluated and screened for its specific characteristics and strategic actions undertaken by the buyout fund, according to the above outlined variables. The Limited Partners’ dataset offers information provided directly by the General Partner through Private Purchasing Memoranda, as well as – to a smaller extent – additional information gathered by the Limited Partners during fund due diligence. This data has been codified into a specific database developed for this purpose in order to supply a unanimous platform for the diverse information (see details on the strategy database in appendix 4).

It should be acknowledged that this data is highly heterogeneous, as (i) the level of available detail is largely at the discretion of the General Partner, (ii) each transaction features different characteristics perceived as important to investors. Furthermore, the focus of analysis lies on the strategic, not financial impact in this section; not all deals in the sub-sample had explicit financial information, e.g. on invested capital available, hence generally non-weighted gross IRR is used as dependent variable in this section. Only realized transactions have been considered in this section. Nevertheless, despite the relatively small sample size and over 180 defined variables with varying level of detail, these exploratory test results serve as an important first step towards a better understanding of the impact of strategic actions in buyout transactions. The average IRR of the

complete strategy sub-sample of 478 companies is 74.3%, with a (high) standard deviation of 162.8%. However, due to the ex-post evaluation of buyouts and methodological nature of this analysis, the analysis will mostly focus on realized transactions in this section, unless otherwise noted. The average IRR of the 274 realized transactions is 84.8%, with a (hence lower) standard deviation of 131.1%. All results of the individual variables must therefore be benchmarked against these overall sample statistics in order to determine over- or underperformance. As mentioned, due to a low number of data points for certain variables, the author wishes to stress the fact that in some instances the presented descriptive results are valuable, but at the same time must be interpreted as directional only and do remain subject to future, more in-depth studies on larger samples.

## 6.2. Target Company Characteristics

### 6.2.1. Test results

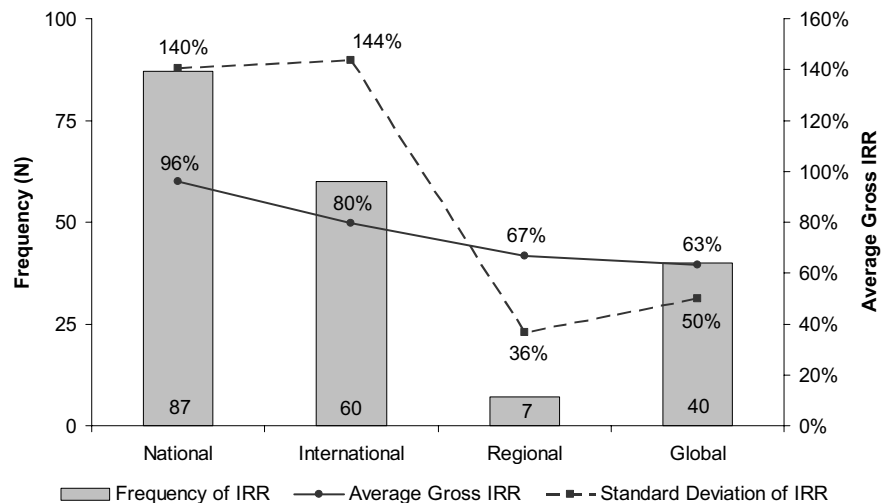
The analysis of buyout target characteristics in the first empirical section was so far limited to the company's industry and transactions size. No information with respect to the target company's products and services, markets in which it is active, its market positions – in short, its overall business strategy – has been analyzed. This first section seeks to shed some light on the relatively more attractive buyout target characteristics from a return perspective.

#### 6.2.1.1. Geographic Scope and Buyouts Performance

*How international should a successful buyout target company be operating?* The performance results according to geographic scope of the target company indicate that buyouts that aim to penetrate global markets do perform worst with 63% of average gross IRR. By contrast, companies that focus their distribution channels on a few (2 to 5) selective international countries only are the second most successful with 80% of average gross IRR. This could be interpreted in such a way that fully globally operating companies may face considerably higher costs through amplified communication needs, higher capital expenditures and sales, marketing and distribution costs, hence reducing the cash flow of the business and affecting returns. Variable hypothesis H50 therefore has to be rejected.

From a risk-return perspective, measured (indicatively) by the standard deviation of IRR, the higher diversification among globally operating companies is substantiated through lower volatility of returns with a standard deviation of 50%, compared to the much higher volatility of returns observed for internationally operating buyout targets. On the national level, regional players perform worse, with 67% of average IRR, while companies operating nationwide perform strongest among all categories, with 96% average IRR. Although there does not seem to be a clear trend between “national/regional vs. global/international”, the strong returns found for nationally focused

companies is in line with buyout funds' often stated preference for targeting national champions and/or industry leaders as buyout targets. A strong domestic position appears to ensure stability and a platform for controlled expansion into a few new (international) markets. Companies focusing on regional markets, may hold strong local positions, as exemplified by the low volatility, but may lack scale and growth prospects when compared to national players.

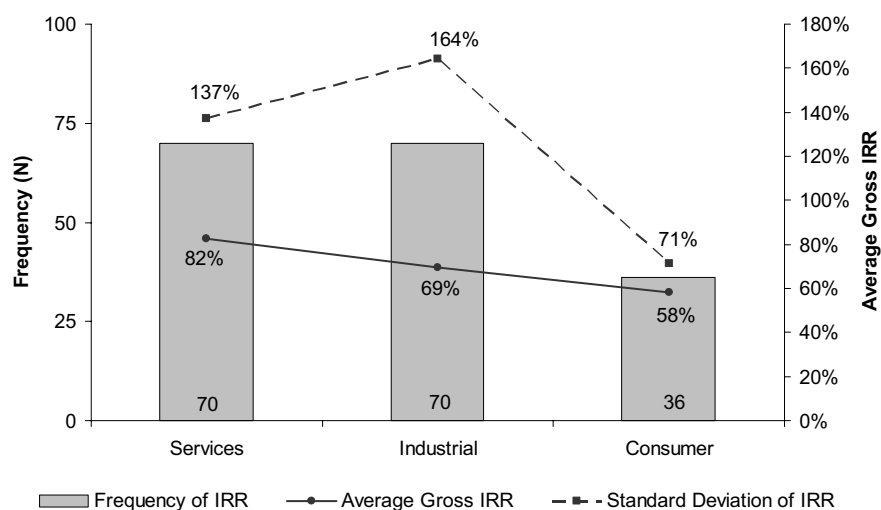


**Figure 118: Buyout Deal Performance by Level of Geographic Scope of Operations**

Source: INSEAD Buyout Strategy Database, analyzed by author (Deal N=194; mean IRR=76%).

### 6.2.1.2. Type of Goods and Buyouts Performance

*Which type of goods do successful buyout targets market?* Although the answer to this question is to a large extent dependent on the industry the company is operating in, the strategy company subsample substantiates the general trend found through the analysis of most attractive industries, which showed that non-cyclical and financial services industries performed well (compare sections 4.2.2.6. and 4.3.4.). As mentioned before, the overall strong performance of the service sector (82% average IRR) could be explained with commonly higher barriers to entry in the service industry; successful services companies may have a competitive edge that is based on proprietary knowledge and human capital, which is more difficult to imitate than e.g. more-commodity-type or consumer products.



**Figure 119: Buyout Deal Performance by Type of Goods**

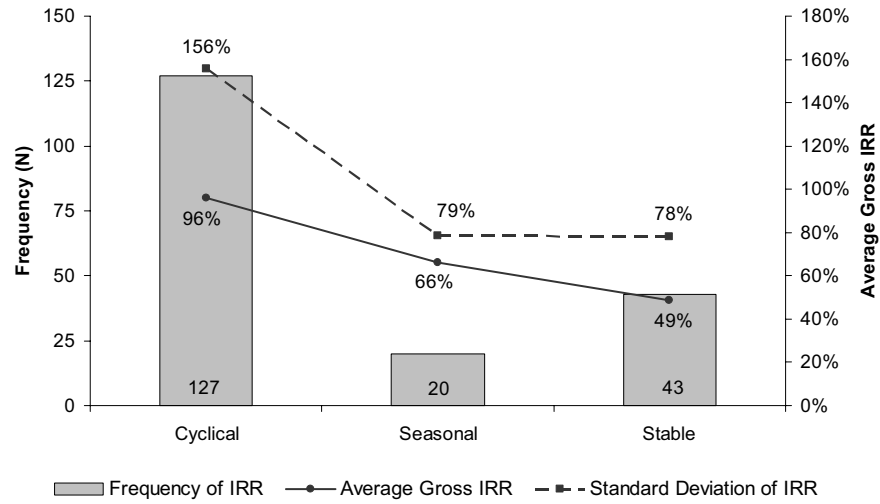
Source: INSEAD Buyout Strategy Database, analyzed by author (Deal N=176; mean IRR=70%).

### 6.2.1.3. Industry Cyclicity and Buyouts Performance

*Do companies operating in stable industries guarantee buyout success?* The findings on industry cyclicity and buyout return reflect the classic risk-return relationship. The highest return of 96% average IRR is achieved by buyout target operating in cyclical industries, yet at the cost of a high volatility of returns (standard deviation of 156%). Variable hypothesis H52 can therefore be accepted. By comparison, seasonal businesses generated an average IRR of 66%, about a third less than cyclical businesses, but with almost half of the volatility. The frequently stated main target group for most buyout firms – stable businesses – are in fact the worst performing LBO targets with an average IRR of 49% for these deals. The relative unattractiveness is further highlighted through an apparently similar risk profile when compared to seasonal targets' return volatility. The relatively lower performance could be a result from various reasons: (i) low overall growth and/or lack of organic growth opportunities, (ii) elevated acquisition prices due to “attractiveness and ease of evaluation of stable assets” to financial buyers and thus higher competition, or (iii) limited value creation potential through strategic actions post acquisition.

The services sector also proves to be attractive from a risk-return perspective in this sample, due to a lower standard deviation and higher return than the second ranked industrial sector. Variable hypothesis H51 can therefore be accepted, as the service sector again ascertains its superior return profile in this indicative sample analysis.

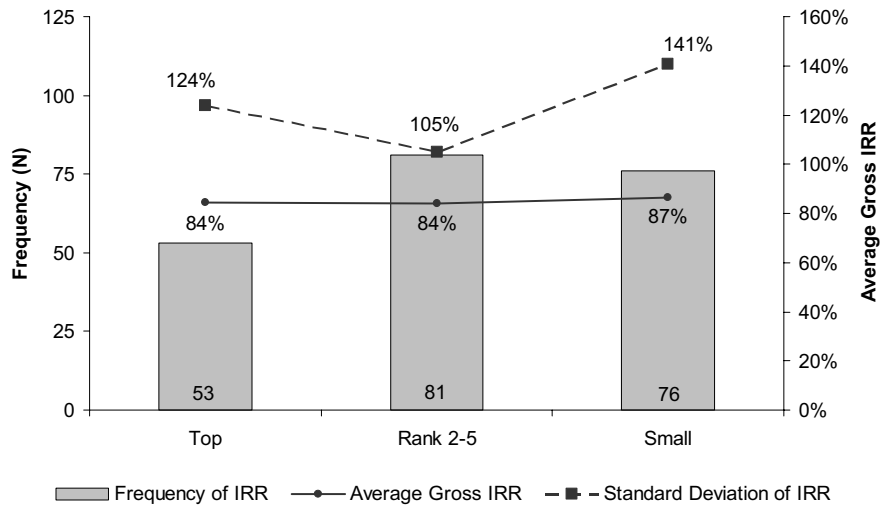




**Figure 120: Buyout Deal Performance by Cyclicity of Industry**  
 Source: INSEAD Buyout Strategy Database, analyzed by author (Deal N=190; mean IRR=70%).

6.2.1.4. Market Share and Buyouts Performance

*Does higher market share necessarily lead to better performance?* The findings on performance of leveraged buyout transactions according to their market position/share remarkably do not reveal supremacy of a certain market position category.



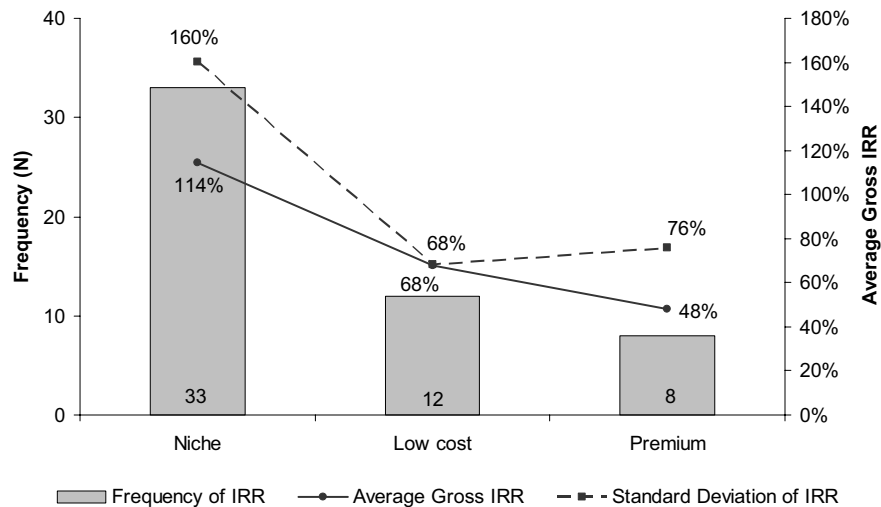
**Figure 121: Buyout Deal Performance by Market Share Position**  
 Source: INSEAD Buyout Strategy Database, analyzed by author (Deal N=210; mean IRR=85%).

Buyout targets that are considered as industry leaders achieve an average IRR of 84%, but also firms that are ranked two to five in their respective industry appear to maintain comfortable enough market positions to generate high economic rents, equally matching the 84% IRR return on those

transactions. Buyout targets with smaller market shares even perform slightly better with 87% average IRR, potentially driven by the higher increased risk associated with higher volatility in returns. Along the lines of Porter (1985), the equally strong performance of the small market share buyout targets could well be interpreted as successful niche businesses rather than companies that are “stuck in the middle”. Variable hypothesis H53 and buyout firms’ often stated preference for market leaders as buyout targets has to be rejected based on these findings.

#### 6.2.1.5. Generic Business Strategy and Buyouts Performance

*Which generic business strategy leads to highest buyout returns?* From the above market share analysis, no dominating relationship between market share and return could be discovered. However, the following analysis specifically intends to uncover buyout returns according to Porter’s generic business strategies, which overall are independent from market shares, though indirectly related: niche companies tend to have small market shares while successful diversifying or low cost producing companies aim for higher market shares and industry leadership.



**Figure 122: Buyout Deal Performance by Generic Business Strategy**

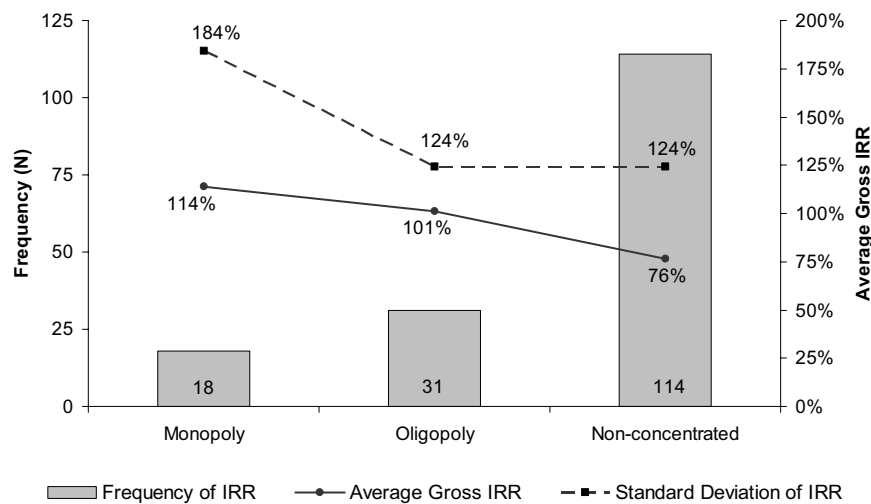
Source: INSEAD Buyout Strategy Database, analyzed by author (Deal N=53; mean IRR=77%).

The findings are surprising as they show that buyout firms following the generic “niche product” business strategy achieve the highest return of 114% average gross IRR. Returns generated by buyout targets that follow a low cost or premium strategy are lower, with 68% and 48% of average gross IRR respectively. The strong performance of niche strategy companies could be explained through one major buyout firm investment rationale: buyout firms frequently acquire a range of niche businesses in an industry roll-up consolidation in order to create a new company with critical size. While niche businesses may originally not be attractive targets for strategic investors, their subsequent potential for more meaningful size, product offering and market position may make them more appealing investment targets. A strategic sale (or flotation) could therefore specifically

generate substantial returns for the sponsor, who may have had comparatively small initial capital investment (and purchase multiples, i.e. “small firm valuation discount”) in each of the individual businesses. Another strategy could be to aggressively develop niche businesses through organic growth. By contrast, potentially more established companies, i.e. low cost or premium strategy buyout targets, are likely to command on average considerably higher acquisition multiples, hence limiting the return upside to the sponsor. However, the considerably lower volatility highlights that these targets may be lower risk investments.<sup>185</sup> As a result of the significantly higher observed returns for niche strategy companies as leveraged buyout targets, variable hypothesis H54 has to be rejected. The results are also striking when interpreted in combination with the market share analysis – according to these findings niche companies may not necessarily lack notable market shares.<sup>186</sup>

#### 6.2.1.6. Market Structure and Buyouts Performance

*How competitive/fragmented should the industry of a potential buyout target be in order to generate superior returns?* The findings are in line with microeconomic theory: buyout targets that have maintained an industry monopoly position accomplished the highest average IRR with 114% for their fund.



**Figure 123: Buyout Deal Performance by Market Structure Position**

Source: INSEAD Buyout Strategy Database, analyzed by author (Deal N=163; mean IRR=97%).

Targets operating in oligopolistic market structures also exhibit high, albeit lower than for monopolies, returns of 101% IRR. However, the standard deviation for an oligopolistic market structure surprisingly is notably lower with 124%. As expected, buyout targets operating in highly

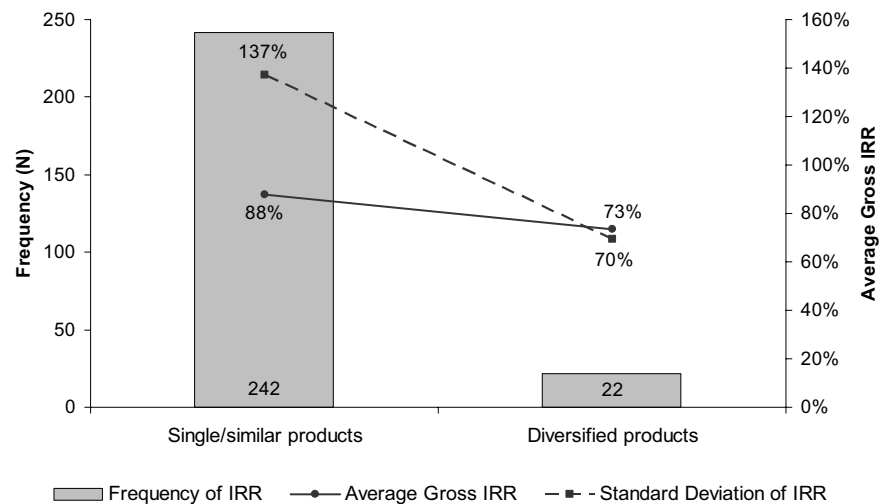
<sup>185</sup> The lower sample size for these tested variables should also be taken into consideration.

<sup>186</sup> For example, speciality chemical companies have traditionally been attractive buyout targets, as they exhibit both – a unique niche product offering and regularly high (global) market shares.

fragmented markets are confronted with a high degree of competition, hence buyout returns on these companies reach a relatively lower 76% of average IRR. The frequency distribution also indicates that monopolistic or oligopolistic market structures are far less common than non-concentrated market environments. Following the above findings on generic strategies, it could be argued that – especially in fragmented industry conditions – adopting a generic business strategy alternative becomes crucial to establish a competitive advantage. Variable hypothesis H55 can therefore be accepted, as industry competitiveness and returns are clearly negatively correlated.

#### 6.2.1.7. Product Diversification and Buyouts Performance

*How broad should a buyout target's product range be to ensure high returns?* The performance results for the product diversification variables confirm theory as well as variable hypothesis H56 that increased product diversity is adversely correlated to performance. A single/similar product offering generated an average IRR of 88% versus 73% for target companies with diversified product ranges. However, there is support for a theory on the beneficial merits of product diversification from a risk perspective: buyout targets offering single/similar products exhibit a twice as high standard deviation in returns of 137%, which could be the result of higher volatility in customer demand and preference. As a consequence, these companies explicitly need to emphasize offering a unique “commodity product” that reaches the maximum common denominator of customer choice.



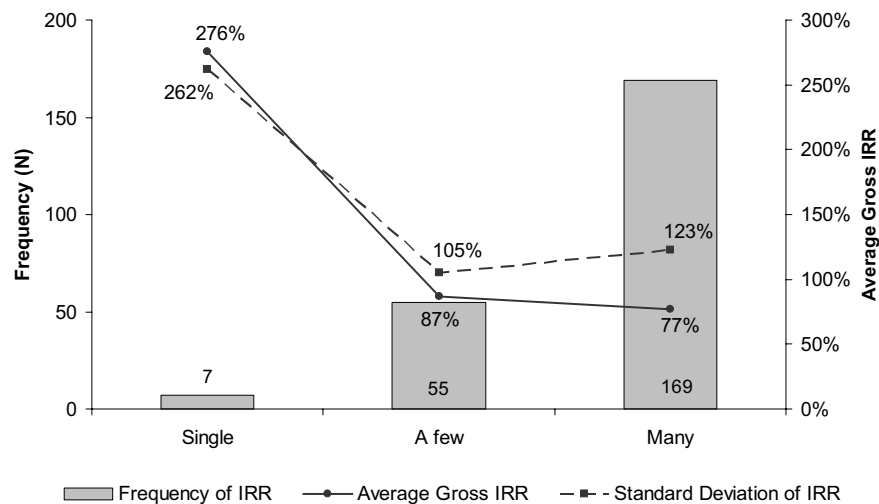
**Figure 124: Buyout Deal Performance by Product Diversification of Buyout Target**

Source: INSEAD Buyout Strategy Database, analyzed by author (Deal N=264, mean IRR=80%).

#### 6.2.1.8. Customer Base and Buyout Performance

*How diversified should a buyout target's customer base be from a return perspective?* The results are in stark contrast to expectations. Returns for buyout companies with a highly diversified

customer base are lowest with 77% average gross IRR, closely followed by buyout targets with a limited number of customers (87% average gross IRR). Variable hypothesis H57 and Porter's argument of adverse effects of a strong bargaining power of customers do not hold true in this context. The low available sample size for the variable of single customer-based companies does not allow making founded and generalizable arguments. However, the high average IRR of 276% for single customer-based buyout targets is based on few, but consistently strong performing transactions. For that reason, should this trend of higher returns for single-customer buyout targets be also substantiated on larger samples, it would be a surprising result.



**Figure 125: Buyout Deal Performance by Size of Customer Base of Buyout Target**

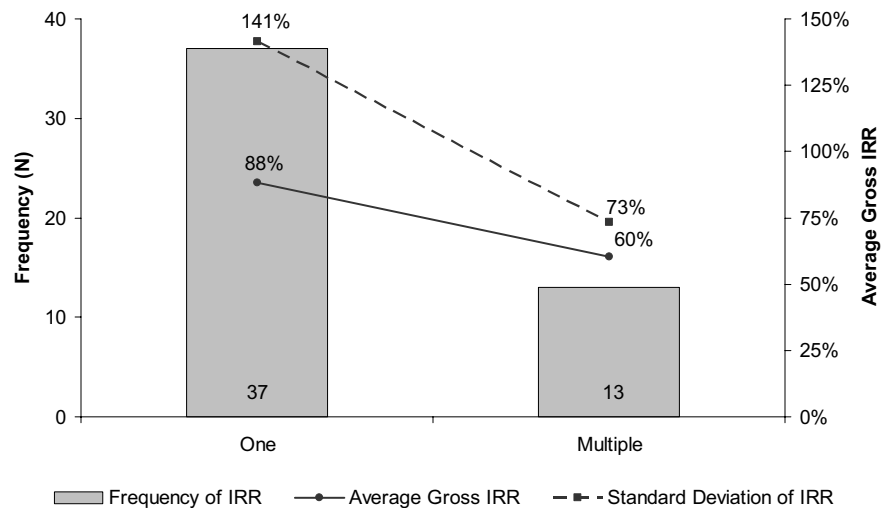
Source: INSEAD Buyout Strategy Database, analyzed by author (Deal N=231; mean IRR=147%).

Possible interpretations are based on the fact that single-customer buyout targets must have very high visibility of earnings and cash flows in order to (i) justify and make the investment from a buyout fund attractive, and (ii) ensure an adequate level of bank financing (which is based on the credit risk profile of the target). For example, companies operating in the (aerospace and) defence sector often benefit from very long-standing relationships with their single most important customer(s) – government(s) – and are habitually characterized by very long-term, contract-based business models. Consequently, the “safe” cash flow generation of such buyout targets is highly attractive to investors and may lead to great scope for leveragability and thus superior returns.

#### 6.2.1.9. Distribution Channels and Buyout Performance

*Does an aggressive marketing strategy via multiple distribution channels pay off for buyout targets?* The findings clearly highlight the superiority of returns, with 88% of average IRR, for buyout firms that focus on only one major distribution channel. By contrast, buyout targets that have established or put in place multiple distribution channel strategies reach returns of only 60% average IRR. An explanation could be linked to overall higher marketing and associated

distribution costs, as well as further indirect costs positions, such as overhead costs (e.g. as a result of increased communication needs), additional capital expenditures and personnel costs (for IT-enabled systems, call centers, etc.). These increased costs are apparently not outweighed through higher revenues and cash flow generation in the leveraged buyout context. Variable hypothesis H58 therefore has to be rejected. As a consequence, based on these results buyout funds may be advised not to seek growth through introduction of new distribution systems, but to focus on growth and efficiency enhancements at existing channels.



**Figure 126: Buyout Deal Performance by Distribution Channel of Buyout Target**

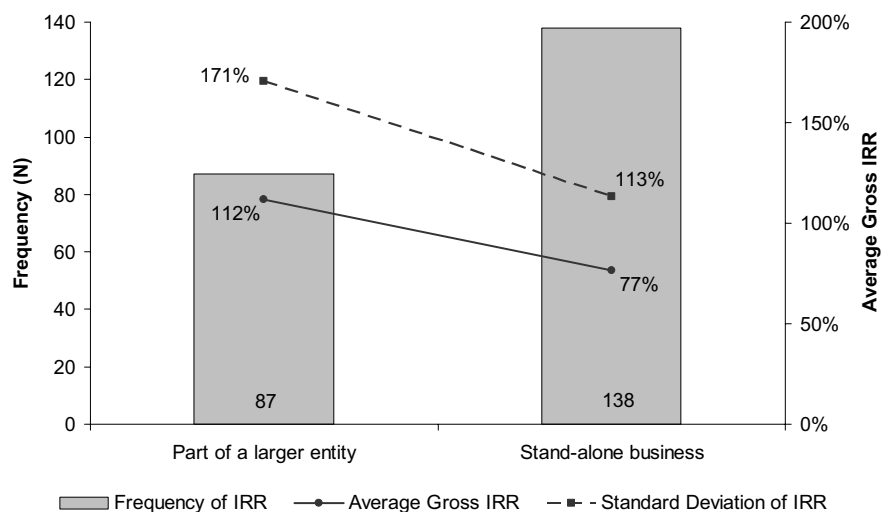
Source: INSEAD Buyout Strategy Database, analyzed by author (Deal N=50; mean IRR=74%).

#### 6.2.1.10. Prior Organizational Structure and Buyout Performance

*Which prior organizational structure increases the value creation potential post acquisition?* The findings for buyout targets in the strategy dataset sub-sample are in support of research suggesting that the decentralisation from a corporate parent may lead to a renewed entrepreneurial drive with lower constraints for corporate managers, entailed by a positive performance impact.

Buyouts performed significantly stronger at an average IRR of 112% when spun off as part of a larger entity. Buyout targets that were standalone businesses at the time of the acquisition only returned 77% of average gross IRR to investors. Accordingly, corporate spin-offs emerge to be the prime targets for superior value creation, however, the risk involved with their far-reaching corporate transformation does become visible when considering the notably higher volatility in returns (standard deviation of 171% compared to 113% for standalone businesses). Variable hypothesis H59 can therefore be accepted.<sup>187</sup>

<sup>187</sup> Alternative interpretations of these results are equally valid, for instance, from an agency theoretical viewpoint corporate spin-offs are also expected to generate higher returns due to the greater scope for



**Figure 127: Buyout Deal Performance by Organizational Structure of Buyout Target**

Source: INSEAD Buyout Strategy Database, analyzed by author (Deal N=225; mean IRR=94%).

#### 6.2.1.11. Prior Corporate Governance Structure and Buyout Performance

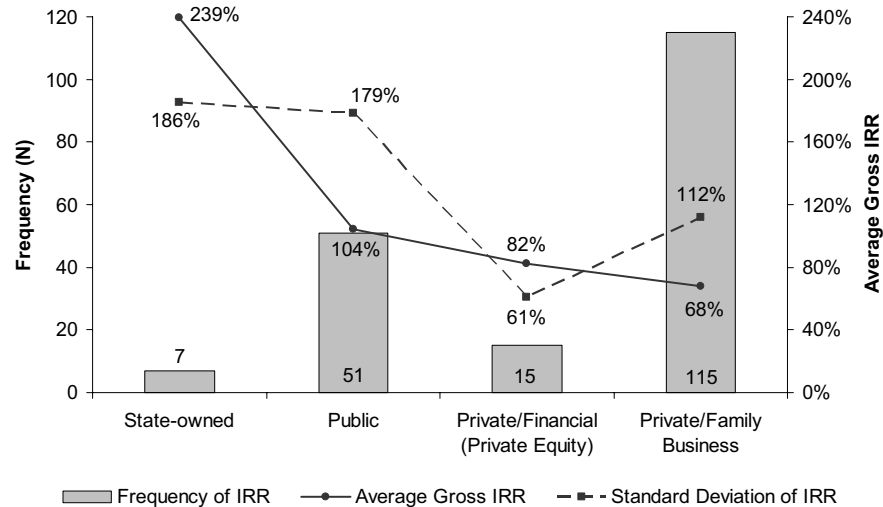
*Which prior corporate governance structure supports a higher potential for value creation in leveraged buyout transactions?* In line with agency theoretical considerations (Lowenstein 1985; Jensen 1989a; Jensen 1989b; Smith 1990a), the findings demonstrate that buyout targets that were state-owned prior to their acquisition are performing best with an average IRR of 239%. This is a clear signal that the almost complete lack of incentive systems in state-owned enterprises and frequently uneconomic, bureaucratic monitoring and control structures offer the greatest scope for improvement and returns for buyout funds. On the private business side, secondary buyouts from another buyout fund should *ceteris paribus* represent the smallest change in corporate governance system, as the previous fund most likely has implemented an efficient system; yet these targets also only displayed the second lowest average IRR of 82%.

Family-owned private companies yielded the lowest average IRR of 68%. Effectively, these low average returns could be interpreted such that family-owned buyout targets either (i) already have relatively efficient corporate governance and incentive structures in place and hence offer less room for value creation through a change in corporate governance (Reeb and Anderson 2004; Villalonga and Amit 2004), or (ii) family business deals may involve other complicating factors, e.g. based on family-linked management issues, continued equity participation in the business or involvement of family members in the board. The strong performance of public-to-private buyouts with an average IRR of 104% could be explained by the fact that generally only those publicly traded companies become subject to a takeover via tender offer, whose management is unable to create sufficient value for its shareholders. The market for corporate control and the rise of

---

generating rents from an alignment of interest compared to standalone businesses (compare Gottschlag 2003).

corporate “raiders” has only come into existence, because existing corporate governance, monitoring and control or management incentive structures of publicly listed companies were inefficient and offered superior rent generation for outside “active investors” (Manne 1965; Jensen and Ruback 1983). Nevertheless, in addition to the demonstrated relatively stronger performance of secondary buyouts, the degree of shareholder activism would have been expected to be higher in publicly listed companies, and hence, variable hypothesis H60 has to be rejected.

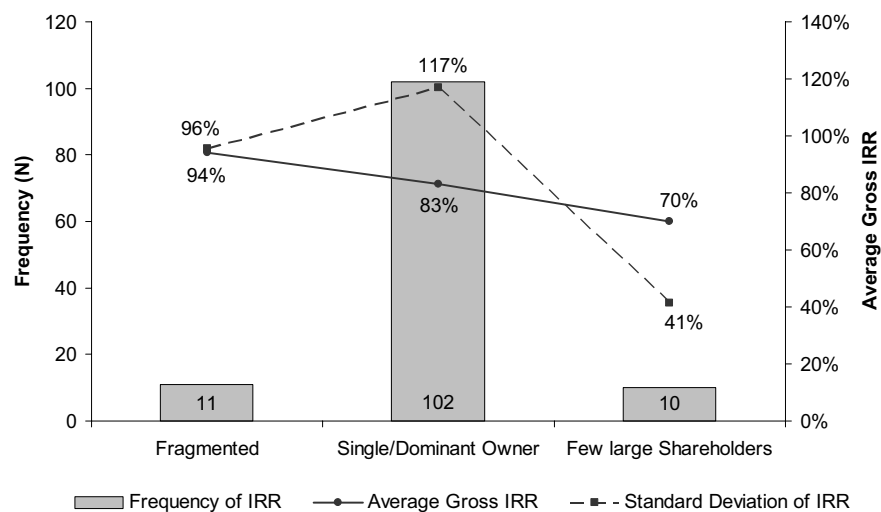


**Figure 128: Buyout Deal Performance by Corporate Governance Structure of Buyout Target**  
Source: INSEAD Buyout Strategy Database, analyzed by author (Deal N=188; mean IRR=123%).

#### 6.2.1.12. Prior Ownership Structure and Buyout Performance

*To what extent does the prior ownership structure of a buyout target determine the transaction's value creation potential under new buyout firm ownership?* The frequency distribution of the n=123 transactions reveals that most buyout targets in the sample did not have a fragmented, widely held ownership structure prior to acquisition. This could be interpreted in two ways: (i) either the actual overall percentage of fragmented ownership among target companies is low, or more probable (ii) widely-held corporations are less likely to become buyout targets, because this ownership structure on average ensures superior returns. Following the latter hypothesis, the high frequency of dominant ownership firms in the sample may conversely point to dismal prior performance for its single shareholder. The results support the theory on separation of ownership and control, as the fragmented ownership firms perform best post-buyout with 94% of average IRR. Returns on dominant owner firms reach an average IRR of 83%. Compared to its prior ownership, the more diverse new board expertise (Hilb 2002a), potentially new incentive system and empowerment of management provides for strong returns, even though volatility of returns increases. Despite a low number of cases for two categories, variable hypothesis H61 can be accepted, as buyout targets with a widely-held ownership structure and/or diverse board composition represent the comparatively more attractive buyout targets.





**Figure 129: Buyout Deal Performance by Corporate Governance Structure of Buyout Target**  
 Source: INSEAD Buyout Strategy Database, analyzed by author (Deal N=123; mean IRR=82%).

## 6.3. Deal Decisions and Characteristics

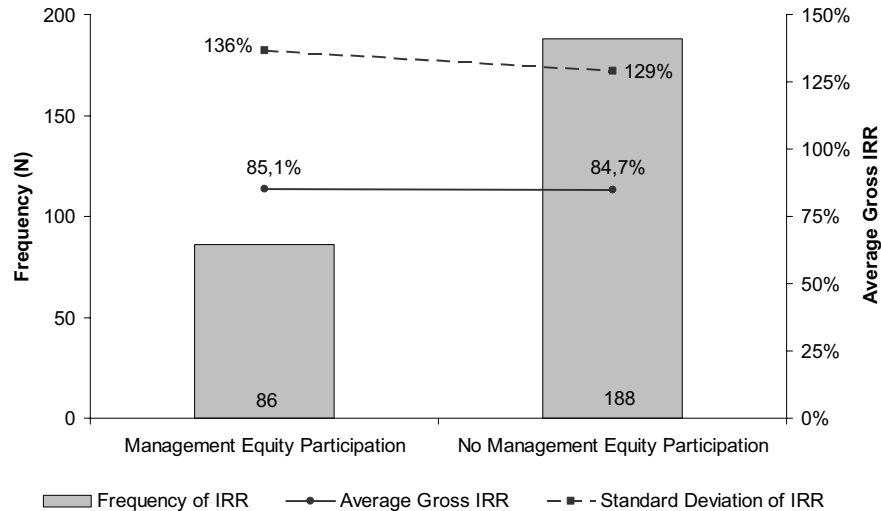
### 6.3.1. Test results

In the first section, it was established what some of the key characteristics of successful buyout target companies were and specifically, which trends regarding their impact on performance over the acquisition period could be observed. The following second bloc of characteristic variables under review focuses on two areas. Firstly, specific decisions and motivations taken by the buyer and seller at the time of the acquisition will be made explicit; secondly, the General Partner's relationship with its portfolio company management teams will be examined; more specifically, what stance for instance does the General Partner choose with respect to granting equity participation incentives to its management teams and what impact on performance can be observed given that chosen strategy.

#### 6.3.1.1. Management Incentives through Equity Participation and Buyout Performance

*What is the appropriate portfolio company management incentive strategy in order to maximize returns for the buyout firm?* The findings on the impact of equity participation by management in leveraged buyout transactions are surprising. Management equity participation does not seem to be a major influence on the performance of buyouts in the underlying sample, as average IRR reaches almost an equal level of 85.1% with, and 84.7% without these incentives. This is in contradiction to the principal agency theory, which would suggest higher performance for buyouts with

management co-ownership (Jensen and Meckling 1976; DeAngelo, DeAngelo et al. 1984; Smith 1990a; Phan and Hill 1995; Weir and Laing 1998; Cotter and Peck 2001).



**Figure 130: Buyout Deal Performance by GP's Management Incentive Strategy of Buyout Target**

Source: INSEAD Buyout Strategy Database, analyzed by author (Deal N=274; mean IRR=85%).

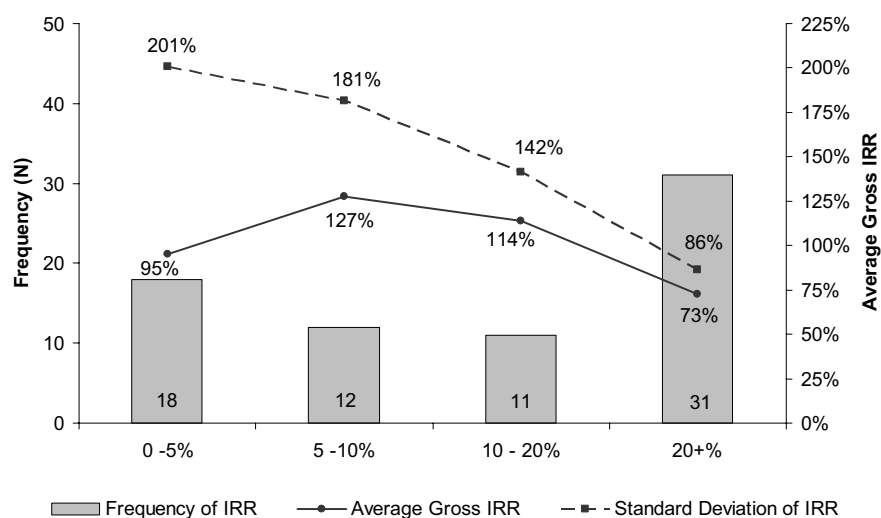
There are several possible explanations. First, as only 31% of buyout target management received equity in this sample, it can be theorized that General Partners are strategically more selective in their inducement approach than previously anticipated; General Partners may not see the necessity to grant equity co-ownership for management in all situations/transactions, potentially because they do not see the principal-agent problem arise to a worrisome extent in leveraged buyout transactions. It could be argued that due to many buyout funds' opted strategy of far-reaching managerial and operational involvement by investment managers in their portfolio companies, they are effectively in control of the company's strategic direction and hence are less concerned about management "misbehavior". Due to their decidedly active commitment, buyout firms appear to "save" the valuable equity stake (otherwise envisaged for management), thus generating more attractive returns for the fund and themselves. However, instead of equity, management could in these cases still be compensated through generous cash compensation packages.<sup>188</sup> On the other hand, if a General Partner's involvement and potential to contribute meaningfully in the target company's operations is limited or if the fund opts for a passive approach to portfolio company management, it will more heavily rely on the target's management to generate value, and thus ensures their commitment by surrendering part of the equity to them.

Secondly, the dataset in this analysis largely depended on self-reporting by General Partners. The data may therefore be biased to the degree that the actual level of equity participation is higher, yet

<sup>188</sup> The adverse impact on the reported IRR for the focal transactions by granting equity to the target's management should generally be higher than compensating managers with generous cash bonus packages, and hence represents an incentive for avoidance for General Partners.

not reported. However, as both extremities center on the sample mean for this analysis, the impact should be marginal. Variable hypothesis H62 therefore has to be rejected, as for this sample there is no clear indication that an incentivitation through equity ownership of target management increases buyout returns.

*As a consequence, how much equity should a General Partner offer to its buyout target's management, if deciding to offer equity participation?* The findings on equity ownership of managers in buyout companies confirm the results shown by Chang and Mayers (1992) for public market firms. Buyout performance is largest for equity participation between 5 to 10% (127% average IRR) and 10 to 20% (114% average IRR). Consequently, the alignment of interest between principal (the buyout fund) and agent (the portfolio company management) also provides for superior returns in the private sector for buyout targets. For management participation beyond 20% of the company's equity, the average IRR drops to 73%. This is in accordance with the findings by Chang and Mayers (1992) that beyond a certain equity participation benchmark (here 20% of managerial control), the entrenchment costs outweigh the benefits of alignment of interests. Hence, as previously shown by studies on public markets (Fama and Jensen 1985; Morck and Shleifer 1988; Holthausen and Larcker 1996), increased managerial ownership in leveraged buyout companies can also result in a decrease in financial performance (here measured by IRR) due to managerial risk aversion and the potential under-diversification of the portfolio company managers' wealth.



**Figure 131: Buyout Deal Performance by Percentage of Target Management Equity Participation**

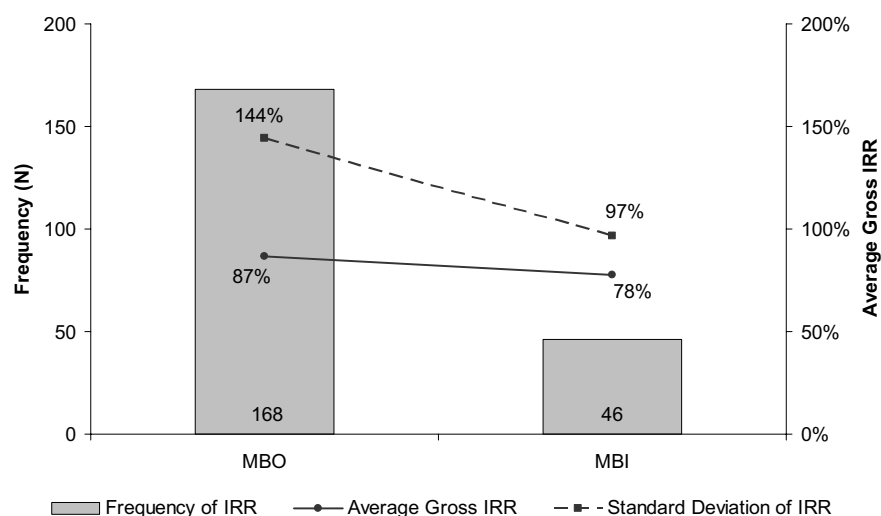
Source: INSEAD Buyout Strategy Database, analyzed by author (Deal N=72; mean IRR=102%).

Minor management equity participation between 0 and 5% in buyout companies only leads to an average IRR of 95%, which could be an indication that the investment is too low to initiate an effective alignment of interest. In summary, buyout firms are therefore advised to design their management equity incentive plan with at least 5 to 10% of the company's equity, but not more

than 20%. However, another interesting aspect from the results is the constant decrease of volatility in returns with an increase in management equity ownership. This could also add to the recommendation that from a risk-return perspective, an increased level of ownership may ensure good buyout performance on a more consistent basis. Variable hypothesis H63 can therefore be directionally accepted, as the 5-20% corridor indeed delivered best returns and higher and lower percentages were lower, in line with prior literature findings.

### 6.3.1.2. MBO vs. MBI and Buyout Performance

*Is there evidence that managers exploit their information asymmetry advantage in buyouts?* The findings demonstrate that only small, albeit non-significant evidence can be found to support a hypothesis of insider information exploitation through management. The average return for management buyouts (MBO) of 87% average IRR is only marginally better than the average IRR of 78% from management buy-ins (MBI).



**Figure 132: Buyout Deal Performance by Role of Management in Deal Origination**

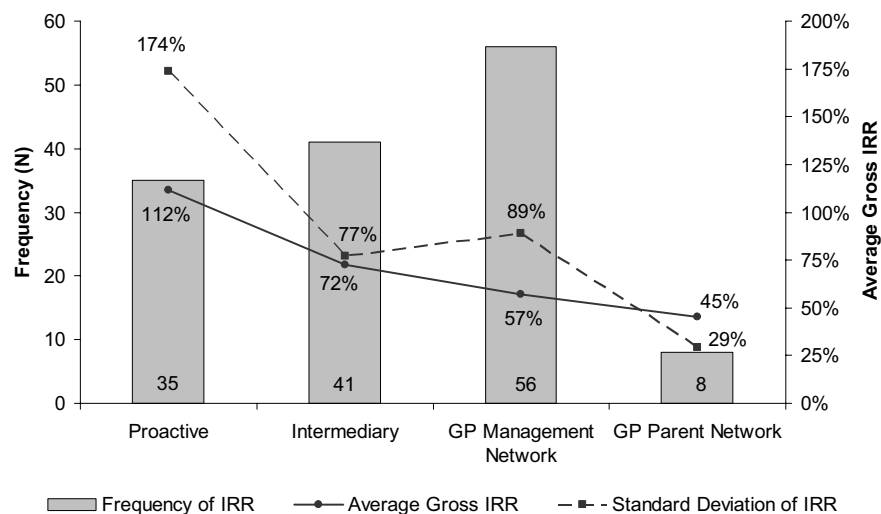
Source: INSEAD Buyout Strategy Database, analyzed by author (Deal N=214; mean IRR=82%).

There are two general scenarios: first, in a MBO situation, in which a buyout firm acquires a target company, the sponsor may be relying on current management to remain in place. During a transaction's negotiation phase, buyout fund managers in this case could seek to convince current management to take a less positive stance on earnings outlook (business plan), thereby indirectly depressing the transaction price and capturing immediate value. However, as an increasing amount of buyout deals are entered through competitive auctions and shareholders become more active, this opportunity is infrequent. Secondly, in a MBO situation, in which the target's management initiates the buyout, it may be able to (mis)use its information advantage. In the MBI example, the buyout firm acquires a buyout target and appoints a new management team. However, Barney (1986) suggests that the expertise and social capital of members of the top management team

constitute the most valuable resource a company. Consequently, the lower observed average IRR of 78% for MBI transactions in the sample supports the resource-based view on management turnover (compared to the market for corporate control theory), which would expect a negative performance impact on replacements in the top management team. Hence, these findings are also in line with prior studies relating managerial turnover to performance in a general acquisition context, which found that managerial turnover reduces acquisition performance (Cannella and Hambrick 1993; Krishnan, Miller et al. 1997; Zollo and Singh 2000). In summary, albeit only marginally different, variable hypothesis H64 has to be rejected, which gives rise to minor concerns about misuse of information in buyouts on the one side, and directionally supports the resource-based view on management turnover on the other side.

### 6.3.1.3. Deal Source and Buyout Performance

*Does proactive deal sourcing lead to higher returns?* The findings are directionally not fully consistent. First, in line with expectations, by far the highest return with 112% average IRR was achieved by buyout funds through proactive deal sourcing. This finding is in support of (i) the apparent early-mover advantage in buyout transactions advocated by Fox and Marcus (1992) and Wright and Robbie (1996), as well as from a practical perspective (ii) the keen attention shown by Private Equity fund investors on a buyout fund's ability to generate proprietary deal flow, i.e. transactions that were sourced opportunistically. However, more surprisingly is the result that transaction leads obtained via the GP's existing (management and portfolio) network performed mediocre with 57% of average IRR. Moreover, deals sourced internally through a financial institution performed worst on a relative basis with 45% average IRR.



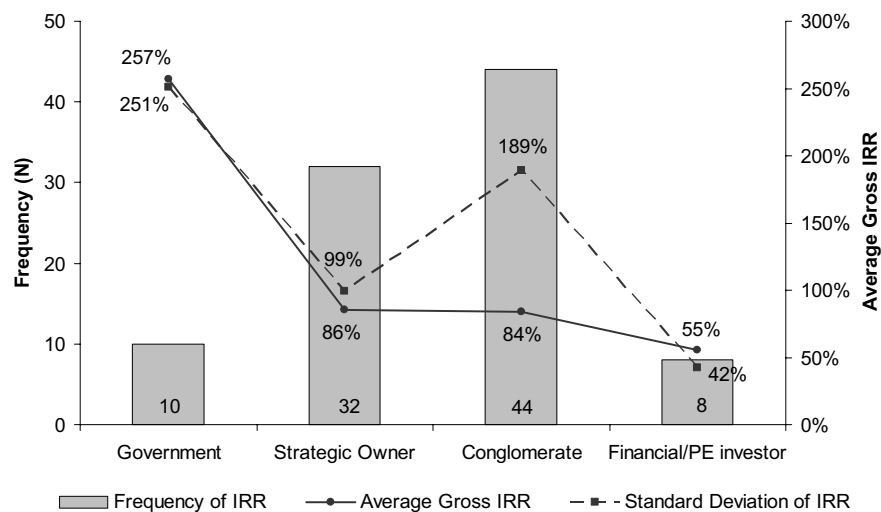
**Figure 133: Buyout Deal Performance by Deal Source**

Source: INSEAD Buyout Strategy Database, analyzed by author (Deal N=140; mean IRR=72%).

These findings hint at the possibility that investment managers may not be resistant to network-based “political” advances, i.e. attempts to persuade buyout investment professionals to do comparatively less attractive deals. In other words, buyout firms may conceivably become predisposed and/or indoctrinated and thus carry out less objective analysis of transactions (than they otherwise would), when these are pitched via the GP’s network. They consequently undertake transactions with lower value creation potential. Despite the proven superiority of proactive deal sourcing, as a consequence of the relative attractiveness of deals conveyed to the buyout firm through intermediaries, variable hypothesis H65 has to be rejected.

#### 6.3.1.4. Seller Type and Buyout Performance

*Who are the sellers of more profitable buyout transactions?* The results are confirmatory to expectations. Companies sold by the government, e.g. full or partial privatizations generated the highest average IRR of 257%.<sup>189</sup> As shown in section 6.2.1.11., state-owned assets had proven to offer the largest value creation potential for buyout funds, as the introduction of a non-public sector shareholder structure (and values), i.e. with an inherent focus on profitability in a more competitive environment, leads to an optimization of resources. By contrast, as shown by Butler (2001), financial investors are considered a tough negotiation counter-party; hence acquiring funds on average appear to be unable to negotiate meaningful discounts in purchase prices (compared to market value), which in turn limits their return upside through multiple expansion.<sup>190</sup>



**Figure 134: Buyout Deal Performance by Seller Type**

Source: INSEAD Buyout Strategy Database, analyzed by author (Deal N=94; mean IRR=120%).

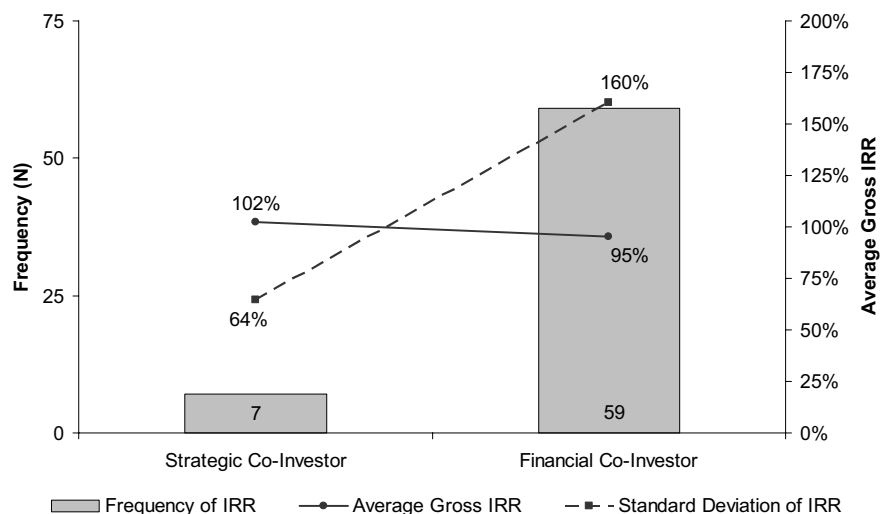
<sup>189</sup> Please note the low frequency of cases for “government” and “financial/PE investor” in this interpretation.

<sup>190</sup> Another reason for lower performance of secondary buyouts compared to primary buyouts could be seen in the already widely implemented value creation strategies in the business by the initial owner (buyout fund), which leaves little room for further value creation through operational improvements.

Buyout transactions sourced from strategic owners and conglomerates produce similar returns of 86% and 84% of average IRR respectively. The similar level of return for conglomerates is to some extent unforeseen when compared to the results in section 6.2.1.10. for transactions resulting from “a larger entity”. It could have been anticipated that returns from conglomerate spin-offs would be higher, when assuming a superior value creation potential achievable through decentralization from a larger conglomerate parent company, as well as introduction of new incentive systems and entrepreneurial spirit. In light of the findings from section 6.2.1.10., it could be concluded that “a larger entity” may therefore equally relate to conglomerates or other multi-division standalone businesses. In summary, the results are in support of variable hypothesis H66, acknowledging that other factors may equally contribute to the above results.

6.3.1.5. Co-Investors and Buyout Performance

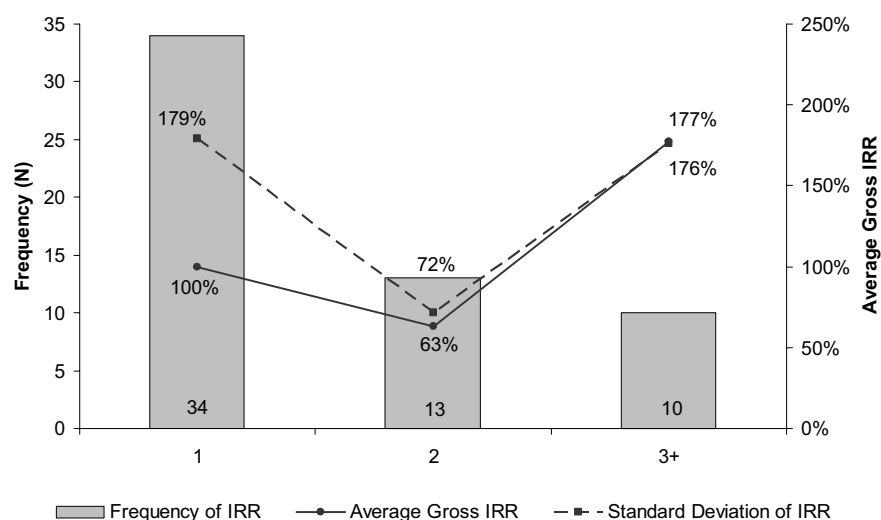
*Do additional investors add to or inhibit value creation in buyout transactions?* Figure 135 shows that the most frequent type of co-investor of buyout funds represents financial co-investors, e.g. other buyout funds, individuals, or financial institutions. Strategic co-investors are less common. The rationale for strategic co-investor involvement could be that (i) these companies seek to manoeuvre themselves into the favourable position of preferred bidder in order to acquire the business at the buyout fund’s eventual exit,<sup>191</sup> while in the meantime participating in the target’s value creation process, or (ii) the equity investment warrants a continued strategic co-operation between those businesses. The average returns of 102% and 95% for strategic and financial co-investors respectively both exceed the overall strategy sample mean of 84.8%, highlighting the beneficial effect. Sample hypothesis H67 can therefore be accepted in general.



**Figure 135: Buyout Deal Performance by Type of Co-Investor**  
 Source: INSEAD Buyout Strategy Database, analyzed by author (Deal N=66; mean IRR=99%).

<sup>191</sup> The strategic co-investor may receive a call option to acquire the business at pre-determined price ranges/terms.

The results in section 4.3.5. on buyout performance according to percentage of acquired ownership stake had revealed a convex relationship, in which control investments (75-100% of equity) as well as minority investment equity stakes (0-25% of equity) had displayed the highest IRR figures. The categorization of number of co-investors per transaction in the underlying strategy buyout sample offers some additional insights<sup>192</sup>: the highest buyout performance of 177% average gross IRR can be observed among companies with three or more equity co-investors. This could be interpreted as evidence that (i) the additional expertise brought into the transaction by the several parties is optimizing the decision and value creation processes, (ii) the teaming up for larger deals reduces overall competition and thus lowers the average acquisition price paid, benefiting IRR. However, there does not appear to be a consistent trend between number of co-investors and performance, as the one co-investor category in the sample led to an average IRR of 100%, while two co-investors generated 63% on average. One possible explanation for the lower performance in the two co-investor scenario could be that consensus-building may be more challenging among three investing parties.



**Figure 136: Buyout Deal Performance by Number of Co-Investors**

Source: INSEAD Buyout Strategy Database, analyzed by author (Deal N=57; mean IRR=115%).

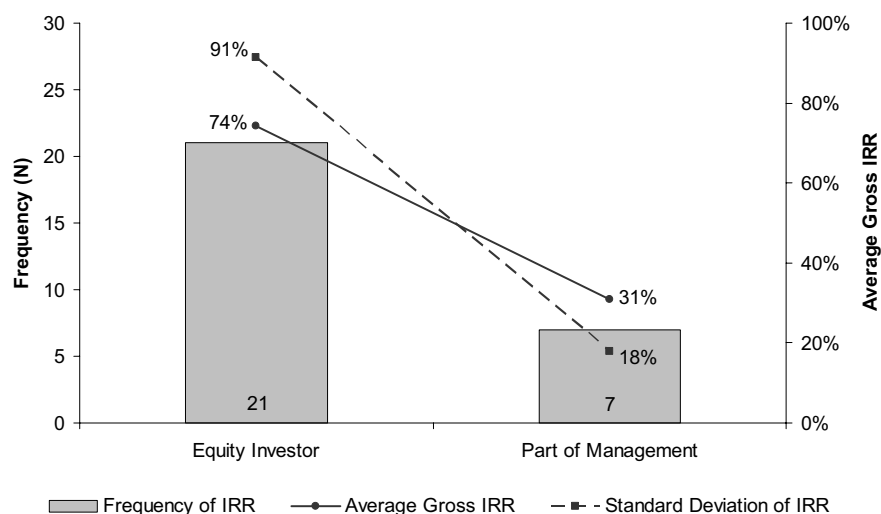
#### 6.3.1.6. Further Involvement of Previous Owner and Buyout Performance

*Is it beneficial for the buyout target when the previous owner stays involved in the business?* The results on this small sample for previous owner involvement underline that a continued connection to the prior owner has adverse effects to buyout performance. Compared to the sample mean of 84.8% for the entire strategy sample both alternatives lead to underperformance of the focal transaction. Especially the continued owner involvement as part of the management team leads to

<sup>192</sup> The low frequency of cases for two of the three categories should be taken into consideration.



below average performance with an IRR of 31%<sup>193</sup>. This finding, if proven on a larger sample, provides evidence that buyout firms may be inhibited to implement more radical value creation strategies due to the prior owner's potential managerial influence and/or veto powers, which are affecting returns. Variable hypothesis H58 can therefore be accepted, while the resource-based view, expecting adverse acquisition performance effects through the loss of tacit knowledge following managerial turnover (Cannella and Hambrick 1993; Krishnan, Miller et al. 1997; Zollo and Singh 2000), does not find evidence in the leveraged buyout context. Similarly, despite higher returns exhibited for owner involvement through equity ownership, this option can equally not be recommended to buyout firms.



**Figure 137: Buyout Deal Performance by Involvement of Previous Owner**

Source: INSEAD Buyout Strategy Database, analyzed by author (Deal N=28; mean IRR=53%).

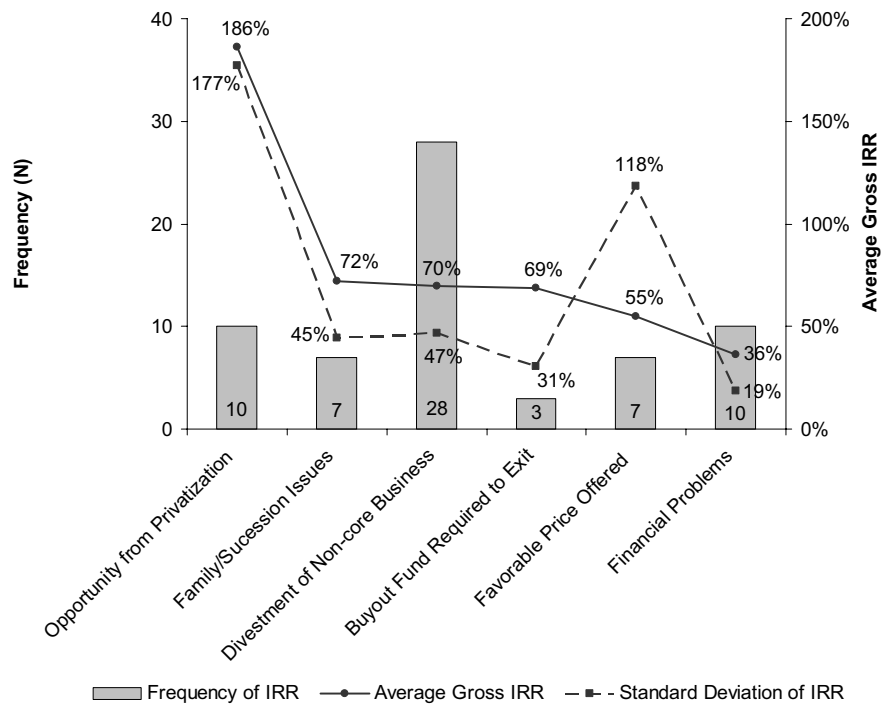
#### 6.3.1.7. Seller's Motivation and Buyout Performance

*What is the seller's rationale for disposing from a business, and which implications does this have on acquisition performance?* The results for selling rationales imply that except for buyouts resulting from privatizations, the majority of collected transactions in this sub-sample are underperforming post acquisition (compared to the main strategy sample mean IRR of 85%)<sup>194</sup>. The high return of 186% average IRR observed for buyouts from privatizations demonstrates that the seller (in this case the public authorities) may perhaps offer assets too cheaply. However, the high volatility of returns also highlights the higher than average risk involved in privatization deals. Divestments of non-core business appear to be accompanied by lower risk for the acquirer, but returns of 70% average IRR are below sample mean.

<sup>193</sup> This low performance is substantiated by a very low standard deviation of returns of just 18%. However, the low frequency of cases this category should be taken into consideration.

<sup>194</sup> The low frequency of cases for three of the six categories should be taken into consideration.

The following results should be seen as indicative, due to low number of cases for these variables: Transactions resulting from family succession issues led to average returns of 72% IRR. Greater pressure to divest among family firms, arising from unresolved succession issues, could be exploited by the buyout fund through negotiating a favourable acquisition price. By contrast, sellers that stated that they had considered the buyout fund’s offer as attractive, may indeed have received a price above market value for their asset, since the average IRR of those buyouts only reached 55%, i.e. representing a potential indication for over-payment. Secondary buyouts as a result of a primary fund’s pressure to exit may directionally point to reasonable value creation potential during the negotiation phase, as target company average IRR reaches 69% (on this small number of cases). Furthermore, companies sold (under pressure) due to financial problems are highly likely to continue to show problems thereafter. According to these results, buyout funds must on average be judged unsuccessful at turnarounds, as the average IRR only reached 36%. In summary, pressure to divest could be seen in categories two, three, four and especially six (counted in graph from the left), however, the return profile does not support variable hypothesis H69, which is therefore rejected.

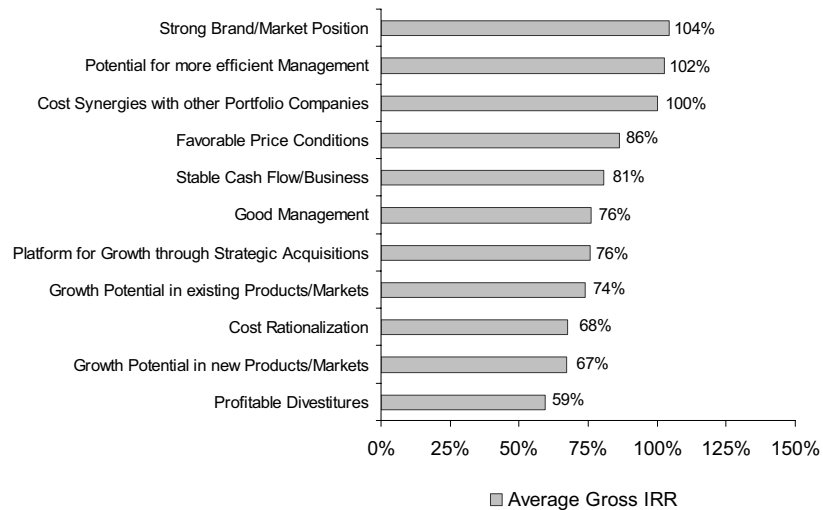


**Figure 138: Buyout Deal Performance by Seller Motivation**  
 Source: INSEAD Buyout Strategy Database, analyzed by author (Deal N=65; mean IRR=81%).

6.3.1.8. Buyer’s Motivation and Buyout Performance

*How do buyout funds evaluate a transaction opportunity and which target characteristics ensure strong returns on investment?* The results for buyer’s motivation for leveraged buyout activity

provide evidence for the theory of a market for corporate control and agency theory. Those buyout funds, which stated seeing a potential for more efficient management at a specific target company, also generated some of the highest returns with 102% average IRR. By contrast, buyout managers that acquired a company, because they perceived the existing management to be good, generated a significantly lower return of an average 76% IRR (compared to a sample mean of 85%).



**Figure 139: Buyout Deal Performance by Buyer Motivation**

Source: INSEAD Buyout Strategy Database, analyzed by author (Deal N=725, multiple answers were possible; mean IRR=81%).

Secondly, the performance findings for buyer motivation based on the intention of pure cost rationalization produced an average IRR of 68%. Nevertheless, if these cost reductions are intended to be generated in a context of realizing cost synergies with other portfolio companies (i.e. add-on acquisitions), buyout performance surges to an average IRR of 100%. For this reason, pure cost cutting strategies of buyout funds on a relative basis are not a sufficient value creation strategy and less likely to generate superior returns. Hence, LBO firms not only rely on operational improvements to increase value in buyout investments, but also aggressively seek to boost revenues. However, the motivation to acquire a buyout target for its growth potential in either existing and/or new markets does not lead to strong performance (when compared to the sample mean), with average IRR reaching 74% and 67% respectively. These findings support the hypothesis that growth strategies are more challenging to implement successfully at buyout targets, compared to cost rationalizations. In line with this argument, the universal motivation of buyout funds to acquire industry leading companies with strong brands and market positions demonstrate that organic growth strategies are deemed not as successful by buyout firms. The highest average IRR of 104% for firms with high market positions and strong brands substantiates this line of reasoning.<sup>195</sup>

<sup>195</sup> These results for high market share/brand recognition as buyer motivation are interesting when compared to *actual* performance of buyouts according to their market shares (see section 6.2.1.4.), which had shown that no significant difference in returns based on different market shares could be noted in the strategy sample.

Thirdly, transactions that were entered with the motivation to acquire a platform for external growth through strategic acquisitions displayed an average IRR of 76%, below the sample mean. In section 4.4.5., it was demonstrated that buyout firms are successful anti-cyclical investors. As a consequence, “favourable price conditions” as motivation for acquisitions also shows an above average return of 86% average IRR. The analysis of returns according to buyer motivation demonstrates that the motivation “stable cash flow business” criterion (81% of average IRR) is equally not sufficient to generate superior buyout returns as is the simple cost rationalisation argument or growth potential. In summary, identifying weakly managed businesses, with strong brands and market shares and taking advantage of synergies among portfolio companies may prove to lead to best results for buyout funds. Variable hypothesis H70 can therefore be accepted in general.

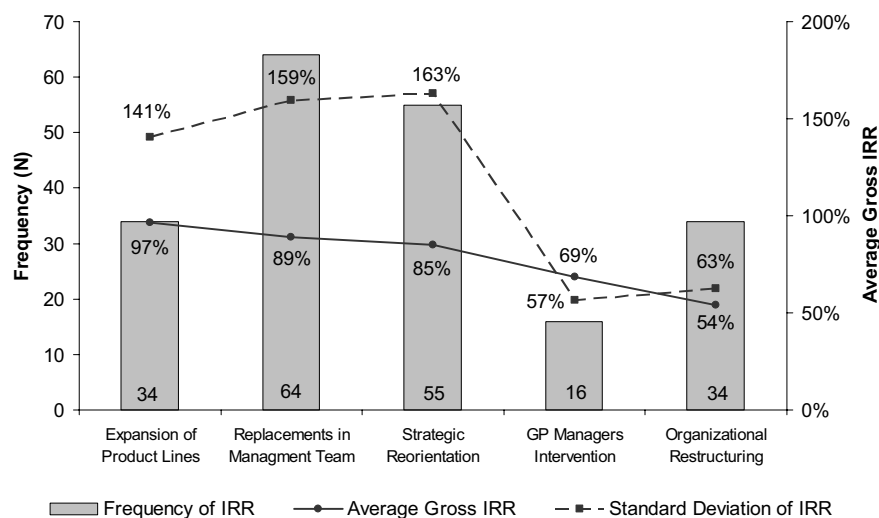
## 6.4. Acquisition Process and Strategic Events

### 6.4.1. Test results

It has so far been demonstrated that the buyout target’s business characteristics, the relationship between General Partners and its portfolio company management as well as decisions and motivations around the planning and execution of the leveraged buyout transaction may influence acquisition performance. However, the remaining analysis in this section casts light on the actual operational strategies implemented post acquisition, which are fundamentally determining the extent to which the business can be improved.

#### 6.4.1.1. Key Strategic Reorientation/Organizational Events and Buyout Performance

*What are the core strategic and organizational decisions in a buyout transaction and what influence do they have on performance?* In section 6.3.1.8., it was established that the *motivation* to purchase a company due to observed inefficiencies caused by the existing management team had produced high returns on investment. The findings in this section – *what actually happened* – on strategy confirms agency theoretical thoughts around a market for corporate control with respect to management turnover – the average IRR of buyout companies, which had undergone a radical change in management during buyout fund ownership, produced an average IRR of 89%, well above the sub-sample mean of 79%. This result is in line with agency theory and contradicts findings supporting the resource-based view (Cannella and Hambrick 1993; Krishnan, Miller et al. 1997; Zollo and Singh 2000), which stated that managerial turnover reduces acquisition performance in a general acquisition context.



**Figure 140: Buyout Deal Performance by Key Strategic Reorientation/Organizational Event**

Source: INSEAD Buyout Strategy Database, analyzed by author (Deal N=203, multiple answers were possible; mean IRR=79%).

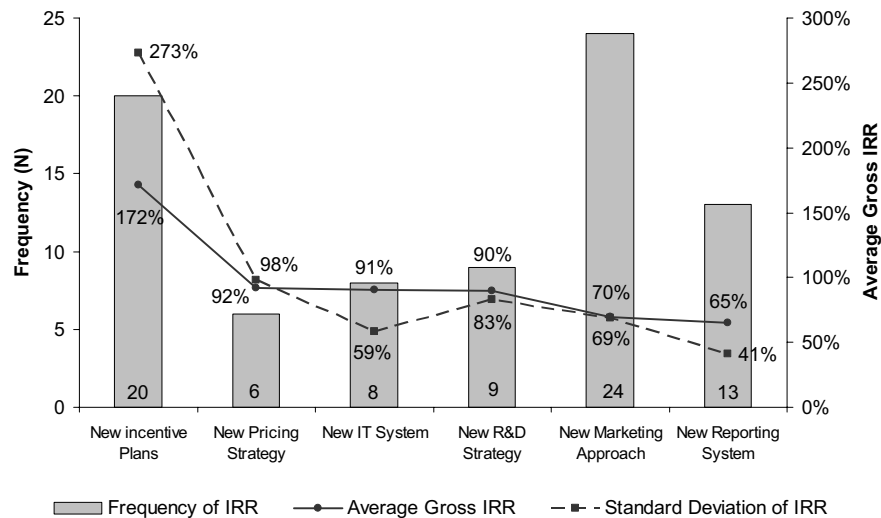
The performance results from the strategy firm sample are also in support of prior literature (Seth and Easterwood 1993; Phan and Hill 1995), proving that strategic redirection through the LBO firm is not only vital in buyout transactions, but also leading to superior returns, as demonstrated by an average IRR of 85%. Variable hypothesis H71 can be therefore be accepted. In section 6.3.1.8., it was established that a financial buyer's rationale for acquiring a company for reasons of expanding existing or new products/markets had produced relatively low returns. However, there appears to be a surprising imbalance between motivation and actual performance: from the post-acquisition event point of view, there is clear evidence that the expansion of product lines has been a successful mean to create value in buyout transactions, with strong returns of 97% average IRR ranging well above the sample mean.

On the contrary, if major organizational restructurings have to be carried out by the General Partner post acquisition, or GP managers have to intervene actively in business operations (voluntarily or due to risk of default), the average IRR for these transactions remains sub-optimal with 54% and 69% respectively. This finding is in concordance with the finding from section 6.3.1.7., showing particularly low returns when the seller disposes of an asset because of financial problems. It could be conjectured that buyout funds may be reasonably successful in punctual cost cutting improvements, but not in major turnaround or restructuring situations, which as a consequence should be avoided.

#### 6.4.1.2. New Sub-Strategy Implementation Events

*What type of actual strategy implementations lead to positive results in buyouts?* Agency theory finds further support through the sample's descriptive results in the sub-strategy analysis: the introduction of new incentive plans for top management (and other employees) produces very

robust returns of 172% average IRR. However, the standard deviation of results is particularly high with 273%, which points to the fact that the use of incentive systems generates several exceptionally strong (and few weak) returns, increasing volatility in this case. Variable hypothesis H72 can therefore be accepted, as management incentivitation appears to be the most important strategic measure on a relative basis.



**Figure 141: Buyout Deal Performance by New Sub-Strategy Implementation Events**

Source: INSEAD Buyout Strategy Database, analyzed by author (Deal N=80, multiple answers were possible; mean IRR=96%).

The results with respect to marketing strategy are twofold. The findings from the sample's descriptive statistics illustrate that a complete new marketing approach for the buyout target cannot be generally recommended as it does not lead to above average performance. The average IRR for this measure only reaches 70%, which is below the main and sub-sample means of 85% and 96% respectively. However, instead of an entire new marketing strategy, the introduction of a new pricing strategy only may be correlated with significantly higher returns (average IRR of 92%)<sup>196</sup>. These results should be interpreted in conjunction with the results from section 6.4.1.1. above, which had shown that the (actual) expansion of product lines was a successful value creation strategy. Therefore, the joint positive impact on performance through product expansion and new pricing system may be the result of (i) potential cost savings generated at the buyout target, which offered room for a more flexible and/or lower average product pricing, which led to higher revenues and cash flow generation, (ii) a product portfolio mix review/revaluation led to a decision for a differentiated pricing strategy, e.g. with multiple brands and segments (i.e. expansion of product lines), independent of prior static strategic customer relationships.

Buyout transactions that had undergone an implementation of new IT systems or an enhanced R&D activity could recognize a slightly positive effect on performance, with an average IRR of 91% and

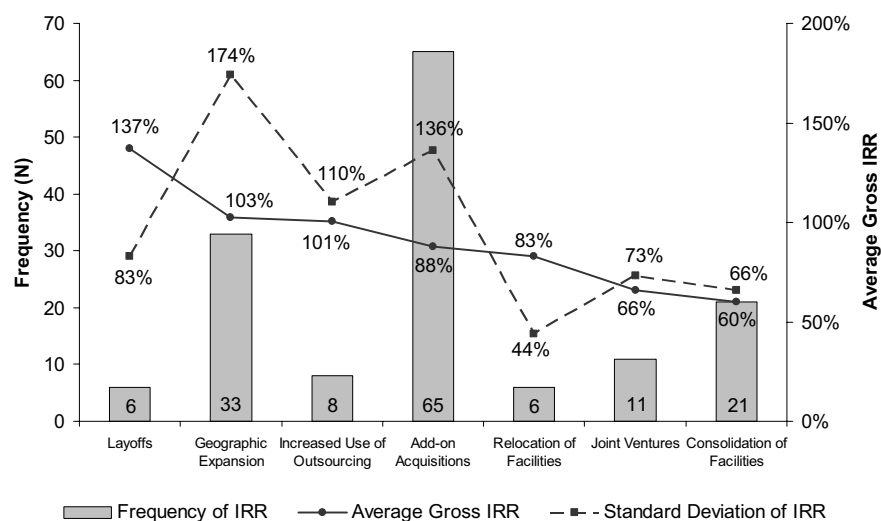
<sup>196</sup> The low number of cases (below 10) for three of the six categories in this analysis of tested variables should also be taken into consideration.

90% respectively, ranging above the sample mean IRR of 85%. However, the costs involved with putting a new reporting system into service may outweigh the actual benefits, with only 65% average IRR for this strategic measure. In any case, these exploratory findings have to be read with consideration to the low numbers of variable cases though and need further validation.

### 6.4.1.3. Capacity, Resource Planning and (Dis)Investment Activities

#### 6.4.1.3.1. Disinvestment Activities and Buyout Returns

Which acquisition and disposal activities of target assets and resources represent value enhancing strategies? With regard to asset and capacity optimization, there are several options available to the buyout firm: first, through facility consolidation programs, buyout funds may close down unprofitable operations, thereby reducing slack capacity and/or rebuilding the necessary capacity at more profitable sites. The average performance of buyout companies undergoing a site consolidation strategy in this sub-sample is only 60% of average IRR, thereby exhibiting the worst overall return. One reason for this low yield could be that site consolidations could be considered as a rather drastic restructuring measure and potentially provide evidence of a turnaround situation rather than a healthy, profitable buyout target. As displayed in section 6.4.1.1., returns on turnaround situations were dismal.

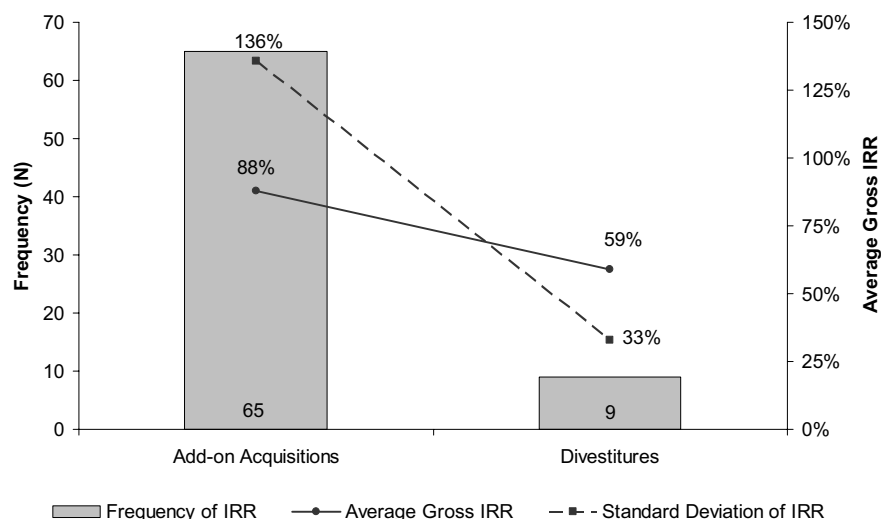


**Figure 142: Buyout Deal Performance by Capacity, Resource Planning and (Dis)Investment Activities**

Source: INSEAD Buyout Strategy Database, analyzed by author (Deal N=150; multiple answers were possible mean IRR=91).

By contrast, instead of a facility consolidation program, General Partners may opt for a relocation of facilities to low cost sites (or countries). This commonly well-prepared strategy is more likely to result out of a position of financial and competitive strength at the buyout target; hence the accompanying average returns found with this alternative are also notably higher at 83% average IRR. As a third alternative, an increased use of outsourcing may free capital from the balance sheet. The average IRR on this indirect capacity reduction option was 101%, and thus implying that

outsourcing may be a more advantageous, less disruptive strategic alternative in the leveraged buyout context.<sup>197</sup> Furthermore, the human resource factor intensity can be substantially reduced in buyout transactions. The results for the strategy dataset exhibit an average IRR of 137% for buyout transactions that were characterized by substantial layoffs. This finding – if further validated on a larger sample – provides robust support for the line of argumentation of Shleifer and Summers (1988), i.e. that leveraged buyouts involve a wealth transfer from employees to fund investors.



**Figure 143: Buyout Deal Performance by Acquisition and Divestiture Activity**

Source: INSEAD Buyout Strategy Database, analyzed by author (Deal N=74; mean IRR=73%).

More drastically, the General Partner may decide not only to close down particular facilities, but to dispose of entire parts or divisions of the buyout target, which he considers non-core (or not profitable enough).<sup>198</sup> These asset disposals can also be regarded as partial exits, as they may lead to a substantial cash inflow that is either utilized to decrease leverage and/or could be distributed to the buyout fund through a special dividend. However, the performance of buyout transactions that used divestitures to streamline their asset utilization is well below the sample mean with an average IRR of 59%. This could be interpreted in a similar fashion as the negative performance found for in transactions that had undergone a consolidation of facilities, i.e. divestitures may be an indication of major restructurings and/or turnaround situations, which had previously demonstrated to be unprofitable for buyout funds. However, the returns generated by the divestiture may also be dependent on the quality of the asset sold.<sup>199</sup>

<sup>197</sup> Please note the limited validity of conclusions due to the restricted number of cases (below 10) in the latter variable, as well as two further categories in this analysis.

<sup>198</sup> During the leveraged buyout boom of the 1980s, one frequently employed strategy of financial investors was “asset stripping”, in which an undervalued target firm (often a conglomerate) was acquired and subsequently sold “in pieces”, as the acquiring investor (e.g. buyout fund) assumed that the value of the sum of the parts was higher than the combined entity (“conglomerate discount effect”). This strategy can rarely be observed nowadays.

<sup>199</sup> Exploratory findings for the sub-sample indicate a trend that transactions that disposed of non-core businesses generated considerably lower returns than buyout companies that sold parts of their core



#### 6.4.1.3.2. *Investment Activities and Buyout Returns*

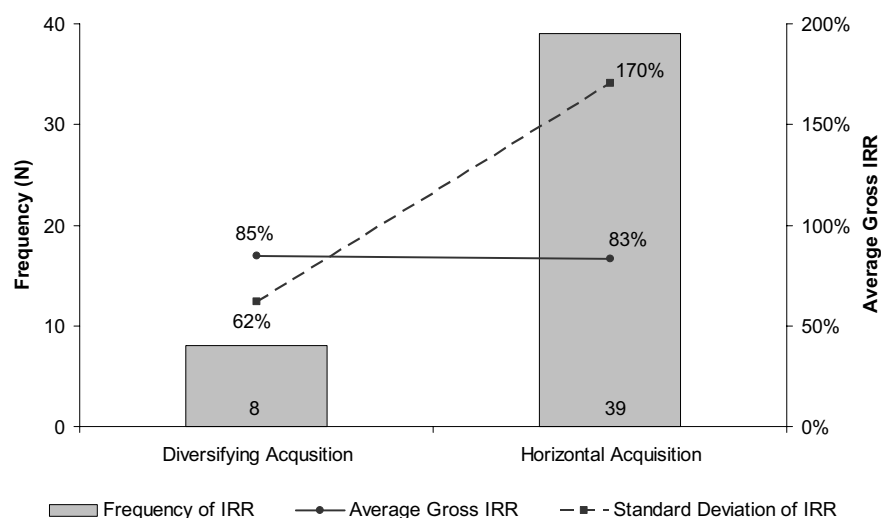
On the other side, instead of merely downsizing the business, buyout funds have a range of options to create value in leveraged buyouts by expanding the target's business reach. The high average return of 103% IRR on the strategy company sub-sample highlights that geographic expansion could be a key value creation strategy available to buyout funds. However, the associated high volatility measured as standard deviation of returns also insinuates the inherent risks in this expansion strategy. Furthermore, the General Partner could employ joint ventures and strategic alliances to further enhance geographical reach on the one side, and to acquire new skills and capabilities on the other. Nonetheless, the average IRR of just 66% on the limited observed cases that engaged in joint ventures suggests that this method of expansion is far less effective than geographic expansion, which could for instance be the result of a lower degree of managerial control in these relationships.

As an alternative growth strategy, LBO firms may decide to undertake add-on acquisitions of either new lines of business or to expand business scope in such areas in which distinctive competences and resources are strong compared to competition (Easterwood, Seth et al. 1989; Liebeskind and Wiersema 1992; Seth and Easterwood 1993). The performance results collected on the strategy dataset sample suggest that buyout companies that engaged in add-on acquisitions on average returned 88% IRR, slightly above the main sample mean of 85%. Interpretations for the positive performance effect of buy-and-build strategies is that by aggressively creating critical mass through add-on acquisitions, target companies (i) are able to extract synergies and to create favourable cost positions and organic growth platforms, (ii) may contribute to consolidation of the market, thereby reducing competition and extracting supplementary rents, (iii) gain the necessary size to exit via public markets or become a more attractive acquisition target for strategic buyers. The value seen in the extraction of synergies between portfolio company and add-on acquisition (see section 6.3.1.8.) is substantiated by the distribution of acquisition types: 83% of add-on acquisitions in the relevant sub-sample were horizontal acquisitions that most likely offered considerable synergies. The remaining 17% represents diversifying acquisitions, whose value for the platform company could be found in areas such as new product lines, technologies, distribution channels or markets. The average IRR on either acquisition type does not differ substantially.<sup>200</sup>

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business. This could imply that the non-core business may not only have limited appeal to the seller, but potentially also to the acquiring party, and hence realized prices on disposal are low, i.e. do not positively affect returns. A detailed analysis is omitted here due to insufficient sample size.

<sup>200</sup> Note that the sample size for this specification is lower than the total number of add-on acquisition cases due to heterogeneity of underlying data, i.e. not all General Partners offered details on acquisition type.



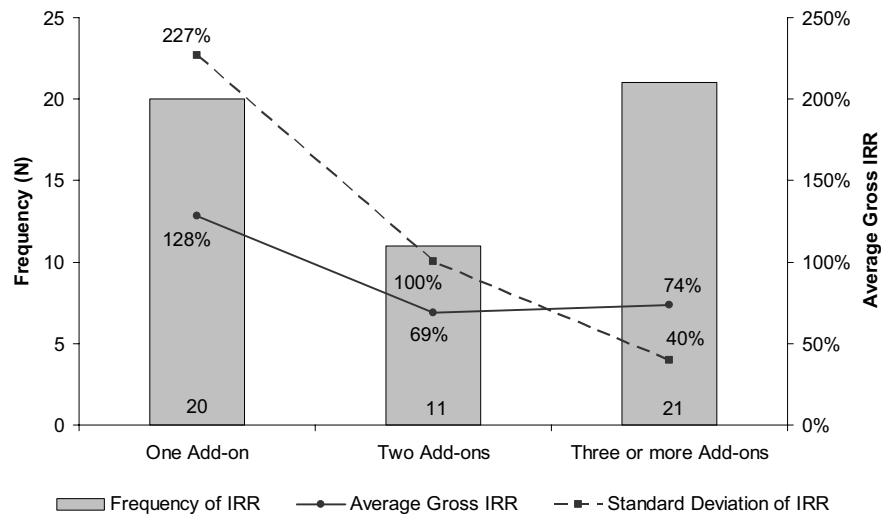
**Figure 144: Buyout Deal Performance by Type of Add-on Acquisition**

Source: INSEAD Buyout Strategy Database, analyzed by author (Deal N=47; mean IRR=84).

Having established that add-on acquisitions may present an important value driver for buyout returns, the question remains whether there is a value-optimizing number of add-on acquisitions to be undertaken by the General Partner. The findings in section 6.3.1.8. had suggested the beneficial nature of extracting synergies from add-on/portfolio companies. This is generally in line with strategic management theory on “related acquisitions”, which is based on a perspective of acquisitions according to the resource-based view of the firm (Rumelt 1984; Wernerfelt 1984; Barney 1988; Dierickx and Cool 1989). Empirical work in this area has used the resource perspective of the firm in order to test the impact of “resource relatedness” on the performance of these transactions (Chatterjee 1986; Lubatkin 1987; Singh and Montgomery 1987; Shelton 1988; Seth 1990; Chatterjee, Lubatkin et al. 1992; Healy, Palepu et al. 1992). However, results with respect to acquisition performance have been very mixed.<sup>201</sup> As a consequence, it could be expected in relation to leveraged buyouts that the more add-ons are executed, the higher the amount of overall extractable synergy potential available to the platform company, and the stronger the target’s gained market position. However, there are also target search, transaction execution, integration and synergy extraction implementation costs. Furthermore, the created imbalance in the company’s resource configuration due to the constant organizational change, especially the bound managerial focus, may have adverse effects.

The results on the strategy sub-sample display that one add-on acquisition is clearly the superior option for buyout funds, with average IRR reaching 128%. Thereafter, returns deteriorate to 69% average IRR for two add-on acquisitions and 74% average IRR for three or more add-ons. These findings may suggest that the extra value added through extraction of synergies in each additional add-on acquisition after the first one are over-compensated by the accompanying integration costs.

<sup>201</sup> See Zollo and Singh (2000) for a detailed discussion.



**Figure 145: Buyout Deal Performance by Number of Add-on Acquisitions**

Source: INSEAD Buyout Strategy Database, analyzed by author (Deal N=52; mean IRR=90).

In summary, variable hypothesis H73 can be accepted, as both of the discussed value creations strategies – “investment” and “disinvestment” activities – demonstrate to be equally apt to generate solid returns. However, the above results have also demonstrated that for each alternative, several strategic options are more favourable than others.

## 6.5. Modelling Buyout Characteristics, Decisions and Strategic Events

The prior section has descriptively discussed a range of variables designed to capture strategic considerations in buyout transactions. In this section, each bloc of variables will be tested statistically in order to strengthen some of the above findings and to examine the combined explanatory power of buyout strategy related variables. Correlation tables and a nested multivariate regression model is presented to highlight the importance to include strategic characteristics in an analysis of buyout value creation processes.

### 6.5.1. Test results

#### 6.5.1.1. Descriptive Statistics

It should be noted again that due to the scarcity of strategic information provided in PPMs by Limited Partners this analysis has been performed on a considerably lower sample size compared to all other parts of this study; hence statistical significance is limited to a fewer number of variables and often based on a low number of valid cases. Nevertheless, the examination of the bivariate Pearson correlation matrix between the dependent variable IRR and the various independent buyout

strategy variables confirms some of the earlier findings. First, the key finding with respect to *target characteristics* is that a *stable industry* is negatively and significantly (at the 0.05 level; 2-tailed), while a cyclical industry environment is positively, but non-significantly correlated with gross IRR performance. This result is in line with the descriptive findings, but contrary to industry beliefs that investments in stable industry environment yield high returns. Despite the considerably more elevated associated variance of returns in cyclical industries, from a statistical point of view investments in cyclical businesses may yield higher returns<sup>202</sup>. The Pearson correlation for diversity of customer base confirms the descriptive trend that buyout transactions involving a profitable *single customer* outperform large customer base deals. The variable is highly positively and significantly (at the 0.01 level; 2-tailed) correlated to acquisition performance; the low number of cases must be taken into consideration here though. As Transactions whose prior organizational structure was *part of a larger entity* validate to be positively and significantly (at the 0.05 level; 2-tailed) linked to strong IRRs compared to buyout targets that had been standalone businesses. This finding in particular underlines the value creation opportunity resulting from conglomerate and larger business divisional spin-offs. With respect to prior corporate governance structures, the Pearson correlation displays high, statistically significant (at the 0.01 level; 2-tailed) returns for buyout targets that had been state-owned prior to acquisition. This finding supports agency theoretical expectations that the introduction of a more shareholders-oriented, incentivized new management team, which is closely monitored and controlled by the buyout firm owners, is able to lift significant value creation potential.

Secondly, among the *deal decision and motivation* variables, the seller type *government* exhibits a highly positive and significant (at the 0.001 level; 2-tailed) correlation with IRR, which is in line with the above findings for prior state-owned corporate governance structure. Equally related and in line is the finding that the seller divestment rationale *opportunity from privatization* is positively and significantly (at the 0.05 level; 2-tailed) correlated with performance. Among the buyer's motivations to acquire the target, the acquisition rationale *cost rationalization* does attest to deliver negative and significant (at the 0.05 level; 2-tailed) returns to General Partners. This finding is underlining the descriptive comparison of buyer motivations, which had demonstrated that the acquisition rationale cost rationalization only showed an average IRR of 68% and thus does not guarantee superior returns in the leveraged buyout context compared to other available alternatives. This finding is therefore in support of the theory that constant improvements in operational effectiveness to achieve superior profitability is necessary, but usually not sufficient (Porter 1996). Although statistically non-significant in this sample, the *potential for more efficient management* is positively correlated to acquisition performance, which would be in support that the theory of a market for corporate control (Manne 1965; Jensen and Ruback 1983) equally applies to the leveraged buyout context. A surprising finding is the statistical significance (at the 0.05 level; 2-tailed) for choosing *three or more co-investors* for transactions.

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<sup>202</sup> This result is thereby also in line with efficient market theory, compensating higher levels of risk with higher returns.

If proven on larger samples, this development could be interpreted as evidence that the combination of buyout firm expertise and financial power leads to (i) a higher success rate to win targeted assets, (ii) less competitive and hence more attractive prices, and (iii) more successful transaction execution and decision-making. To the latter point, the additional ‘checks and balances’ introduced through further investors could be seen as an indication that even for players highly active in the market for corporate control, there may be benefits for themselves (and buyout performance) through the scrutiny of a “board of corporate control” consisting of equally-minded and empowered buyout firm peers.

<b>Descriptive and Correlation Statistics</b>									
Variable (Dummy) Tested	N <sup>(1)</sup>	Mini- mum	Maxi- mum	Sum <sup>(2)</sup>	Mean	Std. Deviation	Pearson Correlation	Sig. (2- tailed)	
<i>Control Variables</i>									
Deal Exit Status – Bankruptcy	274	0	1	9	,03	,179	-,220(**)	0	
Deal Country – Scandinavia	274	0	1	17	,06	,242	,198(**)	,001	
Deal Country – USA	274	0	1	71	,26	,439	,079	,192	
Deal Country – Italy	274	0	1	17	,06	,242	-,087	,152	
Deal Country – Spain	274	0	1	20	,07	,261	-,097	,110	
<i>Target Characteristics Variables</i>									
Industry Cyclicity – Stable	274	0	1	43	,16	,364	-,119(*)	0,049	
Industry Cyclicity – Cyclical	274	0	1	127	,46	,500	0,08	0,189	
Business Strategy – Niche	274	0	1	33	,12	,326	0,084	0,166	
Customer Base – Many	274	0	1	169	,62	,487	-0,078	0,199	
Customer Base – Single	274	0	1	7	,03	,158	,236(**)	0	
Prior Corporate Governance – Private/Family business	274	0	1	115	,42	,494	-0,11	0,07	
Prior Corporate Governance – State-owned	274	0	1	7	,03	,158	,191(**)	0,001	
Prior Organizational Structure – Part of a larger entity	274	0	1	87	,32	,466	,140(*)	,021	
<i>Deal Decision Variables</i>									
Seller’s Motivation – Opportunity from Privatization	274	0	1	10	,04	,188	,151(*)	0,012	
Buyer’s Motivation – Potential for more efficient Management	274	0	1	72	,26	,441	0,081	0,183	
Buyer’s Motivation – Growth Potential in ex. Products/ Markets	274	0	1	150	,55	,499	-0,09	0,135	
Buyer’s Motivation – Cost Rationalization	274	0	1	139	,51	,501	-,132(*)	0,028	
Seller Type – Government	274	0	1	10	,04	,188	,256(**)	,000	
Deal Source – GP Management Network	274	0	1	56	,20	,404	-0,108	0,075	
Deal Source – Proactive	274	0	1	35	,13	,334	0,079	0,193	
Deal Source – Public deal	274	0	1	5	,02	,134	,136(*)	0,025	
Number of Co-Investors – More than two Co-investor	274	0	1	10	,04	,188	,138(*)	0,023	
<i>Strategic Event Variables</i>									
Key Strategic Events – Organizational Restructuring	274	0	1	34	,12	,330	-0,089	0,143	
Sub-Strategy Implementation – New Incentive Plans	274	0	1	20	,07	,261	,186(**)	0,002	
Valid N (listwise)	274								

(1) Total sample size of tested cases (all realized transactions).

(2) Number of cases where dummy variable = 1, i.e. number of transactions per variable tested.

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

**Table 58: Descriptive and Correlation Statistics on Buyout Firm Strategy Variables**

Finally, the *strategic event* variables overall displayed very low significance levels. The clear exception represents the sub-strategy implementation of *new incentive systems* at the buyout target, which is highly positively and significantly (at the 0.01 level; 2-tailed) linked to gross buyout deal performance. In line with earlier research, the finding is in unambiguous support of the validity of agency theory (Berle and Means 1932; Jensen and Meckling 1976; Fama 1980; Fama and Jensen 1983a; Fama and Jensen 1983b; Jensen 1986), which is also applying to the leveraged buyout context (Smith 1990a). A consistently beneficial key source of value creation in leveraged buyouts can therefore (relatively) effortlessly be established by buyout firms through the introduction of managerial equity co-ownership and/or other incentive plans. Although statistically non-significant, the results also directionally confirm that major *organizational restructuring* at buyout targets is linked to adverse performance. This finding must be interpreted to the extent that on average, target companies that for instance involve profound turnaround/restructuring situations do not sufficiently compensate buyout firms – also in light of the high turnaround risk involved – and thus should possibly be avoided as an investment opportunity from a statistical (historical return) standpoint.

#### 6.5.1.2. Coefficient Statistics

The coefficient statistics provide a complete overview of all variables utilized in the subsequent regression model. Although the strategy sample was generally not designed to carry a range of *control variables*, there are two main control variables introduced, including *Deal Exit Status* and *Deal Country*.<sup>203</sup> Consequently, deals that led to bankruptcy, as well as several highly successful transactions exited in Scandinavia and to a lower extent in the U.S. have been controlled for. It should be noted again that the analysis (so far) only involves realized transactions, so the statistical test controls for unrealized deals as well.

With respect to the focal buyout strategy variables in this examination, several variables had to be excluded from the regression model due to the strong multicollinearity effects caused by them. Among the target characteristics, two variables – *Stable Industry Cyclicalities* and *state-owned prior Corporate Governance* – have been excluded from the regression model. Among deal decisions, the seller's motivation *Opportunity from Privatization* was removed, with the latter two variables by definition strongly correlating with the deal source *government*. The remaining tolerances observed in the collinearity statistics are acceptable, with variance inflation factors generally below a VIF factor of 2.0 at all times.

The coefficient analysis of the strategy variables shows that among target characteristics, the variable *single customer* for buyouts target has a very positive and significant (at the 0.01 level) impact on performance on the current deal (high standardized Beta coefficient of 0.178). Although all other coefficients in this category are non-significant, they exhibit a similar trend as observed in the correlation statistics (except for *number of customers – many*). It is noteworthy to point out

again that there is statistical validation from the regression model for the fact that buyout targets entered in particularly stable industries display a negative standardized Beta coefficient of -2.3%. Buyouts acquired out of larger entities, however, contributed 8.4% to mean IRR. Among deal decisions and rationales, the seller *government* on average generates a very positive and significant ( $p < .01$ ) impact on buyout performance (high standardized Beta coefficient of 0.196). On the negative side, the buyer's motivation to acquire a target for *cost rationalization* purposes on average leads to value destruction of -13.6% (standardized Beta coefficient impact on mean IRR;  $p < .05$ ). Finally, the introduction of an *incentive system* at the buyout target contributes to a high standardized Beta coefficient of 0.182, significant at the 0.001 level.

Coefficients <sup>(a)</sup>							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
4	B	Std. Error	Beta			Tolerance	VIF
<i>Control Variables</i>							
(Constant)	,726	,231		3,139	,002		
Deal Exit Status – Bankruptcy	-1,506	,404	-,205	-3,726	,000	,933	1,072
Deal Country – Italy	-,201	,312	-,037	-,645	,520	,857	1,167
Deal Country – Scandinavia	,932	,345	,172	2,700	,007	,699	1,431
Deal Country – USA	,341	,203	,114	1,682	,094	,612	1,634
Deal Country – Spain	-,207	,300	-,041	-,691	,490	,795	1,258
<i>Target Characteristics Variables</i>							
Customer Base – Single	1,481	,471	,178	3,142	,002	,876	1,142
Customer Base – Many	,045	,190	,017	,236	,814	,566	1,766
Business Strategy – Niche	,164	,228	,041	,716	,475	,877	1,140
Industry Cyclicity – Stable	-,081	,205	-,023	-,396	,693	,870	1,149
Prior Corporate Governance – Private/Family business	,092	,198	,035	,463	,644	,506	1,977
Prior Organizational Structure – Part of a larger entity	,235	,190	,084	1,240	,216	,621	1,610
<i>Deal Decision Variables</i>							
Deal Source – Public deal	,194	,611	,020	,317	,752	,723	1,383
Deal Source – Proactive	,195	,246	,050	,792	,429	,717	1,394
Deal Source – GP Management Network	-,253	,192	-,078	-1,318	,189	,811	1,233
Seller Type – Government	1,368	,429	,196	3,192	,002	,750	1,334
Buyer's Motivation – Potential for more efficient Management	,112	,196	,038	,575	,566	,653	1,530
Buyer's Motivation – Growth Potential in ex. Products/ Markets	-,075	,154	-,029	-,488	,626	,826	1,211
Buyer's Motivation – Cost Rationalization	-,356	,149	-,136	-2,399	,017	,878	1,139
Number of Co-Investors – More than two Co-investor	,333	,407	,048	,819	,414	,833	1,201
<i>Strategic Event Variables</i>							
Sub-Strategy Implementation – New Incentive Plans	,917	,280	,182	3,274	,001	,913	1,095
Key Strategic Events – Organizational Restructuring	-,370	,231	-,093	-1,603	,110	,835	1,198

(a) Dependent Variable: Gross IRR Performance

Table 59: Coefficients and Collinearity Statistics on Buyout Strategy Variables

<sup>203</sup> For a more in-depth analysis of these and further control variables with respect to their varying degree of influence on value creation, please refer to the first empirical chapter.

### 6.5.1.3. Linear Regression Models Analysis

The linear regression model describing the explanatory strength of the buyout firm strategy variables is very robust. Considered individually, all individual regression models are highly significant ( $p < .001$ ), with F values ranging between 4.469 for model 3 to 6.508 for model 1 (individual models omitted here). When considering the change statistics of the nested models 1-4, it first can be observed that the stepwise introduction of variables in models 1-4 is highly significant ( $p < .01$ ) on each level, reaching an adjusted R square of 22.8% in model 4. As observed in several tests beforehand and in the expanded control variable analysis in section 4.3.10., the small group of *control variables* in model 1 already explains a significant portion of all variance in buyout returns (adjusted R square of 9.2% in this strategy sub-sample). Model 2 introduces the variables describing the *buyout target's strategic and operational configurations* (except for the two variables excluded as a result of multicollinearity considerations), which leads to a solid improvement of adjusted R square by 5.1% to 14.3%. The change in F value of 3.691 is highly significant at the 0.01 level (2-tailed). The following Model 3 then introduces the *strategic deal decision and motivation variables*, which leads to a further improvement of adjusted R square by 5.1% to 19.4%. The change in F value of 3.084 is again highly significant at the 0.01 level (2-tailed).

Linear Regression Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,329(a)	,108	,092	1,24984	,108	6,508	5	268	,000
2	,422(b)	,178	,143	1,21381	,069	3,691	6	262	,002
3	,501(c)	,251	,194	1,17695	,073	3,084	8	254	,002
4	,536(d)	,288	,228	1,15191	,037	6,581	2	252	,002

- (a) Predictors: (Constant), *Country and Exit Control Variables* (Bankruptcy procedures, Scandinavia, USA, Spain, Italy)  
 (b) Predictors: (Constant), *above, plus Target Characteristics* (Customers – Single/Many, Business Strategy – Niche, Prior Org. Structure – Part of a larger Entity, Cyclicalities of industry – Stable, Prior Corporate Governance – Private/Family Business)  
 (c) Predictors: (Constant), *above, plus Deal Decisions and Motivations* (More than two Co-investors, Buyer's motivations: Potential for more efficient Management/Cost Rationalization/Growth Potential in ex. Products/ Markets, Deal Source: GP Management Network/Public deal/Proactive, Seller Type – Government)  
 (d) Predictors: (Constant), *above, plus Strategic Events* (New Incentive Plans, Organizational Restructuring)  
 (e) Dependent Variable: IRR

**Table 60: Linear Regression Model on Buyout Firm Strategy Variables**

Finally, model 4 introduces the two variables exhibiting highest significance levels with respect to *strategic events*, which leads to a further improvement of adjusted R square by 3.4% to 22.8%. The change in F value of 6.581 is particularly significant again at the 0.01 level (2-tailed). The introduction of each group of buyout firm strategy variables in the nested multivariate regression model therefore led to a significant improvement in (i) the explanatory strength (R square) and (ii) the model's fit (F value) towards an elucidation of leveraged buyout performance. The importance of controlling for unrealized leveraged buyouts when analyzing strategy variables becomes decidedly transparent through an associated test of all of the 478 strategy dataset's transactions, which besides the 274 realized buyouts also carries information about 204 unrealized transactions. Through a goal-seeking linear regression model optimization routine, the maximum adjusted R



square achievable with the complete, mixed transaction dataset only reached 10.1%, i.e. exhibiting less than half of the explanatory power of the above presented regression model.<sup>204</sup>

### 6.5.2. Summary of Findings

The analysis of buyout strategy variables in this chapter represents a first exploratory attempt to reveal – on the micro-level of buyout transactions – what the strategic drivers in buyout value creation are. Each sub-category demonstrated affirmative, controversial and surprising results that may be further explored through future research. In the following, based on the key findings from the descriptive (and statistical) analysis, results will be summarized through a typology of the “*perfect leveraged buyout target/transaction*”. The typology is based on attributes, which had demonstrated the highest average IRR for the underlying strategy sub-sample in the mentioned dimensions.

The first group of variables described the buyout target’s strategic and operational configuration, its business strategy and source of competitive advantage. According to this category, the most successful buyout target from a return perspective would be a national champion, who preferably operated in a cyclical industry that allows taking advantage of upward business cycles, e.g. the cyclical service sector. The market share of the target would be irrelevant and the company was rather a niche player with a distinctive, limited product and service offering. The company may have benefited from a near monopoly position in its sector and/or had a very important single customer, with whom it maintained a very strong long-term relationship and had excellent visibility on future revenues/cash flows. The buyout target preferred to limit its marketing efforts to that extent that it chose to focus on one type of distribution channel. Prior to its buyout, the business had been part of a larger entity, a diversified conglomerate or potentially a division of a major corporate with fragmented ownership, potentially even a state-owned business, which offers significant value creation potential to the investing General Partner.

Secondly, taking into account the strategic deal decisions in the typology of the “perfect buyout target”, the target company has been sourced by the financial sponsor proactively, i.e. without external recommendations or approaches, and again, buying it from the public sector would clearly be advantageous. Besides the public sector wishing to privatize the target, family and succession issues could also serve as an excellent opportunity for the buyout firm to become active, i.e. to approach the target. Equally, the buyout firm may decide to invest in the target as it has either identified a strong potential for more efficient management or has hard evidence of strong brands and market positions that justify their commitment. In its approach to the target, the General Partner firm is well advised to involve one co-investor in the transaction for his added value

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<sup>204</sup> Further details regarding these additional statistics on the full strategy sample has been omitted intentionally here.

through expertise and/or financial power. The co-investor could especially also be a strategic investor, who takes a minority stake and receives a call option to acquire the full business, e.g. in a pre-determined time frame according to a previously agreed performance-linked purchase price matrix. The prior owner should preferably not stay involved at all in the business. In case strategic reasons make this unavoidable, equity participation is highly recommended to the buyout firm, instead of allowing any continued managerial role of the prior owner, which could inhibit radical strategic change and harm the value creation process.

Finally, the post-acquisition strategic actions available to the buyout firm in order to generate the maximum value from the target should involve a replacement of management team, as on average a new management team brings new valuable competences to the target business and is more apt to execute change management. Instead of spending too much time on cost cutting alternatives, the investing General Partner should directly focus on growth strategies for the business, e.g. through an expansion of the target's product lines, alongside a complete product portfolio review that especially focuses on the target's pricing strategy. In addition, the implementation of a new incentive (co-ownership) system for management and/or throughout the business is absolutely quintessential with a view on aligning managers' goals with the investor and stressing the accomplishment of the business plan's financial targets. Having the alternative options to either downsize or expand the target's business, the latter choice should be recommended to the buyout firm. Although cost cutting measures, such as layoffs to increase efficiency is indisputably adding value, the buyout firm should refrain from major "asset stripping", e.g. divesting major parts of the business. Either geographic expansion or one smart add-on acquisition, which could either be horizontal or vertical, will contribute far better to repositioning the company favorably and to achieve an improved exit valuation.

The above outlined *typology of the perfect buyout target/deal* and the various variables implicitly discussed therein have subsequently been tested statistically in a multiple regression model. Although a range of variables did not confirm their descriptive trends through sufficient statistical significance levels, several definite conclusions in each strategy variable category could be established. As a general caveat, the limited sample size compared to the large number of degrees of freedom necessary in order to execute this type of complex strategic analysis highlights the limitations of the dataset. Nevertheless, the model overall posted an adjusted R square of 22.8% and therefore contributes very meaningfully to the analysis of sources of value creation, further supporting the chosen research design of this study.

## 6.6. Conclusions

The “GP effect” in the value creation process of leveraged buyouts has been discussed in two dimensions now. In the second empirical chapter, the analysis of investment managers and buyout firms contributed to explaining why some General Partners may perform better on average than others. First, their personal and firm characteristics were made explicit, and secondly, their investment behaviour and track record was assessed statistically. The third empirical chapter took the analysis of the GP effect on step further, by analyzing the particular actions, motivations and decisions taken by the buyout firm before, at the time and after the focal buyout transaction. The period *before* the acquisition is reserved for an in-depth evaluation of the buyout target’s characteristics. The results in this chapter demonstrated that the buyout firm can increase its probability to gain above average returns by focusing on certain business characteristics. *At the time* of the acquisition, the buyout firm and the selling party each need to take distinctive decisions, e.g. whether to involve co-investors or prior owners going forward. They also need to determine what the overall rationale/motivation for the acquisition is. The findings in this regard indicated that (i) several prior stated deal motivations perform unsatisfactory when evaluated post buyout exit, (ii) some sellers and deal sources are more attractive than others and (iii) that the involvement of co-investors may generally add value, while continued prior owner involvement frequently destroys value. Finally, the available toolset of strategic measures available to buyout firms to implement changes at the buyout target is diverse, yet some measures are clearly more advantageous. In addition, the general decision for the General Partner between a more expansionary activity and contraction/downsizing of the business should be answered in favour of the former strategy, based on the performance results in this chapter of empirical results.

Nevertheless, despite these far-reaching insights into the strategic decision processes that complement the GP effect in buyouts, no final conclusion or affirmative recommendation can be given to General Partners yet. More research on even larger samples than the 274 realized buyout transactions that had been analyzed in great detail will be needed in order to validate these initial exploratory findings. In addition, the limits of quantitative analysis become evident here in to the extent that the different nature of buyout situations may require a case by case analysis to make valid recommendations. Any quantitative research must therefore eventually be supplemented by further qualitative, e.g. case study, research on leveraged buyouts. This, however, should be the mission of future research on the strategic aspects of this topic.

# 7. Summary and Conclusions

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## 7.1. Summary of Study's Key Findings

Due to the exploratory nature of the presented study, the amount of findings is extensive and hence will in the following be presented in form of condensed summary tables, which (i) indicate all tested variable hypotheses throughout this study, (ii) acceptance and rejection thereof, and (iii) levels of statistical significance. The latter category is particularly important with respect to the subsequent discussion and generalizability of results, in other words, their potential degree of contribution to theory building. Despite a considerably larger amount of overall findings, only results with sufficient statistical validity can be acknowledged, in line with the chosen research methodology based on a quantitative approach.

### 7.1.1. Summary Findings on Market & Financial Related Value Creation Drivers

Following the first research question, the study's first chapter of empirical results has tested and provided an in-depth analysis of exogenous, systematic drivers of value creation, which represented the first pillar of this study's research model. Important answers to the first research question and towards the first general hypothesis (GH1) were presented. The initial tests on the primary Limited Partners' dataset sample of leveraged buyout transactions in this study were designed to (i) identify the principal control variables surrounding buyout acquisitions, which were used throughout this study, and (ii) to benchmark results against the control population. Each of these initial tests on the various groups of (control) variables included formulation of variable hypotheses ("H") with respect to expected test outcomes, descriptive and graphical presentation and discussion of results as well as statistical tests to assess the variable's contribution towards explaining buyout performance. In the following, these initial findings are summarized (compare table 61).

First, the observed abnormally strong performance of certain acquisition entry years in the Private Equity industry was confirmed for deals that were entered in 1984, 1998 and 1999 (H2). The country of origin (H4) of buyout transactions has overall not been identified as an important value driver: the linear regression model has established that country variables are only adding minor explanatory strength to the analysis of buyouts with up to 0.8% of R square on the sample under review, which in other words means that buyout success is in general not dependent on geography.<sup>205</sup>

Hypothesis #	Tested Variable	Variable Hypothesis Description	Test Result / Key Findings	Acceptance or Rejection	Statistical Validity
H1	Buyout Deal Investment Status	Gross buyout deal performance of unrealized transactions is lower than for realized buyout deals.	J-curve effect leads to lower returns for unrealized deals.	Acceptance	0.01 (2-tailed)
H2	Buyout Deal Transaction Year	Gross buyout deal performance for transactions undertaken during the early 1980s as well as during the internet boom and stock market rally between 1997 and 2000 is higher than for other years under review.	Abnormal returns could be recognized for the entry years 1984, 1998 and 1999 as well as exit years 1987, 1988, 1989 and 2001 (negative)	Acceptance	0.01 (2-tailed)
H3	Buyout Deal Geographic Origin	Gross buyout deal performance of European transactions is higher than for U.S. target companies.	European deals demonstrated higher means, yet no sufficient statistical significance	Rejection	N/A
H4	Buyout Deal Country Origin	Gross buyout deal performance for transactions undertaken in European nations are by and large higher than for U.S. target companies.	Several countries/regions outperformed the U.S., e.g. Scandinavia	Acceptance	Scandinavia: 0.1 (2-tailed)
H5	Buyout Deal Industry	Gross buyout deal performance for investments undertaken in the information technology sector has been lower than in other industries.	Performance was found to be higher, contrary to the control population	Rejection	0.001 (2-tailed)
H6	Ownership stake acquired in target	Gross buyout deal performance for minority investments in buyout targets is lower than transactions, in which the General Partner has majority control (defined as more than 75%).	Performance was highest for majority control, but convex relationship also led to strong results for minority investments	Rejection	0.411 non-significant, convex distrib.
H7	Amount of capital invested	Gross buyout deal performance for larger investments in buyout targets is higher than for transactions with low investment.	Mixed results – smaller deals/investments performed best, but also mega-deals showed high means	Rejection	0.126 (2-tailed) for invested capital
H8	Holding Period	Gross buyout deal performance is lower the longer the holding period of the investment is.	Clearly confirmed – adverse impact for longer investment horizons	Acceptance	0.01 (2-tailed)
H9	Entry Mode	Gross buyout deal performance is higher for initial acquisitions than for later stage financing injections as the potential for value creation is likely to be higher at the time of the original buyout.	Outright acquisitions performed better than other forms, e.g. recapitalizations	Acceptance	0.001 (2-tailed)
H10	Exit Mode	Gross buyout deal performance is higher for transactions exited through initial public offerings than through private exit transactions.	IPO yields highest returns, but in Europe private exit through strategic sale attractive	Acceptance	0.001 (2-tailed)
H11	Entry Type	Gross buyout deal performance is higher for transactions with less competitive entry types.	Surprisingly, auctions historically proved to yield highest returns, but returns are decreasing	Rejection	0.05 (2-tailed)
H12	Exit Type	Gross buyout deal performance is higher for transactions with more competitive exit types.	IPO confirmed highest returns, but	Acceptance	0.001 (2-tailed)
H13	Buyout Firm	Gross buyout deal performance is not significantly better or worse for any individual buyout firm, based on efficient market theory.	Several Buyout Firms systematically out- or under-perform the market (GP effect motivation)	Rejection	0.001 (2-tailed)

**Table 61: Summary Findings – Buyout Deal Performance and Entry and Exit (Control) Variables**

With respect to the U.S.-European comparison (H3), although realized returns of some European countries had higher average returns, this trend was statistically non-significant. Since significance for U.S. deals could be found, no valid conclusions could be drawn from this sample.

<sup>205</sup> “Geography” implicitly also includes factors such as legal, tax, financial market, labour market, etc.

The industry of buyout transactions (H5) has been identified to be a very important value driver. The associated linear regression model confirmed that industry classification variables are adding extensive explanatory strength to the analysis of buyouts with up to 4.5% of R square on the Limited Partners sample. Some of the key findings include that in contradiction to the fund-based results from the Venture Economics dataset, the buyout funds in the Limited Partners' dataset sample have actually successfully invested in the information technology sector. Among the more traditional sectors, the service sector has proven to be very attractive from a return perspective, in line with the findings of the control population. Consequently, it can be concluded that industry dynamics play an important role with respect to successful buyout fund capital allocation.

With respect to market and financial value drivers that relate to entry, exit or investment period, the holding period, i.e. length of the buyout firm investment (H8) at the target, was highly negatively and significantly affecting buyout returns. The central takeaway for theory from this result must be that buyout firms should have a confirmed interest for a quick investment turnover, not least due to the fact that they will eventually be measured on their track record according to this dimension by their fund's investors. From a buyout fund practitioner perspective, investments with rather long-term value creation strategies should be disadvantaged when compared to short opportunistic investments. The results from the analysis of deal size (H7) and buyout performance produced mixed results. Overall, smaller deals statistically proved to perform better, although also strong returns for mega deals could be observed (yet statistically not confirmed). The mid-cap segment also showed slightly lower returns. In summary, no meaningful trend that would support a firm recommendation could be made on this variable. Equally, the ownership percentage acquired in buyout transactions (H6) has not been identified to be an important value driver from a statistical standpoint. This is partially the result of the convex relationship between ownership and performance, i.e. majority control investments performed best as expected, but the surprising finding on the Limited Partners sample is that minority investments, defined as less than 25%, produce very attractive results, which could be explained through a successful co-investment behavior among buyout funds. The 2<sup>nd</sup> and 3<sup>rd</sup> quartiles exhibit weaker average performance.

The analysis of entry and exit mode variables further revealed significant findings for the dynamics of value creation and buyout returns. The entry mode variable analysis (H9) has shown that the riskier outright acquisition yields higher returns than other entry modes, such as recapitalizations. European exit modes on average performed better in this sub-sample, partially driven by lower average investment holding periods. The exit mode variable (H10) confirmed that IPOs are statistically the preferred exit route from a return perspective, in line with findings on the Venture Economics control population. A surprising difference between Europe and the U.S. was, however, that the private exit market is relatively more attractive in Europe, enhanced by shorter European holding periods on this exit route. This has led to the conclusion that the private exit market in Europe is more active than in the U.S., driven by the less advanced (Pan-)European consolidation in most industries. The analysis of entry (H11) and exit (H12) type variables revealed further interesting results from a practitioner point of view, yet not all statistically significant. The

“competitive” auction counter-intuitively has historically been the entry type, which yielded the highest returns. Based on this phenomenon, conclusions were made that (i) the most attractive assets from a value creation or market position perspective are being sold through competitive auctions, and (ii) auctioned deals on average demonstrated to show the shortest holding period and hence are attractive as the quicker exit increases returns. However, the development of recently declining returns for auctioned deals was made explicit and must be cautiously observed. Finally, the General Partner firm (H13) undertaking the buyout has statistically been verified as a potential significant source of value creation. This evidence could be seen as the main motivation to study the GP firm in more depth in the subsequent empirical chapters II and III. A summary regression model on all of the above outlined control variables, posting an adjusted R square of 30.4%, confirmed that a set of important value creation drivers has been identified.

The next major analysis on the primary Limited Partners’ dataset examined gross buyout deal performance compared to public stock markets and put this into context with underlying industry financial developments (see summary table 62). The findings made explicit that the Limited Partners’ dataset is clearly outperforming both equity (H15) and industry (H14) benchmark indices: measured on Level 3 industry performance, average industry performance amounted to 17%, while excess value creation generation through all buyout deals in the sample was 57%. The degree of value creation in the information technology, financial and non-cyclical services industries was highest, in line with prior findings, and lowest for the utilities and natural resources sectors. Based on the dataset, a buyout performance index according to entry and exit year was developed, which demonstrated the trend of value creation across time. Through a range of statistical tests, it was confirmed that buyouts are driven by overall industry benchmark performance. However, the Limited Partners sample was found to exhibit a lower correlation with public equity markets (H16) than observed in previous studies using fund data, e.g. by Bance (2002).

In order to make explicit further what the link between industry index and buyout performance is, financial metrics of the respective buyout target’s industry at the time of entry and exit were examined. A high EBITDA margin at the time of entry (H18a), an indicator for profitability and cash flow generation potential, was found to be the key factor influencing buyout returns. Equally, at the time of the acquisition, industry sales (H17a) and profitability (H18a) on average were set to increase at least in the first two years following the acquisition. This finding supports a theory by which buyout firms have developed a proficiency of entering buyout targets at the exact correct time when industry growth prospects in the particular target industry were high (“investment timing capability”). This theory is further substantiated by the fact that industry growth and profitability prior to entry has not been positive. A surprising finding is that industry valuations at the time of entry were not necessarily low, i.e. the assumingly efficient markets had priced in the expected positive financial developments accordingly. In other words, buyout targets on average were acquired with good growth prospects, but not at a bargain.

Hypothesis #	Tested Variable	Variable Hypothesis Description	Test Result / Key Findings	Acceptance or Rejection	Statistical Validity
H14	Buyout Deal Gross Performance compared to Comparably Companies	Gross returns on individual buyout transactions undertaken by General Partners are significantly higher than in comparable public companies within the same industry over the holding period of the buyout target firm.	Buyout sample on average performed significantly better than comparable companies	Acceptance	0.01 (2-tailed)
H15	Buyout Deal Gross Performance compared to Equity Markets	Gross returns on individual buyout transactions undertaken by General Partners are significantly higher than the applicable broader equity market performance over the holding period of the buyout target firm.	Buyout sample on average performed significantly better than the broader stock markets	Acceptance	0.01 (2-tailed)
H16	Correlation with public markets	Gross returns on individual buyout transactions undertaken by General Partners have a low correlation with their respective industry indices' performance.	Correlation on the deal level proved lower than previous studies on buyout fund returns	Acceptance	0.01 (2-tailed)
H17a	Impact of Industry Revenue Growth	Gross buyout deal performance is higher for transactions undertaken when (a) the industry's revenue growth prospects were high and (b) exited when the industry's revenue growth prospects were low.	Both hypotheses were confirmed, i.e. sponsors prove to have a good investment timing capability with respect to revenue growth	Acceptance	0.01/0.01 (2-tailed)
H17b	Industry Revenue Growth	Gross buyout deal performance is higher for transactions undertaken when (a) the industry's margin expansion prospects were high and (b) exited when the industry's margin expansion prospects were low.	Both hypotheses were confirmed, i.e. sponsors prove to have a good investment timing capability with respect to profitability growth	Acceptance	0.01/0.01 (2-tailed)
H18a	Impact of Industry Profitability	Gross buyout deal performance is higher for transactions undertaken when (a) the industry's margin expansion prospects were high and (b) exited when the industry's margin expansion prospects were low.	Both hypotheses were confirmed, i.e. sponsors prove to have a good investment timing capability with respect to profitability growth	Acceptance	0.01/0.01 (2-tailed)
H18b	Industry Profitability	Gross buyout deal performance is higher for transactions undertaken when (a) the industry's margin expansion prospects were high and (b) exited when the industry's margin expansion prospects were low.	Both hypotheses were confirmed, i.e. sponsors prove to have a good investment timing capability with respect to profitability growth	Acceptance	0.01/0.01 (2-tailed)
H19a	Impact of Industry Valuation	Gross buyout deal performance is higher for transactions undertaken when (a) the industry's entry trading multiple expansion prospects were high and (b) exited when the industry's trading multiples were at a peak.	First hypothesis confirmed, valuations on average were high at deal entry already, but further multiple expansion, not significant for exit	Acceptance	0.05/0.139 (2-tailed)
H19b	Industry Valuation	Gross buyout deal performance is higher for transactions undertaken when (a) the industry's entry trading multiple expansion prospects were high and (b) exited when the industry's trading multiples were at a peak.	First hypothesis confirmed, valuations on average were high at deal entry already, but further multiple expansion, not significant for exit	Rejection	0.05/0.139 (2-tailed)
H20	Impact of Industry Leverage/ Cash Generation	Gross buyout deal performance is higher for transactions undertaken when the industry's cash flow generation and de-leverage prospects were high	Directionally confirmed, but statistically deleverage had no significant impact	Rejection	0.115 (2-tailed)

**Table 62: Summary Findings – Buyout Performance vs. Industry Performance and Financials**

However, variables for growth in trading multiples (“multiple expansion/riding”) (H18a) correlated very positively with buyout performance, while industry deleverage (H20) as an indication of increased cash generation proofed statistically non-significant. With respect to exit conditions, it was demonstrated that the buyout firm’s investment timing capability finds additional evidence. First, at the time of exit, industry financials had performed well over the two years prior to exit. However, the financial outlook suggested that sales and margin growth would halt (H17b, H18b). As a consequence, buyout firms on average also make correct divestment decisions, as they sell target companies at the height of their respective industry’s financial development (“cycle peak”), and before industry financial conditions worsen (e.g. cyclical downturns).

Finally, the first empirical chapter ended with a comparative analysis between the above mentioned industry financial conditions and actual buyout target financial performance. The financial development of buyout targets vis-à-vis their direct industry peers clearly indicated that buyout target companies are outperforming industry comparable companies with respect to revenue growth, profitability enhancements and cash flow generation (see summary table 63).



Hypothesis #	Tested Variable	Variable Hypothesis Description	Test Result / Key Findings	Acceptance or Rejection	Statistical Validity
H21	Buyout Target Revenue Growth	Gross buyout deal performance is higher than at comparable companies in the industry, as considerably higher revenue growth at buyout targets can be achieved through the influence of the buyout firm.	Target companies demonstrated on average significantly higher revenue growth than comparable companies	Acceptance	Not tested
H22	Buyout Target Profitability	Gross buyout deal performance is higher than at comparable companies in the industry, as considerably higher profitability gains at buyout targets can be achieved through the influence of the buyout firm.	Target companies demonstrated on average significantly better profitability improvements than comparable companies	Acceptance	Not tested
H23	Buyout Target Cash Flow Generation	Gross buyout deal performance is higher than at comparable companies in the industry, as considerably higher operating cash flow generation at buyout targets can be achieved through the influence of the buyout firm.	Target companies demonstrated on average significantly better cash flow generation than comparable companies	Acceptance	Not tested
H24	Acquisition and Sale Multiples	Gross buyout deal performance is higher than at comparable companies in the industry, as buyout firms on average are able to acquire targets at a discount to industry valuations and are able to sell them at a premium.	Confirmed that buyout firms on average manage to acquire firms at a discount and sell at a premium	Acceptance	Not tested

**Table 63: Summary Findings – Buyout vs. Industry Financial Performance**

In addition, buyout firms prove to be successful multiple arbitrageurs, entering companies at a discount to market valuations and exiting at a premium. These results can therefore be seen as an important contribution for the explanation of the above discussed observable excess returns over public markets. The application of the value attribution formula developed in this study to the subsample of buyouts then substantiated that buyout firms – *on a relative basis* – are also less dependent than industry comparable companies on improvements in industry valuations, as they rather take vigorous action to enhance revenue growth and profitability in order to maximize value generation. However, differences in value creation strategies followed by buyout firms do become transparent when evaluating different industries.

In summary, the results of the first empirical chapter on market and financial drivers provided substantial support for the first general hypothesis (GH1) of this study, i.e. that favorable market, industry, entry and exit conditions surrounding buyout acquisitions are positively and significantly correlated with buyout returns. The first pillar of the presented research model on sources of value creation in leveraged buyouts is therefore considered to be validated.

### 7.1.2. Summary Findings on Buyout Firm and Investment Manager Related Value Creation Drivers

Following the second research question, the study's second chapter of empirical results has shifted the emphasis on the indigenous, non-systematic drivers of value creation, which represent the second major pillar of this study's research model. Important answers to the second research question and towards the second general hypothesis (GH2) were presented and formulated the basis for a theory on the existence of a "GP effect" in the value creation process of leveraged buyouts. In the following, the chapter's key findings are summarized (compare table 64).

The analysis of the GP firm commenced with exploratory and descriptive tests on typical investment manager and buyout firm characteristics, which were subsequently probed with regard to their impact on performance. First, education has been identified as one area through which buyout professionals can differentiate themselves and influence the return profile of their fund. Buyout professionals typically undertake a combination of undergraduate degree and an MBA from one of the leading business schools, although there is also a high frequency of triple degrees, including PhDs and JDs. Among the most frequently visited institutions, Harvard University clearly dominates the Private Equity industry with most graduates (14.3% of all degrees and 33.9% of all MBAs). From a return perspective (within the team context), results were very mixed, but the bivariate correlations suggest that both a high share of business and engineering degrees in a buyout team are adversely affecting returns, while law and other degrees have a positive impact (H28).

The homogeneity variable substantiates the fact that educational diversity (H42) among buyout teams is benefiting returns. Also, the correlations suggested that master degree graduates appear to perform worse than other graduates within the team context that only had a bachelor degree (H29). Nevertheless, the 3<sup>rd</sup> degree category was the only one to demonstrate positive correlations (H30) and was slightly below the significance level of 0.1 (2-tailed). Investment managers were clearly found to attend the world's top universities, but no firm conclusions with respect to which universities would be recommendable for buyout manager education could be made (H31).

With respect to the professional experience of investment managers it can be stated that the observed diversity of backgrounds is immense and that they receive professional training from the world's leading financial services, consulting, accounting and law firms. The analysis also reveals that investment managers have created a network across academia, industry associations, government-linked bodies and even charitable organizations. From a returns perspective, on an individual basis, investment professionals with prior Private Equity, banking and finance or corporate management experience perform well. Within the buyout firm team context, a higher share of Private Equity and management experience continue to show very positive correlations with performance, but banking, consulting and especially accounting backgrounds perform dismal. This led to the conclusion that recruiting strategies of buyout funds may not be optimal, i.e. that a

lack of “the right” diversity within the LBO firm’s investment manager team adversely affects returns.

Hypothesis #	Tested Variable	Variable Hypothesis Description	Test Result / Key Findings	Acceptance or Rejection	Statistical Validity
H25	Investment	Gross buyout deal performance is higher for transactions, in which the average Age, Private Equity Experience and Tenure of investment managers and the GP firm team is high.	Surprisingly, higher experience in any of the three measures led to an adverse impact on returns	Rejection	0.453
H26	Manager Age,			Rejection	0.05
H27	PE Exp., Tenure			Rejection	0.05 (2-tailed)
H28	Investment	Gross buyout deal performance is higher for transactions, in which on average	H28) Business degrees performed negatively, law degrees positively	Rejection	0.05
H29	Manager			Rejection	0.01
H30	degree field,			Rejection	0.115
H31	total number of degrees, higher education degree, top University	H28.) more investment managers had a business or law degree. H29.) more investment managers had a higher than bachelor degree. H30.) investment managers had a higher number of total degrees. H31.) investment managers attended top ranked universities.	H29) Higher degrees did not prove beneficial H30) Teams with third degrees performed better, but non-significant H31) High variance in results, no conclusive trend	Rejection	N/A (2-tailed)
H32	Investment Managers' Extent of Professional Network	Gross buyout deal performance is higher for transactions, in which the average size of the investment manager's / GP firm team's network (professional experience) is high.	A large network did not prove to be important	Rejection	0.59 (2-tailed)
H33	Investment Managers' Type of Professional Experience	Gross buyout deal performance is higher for transactions, in which on average more investment managers of the GP firm team have acquired professional experience in the financial services industry or elsewhere in Private Equity.	Banking tended to adversely affect returns (non-significant), while prior Private Equity experience showed a very positive impact	Rejection/ Acceptance	0.093 0.01 (2-tailed)
H34	Buyout Firm Hierarchy	Gross buyout deal performance is higher for transactions, in which the average number of hierarchies of the investment managers / GP firm team involved in a transaction is low.	A leaner buyout team from a perspective of involved hierarchies performs better	Acceptance	0.1 (2-tailed)
H35	Buyout Firm Team Age Diversity	Gross buyout deal performance is higher for transactions, in which the average number of junior investment manager professionals in the GP firm deal team involved in a transaction is high.	The adverse effect takes place, junior investment managers tend to adversely affect returns	Rejection	0.05 (2-tailed)
H36	Buyout Firm Team Size	Gross buyout deal performance is higher for transactions, in which the average number of investment manager professionals in the GP firm is low.	Smaller buyout teams are more successful	Acceptance	0.1 (2-tailed)
H37	Buyout Firm Team Knowledge/ Joint Experience	Gross buyout deal performance is higher for transactions, in which the average joint deal history of the investment manager professionals in the GP firm deal team involved in a transaction is high.	Directionally positively correlated, but non-significant	Rejection	0.609 (2-tailed)
H38-46	Homogeneity of Buyout Firm Team	Gross buyout deal performance is higher for transactions, in which the homogeneity of investment manager professionals / GP firm deal team involved in a transaction with respect to (i) age, (ii) Private Equity experience, (iii) tenure, (iv) history with the team, (v) type, (vi) level and (vii) number of degree(s), (viii) universities and (ix) hierarchies, is high.	(i) Diversity negative (ii) Diversity negative (iii) Diversity negative (iv) Non-significant (v) Non-significant (vi) Non-significant (vii) Non-significant (viii) No clear trend (ix) Diversity negative	(i) Rejection (ii) Rejection (iii) Rejection (iv) Rejection (v) Rejection (vi) Rejection (vii) Rejection (viii) Rejection (ix) Accept.	0.564 0.001 0.001 0.609 0.124 0.832 0.358 N/A 0.001 (2-tailed)

Table 64: Summary Findings – Investment Manager and GP Firm Characteristics

The time experience variables age (H25), tenure (H27) and Private Equity (H26) experience, have produced results contradictory to expectations. From the descriptive findings, it could be established that after a certain age of buyout partners, their acquisition performance declines consistently. For tenure and years of industry experience, it appears as if senior investment professionals, aspiring to become partner, as well as young partners perform better than more experienced partners. This led to the postulation that both intrinsic and extrinsic motivation may have a certain peak. Within the team context, the correlation statistics support the fact that those partners with longest tenure and Private Equity experience adversely affect returns (H26, H27). However, the team hierarchy and diversity correlations revealed that a high share of junior professionals (H35) has an adverse effect and a higher share of partners has a positive effect on performance. In line with this finding, deals performed better when there was a lower amount of different hierarchies involved (H34), which in conjunction with the aforementioned finding implicitly also “criticizes” the role of junior professionals at LBO firms.

The descriptive findings demonstrated that there may be an optimal buyout firm team size. Historically, the most successful GP team size based on the Limited Partners’ data on average consisted of 15 buyout professionals, undertaking transactions with an average investment size of US\$ 24 million (assuming a 3 to 1 debt to equity ratio, this implies an average transaction size of US\$ 100 million, i.e. the larger mid-cap deal segment). This is substantiated by the fact that buyout firm teams with a high number of investment managers perform worse (H36). However, it can be reasoned that the increase of fund sizes may shift the “optimal deal team size” to a larger number in the future. There appears to be no clear argument for team diversity according to age (H38) or position (H41). However, there was directional statistical evidence that the impact of new members to the team with prior Private Equity experience resulted in a positive performance effect, but this result was non-significant (H37). The homogeneity construct further led to mixed results. In contrast to the above mentioned positive influence of a lower, i.e. more homogenous, amount of hierarchies (H34, H46), homogenous tenure and years of Private Equity experience are favorable.

The linear regression analysis suffered from high multicollinearity between the investment manager and GP firm characteristics variables, and hence, the explanatory power was inhibited due to the fact that a very limited amount of variables could be introduced. Nevertheless, in combination with a range of control variables, approximately one quarter of variation in buyout performance could be explained through the GP firm characteristics variables. Among the constructs, especially professional experience appears to affect performance and only to a lower extent education, team structure, time experience and team homogeneity. Overall, these results are in firm support of the second general hypothesis (GH2) of this study and substantiate the applied research model and industry expert claims, i.e. that non-financial metrics relating to the buyout firm’s team are quintessential in an assessment of value creation in leveraged buyouts.

The second major analysis relating to the GP firm as a potential contributor to value generation has shown that several variables relating to acquisition experience of buyout firms statistically proved

to impact buyout performance (see summary table 65). First, in the regression context the number of previous deals undertaken by buyout firms had a positive influence on IRR (H47a). The findings generally support the hypothesis that learning (curve) processes on the General Partner firm level constitutes an important factor in the value creation process in leveraged buyouts. In simpler terms, it indirectly supports the fact that on average buyout funds that have been in the business for longer are also the more successful ones. Likewise, the finding that transactions in the same deal size category are adversely affecting returns (H47b) highlights the fact that thriving buyout funds are over time constantly increasing their fund and deal sizes. Based on this perspective – frequently voiced concerns in the Private Equity industry regarding exacerbating growth in fund sizes can be rejected.<sup>206</sup>

Hypothesis #	Tested Variable	Variable Hypothesis Description	Test Result / Key Findings	Acceptance or Rejection	Statistical Validity
H47a	<i>Magnitude of similar Buyout Experience compared to focal Buyout</i>	<i>Gross buyout deal performance is higher (lower) for transactions, in which there is a larger number of previous transaction experiences of the buyout firm with relevant prior buyout deals, as there is a larger stock of available applicable knowledge in the firm (due to the lower level of attention to the idiosyncratic characteristics of the focal buyout deal).</i>	<i>There was a positive standardized Beta contribution for higher experience with (i) number of deals, (ii) same country deals (non-sign.), and negative for (iii) same deal size and (iv) same industry (non-sign.)</i>	<i>(i) H47a Acceptance</i>	<i>0.05</i>
H47b			<i>Rejection</i>	<i>0.281</i>	
			<i>Acceptance</i>	<i>0.05</i>	
			<i>Rejection</i>	<i>0.699 (2-tailed, coeff.)</i>	
H48a	<i>Novelty of focal Buyout compared with Buyout Experience</i>	<i>Gross buyout deal performance is lower (higher) for transactions, in which there is a greater degree of novelty of the focal deal compared to previous deal experience of the buyout firm, as there is a smaller stock of available relevant transaction knowledge (a higher level of attention to the idiosyncratic characteristics of the focal buyout deal).</i>	<i>There was a positive Pearson correlation for higher novelty with (i) industry, (ii) exit, (iii) investment and positive for (iv) country (non-sign.)</i>	<i>(i) H48b Rejection</i>	<i>0.659</i>
H48b			<i>Acceptance</i>	<i>0.01</i>	
			<i>Acceptance</i>	<i>0.05</i>	
			<i>Rejection</i>	<i>0.574 (2-tailed)</i>	
H49a	<i>Homogeneity of focal Buyout compared with Buyout Experience</i>	<i>Gross buyout deal performance is higher (lower) for transactions, in which there is a greater degree of homogeneity between the focal deal and previous deal experiences in the buyout firm, as there is a larger stock of available applicable knowledge within the firm for similar buyout deals (lower attention to the idiosyncratic characteristics of the focal buyout deal).</i>	<i>There was a positive standardized Beta contribution for higher homogeneity with (i) industry, (ii) exit (non-sign.), (iii) investment and positive Pearson for (iv) country</i>	<i>(i) H49a Acceptance</i>	<i>0.1</i>
H49b			<i>Rejection</i>	<i>0.342</i>	
			<i>Rejection</i>	<i>0.975</i>	
			<i>Acceptance</i>	<i>0.01 (2-tailed)</i>	

**Table 65: Summary Findings – GP Firm Buyout Experience Profile**

The other important finding from the analysis of the buyout firm's experience profile is that an investment focus strategy by buyout funds on a narrow range of industries can not be recommended (H47b, H48b), as this adversely affects the level of returns. As demonstrated in earlier results in empirical chapter one, buyout funds successfully take advantage of industry financial entry and exit conditions. As a consequence, by limiting the investment choice to fewer industries, opportunistic investing is replaced through more gradual investment along the industry cycles, which necessarily deteriorates the average level of returns. In addition, investment criteria

<sup>206</sup> However, there are other factors, such as lower deal flow in the large cap segment as well as more frequent use of auctions that may inhibit buyout return growth in the future. Also compare with results from empirical chapter one.

may be lowered for acquisition targets in a certain industry as buyout firms may become overconfident with respect to their value creation strategies. Moreover, based on bivariate correlations, investment in one geographic region was established to be favorable (H47a, H49a). In summary, these results further contributed to accepting the second general hypothesis (GH2) of this study that there is a “GP effect” in leveraged buyouts based on an experience effect in executing buyout deals on a regular basis, which positively influences buyout returns.

### 7.1.3. Summary Findings on Buyout Strategy Related Value Creation Drivers

Following the spirit of the second research question, the study’s third and final chapter of empirical results has extended the analysis of indigenous, non-systematic drivers of value creation through the buyout strategy dimension, which represents the third major pillar of this study’s research model. This strategic examination in large part builds on findings from both the first and second empirical chapters, seeking to clarify and shed additional light on them. Hence, “supplementary” answers to the second research question and towards the third general hypothesis (GH3) could be presented. Further evidence points to the fact that the leveraged buyout firm through its active decision-making and pursued strategic implementations is the key determinant of value creation processes in leveraged buyouts, formulated as the “GP effect”. In the following, the third chapter’s key findings are summarized (compare tables 66, 67 and 68).

The analysis of target company characteristics has revealed (i) what some of the sought-after (by buyout firms in their target selection process) characteristics of buyout targets from a strategic perspective are, and (ii) to what extent these may influence acquisition performance. A range of findings were surprising, some counter-intuitive, but most confirmatory: it was established that a national operating focus was more advantageous than internationally/globally operating businesses (H50), however that a certain degree of industry cyclicality offered higher upside potential than very stable industries (H52). Niche player targets with small market shares performed at least as strong as industry leaders following a premium or cost leadership strategy (H53, H54), while a lower degree of competitive industry concentration proved to be beneficial (H55). Operating with fewer products through a limited number of distribution channels and potentially a small, selective customer base tended to lead to higher returns at buyout targets in the sample (H56, H57, H58). The pre-buyout organizational and corporate structure was found to have a substantial influence on value creation potential: target companies, which had been part of a larger entity performed significantly ( $p < .05$ ) better, as the value creation potential and introduction of an entrepreneurial spirit outweighed extra organizational improvement efforts required from a standalone company (H59). Similarly, target companies, which had a lower degree of monitoring and shareholder activism prior to the buyout, such as state-owned businesses, performed exceptionally well ( $p < .001$ ) post-buyout (H60). With respect to ownership concentration, however, no clear statistical trend could be observed (H61).

Hypothesis #	Tested Variable	Variable Hypothesis Description	Test Result / Key Findings	Acceptance or Rejection	Statistical Validity
H50	Scope of Buyout Target Operations	Gross buyout deal performance is higher for target companies, which are operating on a global basis due to their ability to penetrate more markets with their products and services, thus reducing their dependency on a single domestic market.	National focused players performed well, while global, regional and intl. did not (non-sign.)	Rejection	0.258 (2-tailed) (global)
H51	General Target Industry of Target	Gross buyout deal performance is higher for target companies, which are operating in the service sector than for companies in the consumer and industrial product sectors.	Service sector performed best, industrial and consumer not (non-sign.)	Acceptance (Statistical Rejection)	0.463 (2-tailed) (service)
H52	Buyout Target Industry Cyclicity	Gross buyout deal performance is higher for target companies, whose business environment is more cyclical, as – according to efficient market theory – a higher compensation for risk is required to compensate investors, and buyout firms may be able to take better advantage of cyclical upturns.	Stable was negatively, cyclical positively affecting performance	Acceptance	0.05 (2-tailed)
H53	Market Share of Buyout Targets	Gross buyout deal performance is higher for target companies, which have gained a higher market share in their respective industry/markets.	Although non-sign., smaller market positions performed better	Rejection	0.890 (2-tailed)
H54	Generic Business Strategy of Target	Gross buyout deal performance is not significantly higher for target companies, independent of their chosen generic business strategy.	Niche strategy performed best, but no clear dominance	Acceptance	0.166 (2-tailed)
H55	Concentration of Target's Industry	Gross buyout deal performance is higher for target companies, whose industry structure is characterized as non-concentrated, i.e. with a lower number of active industry players.	Monopoly performed best, fragmented worst, but non-sign.	Acceptance (Statistical Rejection)	0.334 (2-tailed)
H56	Product Diversification of Target	Gross buyout deal performance is higher for target companies, whose product and service portfolio is limited and focused, as the benefits of product diversification do not outweigh the associated diversification costs.	Focusing on fewer products proved more beneficial, but non-sign.	Acceptance (Statistical Rejection)	0.339 (2-tailed)
H57	Customer Base of Buyout Target	Gross buyout deal performance is higher for target companies, whose customer base is broad, as the bargaining power and dependency on individual customers is moderate.	Single customer relationships performed clearly better	Rejection	0.001 (2-tailed)
H58	Distribution Strategy of Buyout Target	Gross buyout deal performance is higher for target companies, who use multiple distribution channels in order to reach a maximum amount of customers.	One channel more effective than multiple, but non-sign.	Rejection	0.871 (2-tailed) (one)
H59	Prior Organizational Structure of Buyout Target	Gross buyout deal performance is higher for target companies, which had been part of a larger entity, as the value creation potential and introduction of an entrepreneurial spirit should outweigh extra organizational improvement efforts.	Companies that were part of a larger entity showed higher returns than standalone	Acceptance	0.05 (2-tailed)
H60	Prior Corp. Governance Structure of Target	Gross buyout deal performance is higher for target companies, which had a lower degree of monitoring and shareholder activism prior to the buyout.	Prior state-owned businesses offered highest return potential	Acceptance	0.001 (2-tailed)
H61	Prior Ownership Structure of Buyout Target	Gross buyout deal performance is higher for target companies, which had a more widely held ownership structure before acquisition, as the closer supervision of management may have instilled more effective shareholder values.	Fragmented ownership had a positive impact, concentration was adverse, but non-sign.	Acceptance (Statistical Rejection)	0.810 (2-tailed)

Table 66: Summary Findings – Buyout Target Strategic Characteristics

Following the acquisition process approach outlined by Haspeslagh and Jemison (1991), adapted to leveraged buyouts (figure 6), the second strategic sub-category under scrutiny in the third empirical chapter of this study had related to the strategic deal decisions involved in leveraged buyouts.

Among the key findings, proactive proprietary deal sourcing from the buyout firm has been confirmed to lead to strong returns, while any other form, intermediaries (e.g. Investment Banks), the GP's (management) network, etc. were less effective (H65). Acquiring businesses from less sophisticated, non-financial institutions, such as public authorities, was advantageous for the sponsor, potentially as a result of a (favorable) imbalance in negotiation skills and/or an uneducated view on disposable asset values on the side of this seller (H66). Both the seller's and buyer's motivation for the transactions were vague, and did not materially influence buyout returns (H69, H70). Especially, acquiring the buyout target motivated by an "aggressive cost rationalization plan" by the sponsor was found to be an ill-fated endeavor from a (negative,  $p < .05$ ) return perspective and hence cannot be recommended as a value optimizing acquisition strategy (H70).

Hypothesis #	Tested Variable	Variable Hypothesis Description	Test Result / Key Findings	Acceptance or Rejection	Statistical Validity
H62	Degree of Management Incentivation at Buyout Target	Gross buyout deal performance is higher for target companies, at which buyout firms have implemented significant changes in the ownership and governance structure, specifically through a substantial usage of management co-ownership.	Surprisingly no statistical confirmation of the benefits of equity participation	Rejection, also non-sign.	0.983 (2-tailed)
H63	Percentage of Equity granted to Management	Gross buyout deal performance is higher for target companies, whose management receives approximately between 10% and 20% of initial total equity in the transaction.	Positive effect of equity until 20%, thereafter adverse	Acceptance (Statistical Rejection)	0.250 (2-tailed)
H64	Role of Management in Buyout (asymmetric information)	Gross buyout deal performance is not significantly higher for target companies, independent of whether the transaction represents a MBI or MBO, with the latter case accusingly representing an opportunity to exploit asymmetric information.	MBO positive, MBI negative performance effect, but non-sign.	Acceptance (Statistical Rejection)	0.783 (2-tailed) (MBO)
H65	Transaction Source	Gross buyout deal performance is higher for target companies, which have been acquired as a result of a negotiated sales process, i.e. through proactive approaches or by leveraging existing relationships maintained by the General Partner or its management team.	Proactive deal sourcing by the GP is most effective, while other sources are adverse	Acceptance (Statistical Rejection)	0.193 (2-tailed)
H66	Seller Type (negotiation power)	Gross buyout deal performance is higher for target companies, which have been acquired from less sophisticated, non-financial institutions, as these may lack a comparable level of negotiation skills or educated view on disposable asset values.	The public authorities/ government proves to be the seller leading to highest returns	Acceptance	0.001 (2-tailed)
H67	Number of Co-investors	Gross buyout deal performance is higher for target companies, which benefit from a single or limited number of co-investors, due to an amalgamation of expertise and superior combined financial power.	Co-investors are found to add to performance, especially more than two	Acceptance	0.05 (2-tailed)
H68	Involvement of Prior Owner	Gross buyout deal performance is higher for target companies, which do not retain a significant involvement of prior owners as managers, as the value creation implementation process may be inhibited by resistance for radical corporate change.	Prior owners adversely affect returns, more so if part of management than as equity owner	Acceptance (Statistical Rejection)	0.271 (2-tailed)
H69	Seller motivation	Gross buyout deal performance is higher for target companies, which have been acquired by the buyout firm while the seller was under divestment pressure.	Pressure to divest not found to lead to higher returns	Rejection	0.05 (2-tailed) (Privatiz.)
H70	Buyer motivation	Gross buyout deal performance is higher for target companies, for which buyout firms have been able to identify management or operational inefficiencies, lucid growth strategies or benefits from favorable external market conditions at the time of the acquisition.	Inefficient management has pos., cost and growth strategies neg. impact	Rejection	0.05 (2-tailed) (Cost rationalization)

Table 67: Summary Findings – Buyout Strategic Deal Decisions and Characteristics



The involvement of at least one, but better more than two ( $p < .05$ ) co-investors, in the transaction for the purpose of added value through broader expertise and/or financial power was found to be recommendable to buyout firms from a return point of view (H67). The prior owner should not stay involved in the business (as indicated by an adverse return profile), whereby equity participation was found to be a less harmful mean of involvement than a continued managerial role. Nevertheless, there was directional, yet not statistically significant, evidence that management in MBO situations is exploiting asymmetric information (H64). With respect to management incentivization (through co-ownership), only support for agency theoretical assumptions could be given as buyout targets whose management received equity, did not perform significantly better across the underlying sample (H62). However, prior agency theoretical research in this area was confirmed (though statistically non-significant) by the fact that acquisition performance improves up to a level of management ownership of 20% of, declining thereafter (H63).

Hypothesis #	Tested Variable	Variable Hypothesis Description	Test Result / Key Findings	Acceptance or Rejection	Statistical Validity
H71	Key Strategic Events	Gross buyout deal performance is higher for target companies, in which senior management is exchanged and aggressive strategic change is implemented.	Mgmt changes directionally positive, strategic change no effect (both non-sign.), org. restructuring negative effect	Rejection	0.143 (2-tailed) (Org. restructuring)
H72	Key Operational Strategic Implementations	Gross buyout deal performance is relatively higher for target companies, in which buyout firms implement an effective incentive plan through equity participation and co-ownership.	New incentive plans found to be highly effective strategic measure	Acceptance	0.01 (2-tailed)
H73	(Dis-)Investment Strategy	Gross buyout deal performance is not significantly higher for target companies, independent of whether the buyout firm's pursued value creation strategy is based on a "add-on/expansionary" or "disposal/cut-back" strategy and its respective accompanying measures.	Geographic expansion and add-ons as well as layoffs positive effect, asset consolidation/disposals negative	Rejection, also non-sign.	0.322 (2-tailed) (Layoffs)

**Table 68: Summary Findings – Buyout Acquisition Process and Strategic Events**

Once the acquisition has been negotiated and agreed, the ensuing post-acquisition phase offers buyout managers the opportunity to exercise and implement strategic action at the target, in order to actively generate and extract maximum value. The descriptive and statistical results from the examination of the acquisition process and strategic events exposed that – as a first measure – the introduction of a new management team at the buyout target is beneficial from a return perspective. Hence, it can be inferred that on average a new management team appears to bring new valuable competences to the target business and is more apt to execute change management. The measure more positively affects returns (H71) than measures seeking to bring about radical strategic change (through existing management). Also, far-reaching organizational restructuring plans tended to be less effective from a performance viewpoint (H71). Among strategic implementations, a focus on growth strategies for the business, e.g. through an expansion of the target's product lines, alongside a complete product portfolio review that especially focuses on the target's pricing strategy, tended to positively support the sponsor's value creation goal (H72). In addition, the implementation of a new incentive (co-ownership) system ( $p < .01$ ) for management and/or throughout the business can

be seen as absolutely quintessential with a view on aligning managers' goals with the investor and stressing the accomplishment of the business plan's financial targets (H72). Between the alternative options to either downsize or expand the target's business, the latter choice is recommendable to the buyout firm (H73). Although cost cutting measures, such as layoffs designed to increase efficiency is indisputably adding value (positively, but non-significantly correlated), the buyout firm should refrain from major "asset stripping" activities, e.g. divesting major parts of the business (H73). Either geographic expansion or one smart add-on acquisition, which could both be horizontal or vertical, will contribute far better to reposition the company favorably and to achieve an improved exit valuation.

In summary, the unprecedented analysis of "buyout strategy variables" in this study has made a first exploratory attempt to uncover – on the micro-level of buyout transactions – what the strategic drivers in buyout value creation are. Each sub-category demonstrated affirmative, controversial and surprising results that may be further explored through future research. Although a range of variables did not confirm their descriptive trends outlined throughout the third empirical chapter through sufficient statistical significance levels, several definite conclusions in each strategy variable category could be established. As a general caveat, the limited sample size compared to the large number of degrees of freedom necessary in order to execute this type of complex strategy analysis highlights the limitations of the dataset. Nevertheless, the multiple regression model on buyout strategy factors overall posted an adjusted R square of 22.8% and therefore not only contributed very meaningfully to the analysis of sources of value creation, but supports the chosen research design and the third general research hypothesis (GH3) of this study.

#### 7.1.4. Interpretation of Results with Research Hypotheses

Based on the above outlined summary of this research study's findings, the general research hypotheses of this study can be concluded on in the following way:

- GH1. The results from the tests of market and financial value drivers in the first empirical chapter, i.e. with respect to entry and exit years, entry and exit types and modes, industry, country/origin, amount of invested capital, percentage of ownership, holding period, acquiring GP firm, industry and equity market performance, as well as industry financial development, have demonstrated to be (statistically) significant value and performance drivers in the leveraged buyout value creation process. The first general hypothesis of this study can therefore be accepted.*
- GH2. The results from the test of investment manager and buyout firm value drivers in the second empirical chapter, i.e. with respect to investment managers' education, professional experience as well as the buyout firm's hierarchical homogeneity/*

*diversity and organizational deal-making experience profile, have demonstrated to be (statistically) significant value and performance drivers in the leveraged buyout value creation process. The second general hypothesis of this study can therefore be accepted.*

*GH3. The results from the test of buyout's strategic value drivers along the leveraged buyout acquisition process in the third empirical chapter, i.e. with respect to the focal buyout target's strategic and business characteristics, strategic deal decisions and characteristics taken as well as (post-)acquisition process strategic events, have demonstrated to be (statistically) significant value and performance drivers in the leveraged buyout value creation process. The third general hypothesis of this study can therefore also be accepted.*

## **7.2. Contributions to Research and Applications to Practice**

The development of variable hypotheses prior to the various tests and the subsequent discussion of findings in this study has widely been based on a presentational setting of research results targeted at both an academic and practitioner audience. As a consequence, the following sections are intended to briefly summarize contributions to research and possible applications to practice.

### **7.2.1. Contributions to Agency Theoretical and Finance Research**

In the event of a leveraged buyout, several of the determinants of agency cost change considerably (Jensen 1986). A number of governance mechanisms have been identified to limit the agency conflict in corporations; these mechanisms include improved monitoring and reduction of the agent's discretionary decision space (board of directors), the market for corporate control, managerial equity ownership and other incentive alignment devices (Fama 1980; Demsetz 1983; Jensen 1988). This study has contributed with the test of several variables related to this discussion throughout the three empirical chapters.

The first important change in agency cost caused by the buyout stems from the significant use of debt financing in a typical LBO deal. Agency cost of free cash flow arises when cash flow exists in excess of what is required to fund all of a firm's projects that have positive net present values when discounted at the relevant cost of capital. Such free cash flows must be paid out to shareholders if the firm is to be efficient and to maximize shareholder value, but managers have few incentives to do so and prefer to retain control (Jensen 1986; Jensen 1989b). The much higher leverage after a buyout increases the requirements of debt and interest service payments, thereby significantly reducing the amount of free cash flow that is at the buyout company managers' discretion (Kaplan

1989b; Smith 1990b). Thus, high leverage means less managerial discretion and therefore reduces the “agency cost of free cash flow” (Jensen 1986). Consequently, increased financial leverage in buyouts is assumed to lead to value creation. The analysis in section 4.5 on value attribution confirms some of these assumptions. The cash flow generation at buyout targets was found to be significantly higher than at comparable companies in their respective industries. At the same time, buyout targets carried substantially higher leverage at point of entry and exit of the investment. In addition, the amount of equity growth suggested that the buyout target has distributed excess cash through extraordinary dividends to the General Partner. This is the result of the fact that the sponsor has an interest in extracting cash as soon as possible from the target, since this positively affects a cash flow based-IRR calculation. Agency costs of free cash flow are therefore consistently evaluated and held at a minimum for managerial discretion. However, the potential risk of financial distress associated with the LBO debt burden, which may even call into question the ability of the buyout target to survive (Smith 1990b), has also been exhibited among the tested sample – six out of the 272 buyout targets (2.2%) have gone bankrupt and/or have been fully written off. The average return of 84.0% of the realized buyout sample – including the write-offs – compared to 16.5% IRR for the publicly traded peer group suggests that the excessive return expectations for buyout firms following the free cash flow minimization strategy may let them accept infrequent events of “financial distress”.

The second important determinant of agency cost which is affected by an LBO is the oversight and control that the owners have over the management of the company. Professionals from the investing LBO firm are in the position to closely monitor the portfolio company management and to exert direct control over them (Smith 1990b). As representatives of the majority shareholders, they have the legal power to influence managerial decisions both directly and through their right to determine the composition of the top management team. This monitoring and control function of the LBO firm has been seen as one of the principal capabilities of the LBO organization (Baker and Montgomery 1994). One aspect of control over the portfolio company which is of particular interest is the owner’s right to determine the composition of the top management team. The question of the performance impact of replacements of the top management team has received much attention both in the theoretical and the empirical literature. One side of this literature supports the hypothesis of the “market for corporate control” (Manne 1965; Jensen and Ruback 1983), according to which different management teams compete for the control over companies. The examination of the strategic aspects of buyouts in the third empirical chapter has produced several findings contributing to this discussion. First, among the post-acquisition strategies, later replacements in the management (although statistically non-significant) have only led to minor improvements in buyout performance. However, one potential explanation for the relatively low significance found may relate to the fact that the impact magnitude by the notion of “market for corporate control” is less effective in buyouts: since buyout investment managers can exercise large control over *any* target management, the potential for shirking post-buyout may already be lower from the outset than in publicly traded, widely held companies. Another key finding from this study in this respect is that continued involvement of the prior owner or owner-manager adversely

affects returns, independent of whether in the form of managerial or equity participation. In these cases, the monitoring and control function of the LBO firm as categorized by Baker and Montgomery (1994) may be materially inhibited, if not rendered ineffective. This is further substantiated through the fact that the average IRR in case of managerial (rather than board room) involvement is most severely affected.

As a third and most important factor to reduce agency costs and to generate value, buyout transactions are characterized by their considerable use of top management incentives and management co-ownership in order to align interest between LBO firms (and their investors) and management. Equity holdings of top managers increase the cost of shirking and consuming perquisites (Smith 1990a) to them and increase the degree of common interests between owners and managers. In general, the target company's top management team had no or only a suboptimal incentive system prior to the LBO with the incentives either not being very effective (suboptimal level of co-ownership or stock options etc.), or they were based on performance measures that do not perfectly reflect the owner's interest (e.g. rewards based on short-term earnings/stock performance rather than long-term cash flow or earnings potential and value creation). Leveraged buyouts specifically, with their limited life and foreseeable liquidation of the investment, create a situation in which equity holdings of top managers are better suited to aligning interests between managers and shareholders and thus to enforcing shareholder-wealth-maximizing behavior than otherwise possible (Baker and Montgomery 1994). This study offers several insights into ownership dynamics. First, in the first empirical chapter, the percentage of ownership acquired has been analyzed and a convex relationship between ownership level and returns could be observed, i.e. control investments perform best as expected; however, minority investments of up to 25% also perform significantly better than the 2<sup>nd</sup> and 3<sup>rd</sup> ownership quartiles. La Porta, Lopez de Silanes et al. (1999) in their analysis of corporate ownership around the world had previously found that minority shareholders are systematically expropriated. The dynamics in the private market for buyouts appear to contradict this overall trend. The positive results for minority investments of buyout firms are further substantiated in the third empirical chapter, which recommends the involvement of co-investors in transactions through higher expected returns. The added expertise, financial power, and layer of "buyout decision control mechanism" instilled through co-investors (often minority shareholders of up to 25%) demonstrate that ownership dynamics are unique in buyouts. Moreover, the highly significant ( $p < .01$ ) results on acquisition performance in the third empirical chapter regarding implementation of a new incentive system underline the agency theoretical assumption of reductions in agency cost through co-ownership in the buyout context. Finally, the highly significant performance results for buyout companies that have been owned and governed by public sector prior to acquisition could be interpreted in such regard that the use of top management incentives and management co-ownership in order to align interest between the LBO firm and previously public authority managers and/or employees is likely to be greatest.

In terms of advancement of theory, the study has further contributed through the development and application of a value attribution formula (see section 3.5.4.) based on the Dupont equivalence.

Through mathematical deduction, it allows the time-dynamic attribution of acquisition performance (IRR) generated over the time of the investment into its four main constituents – revenue growth, margin enhancement, multiple expansion and deleverage/cash flow generation at the target business. Applied to larger samples of buyouts across time, the formula introduces the opportunity to assess varying buyout value generation strategies according to industry, time and buyout firm under examination. It thereby serves as an ex-post benchmark tool, making explicit value creation drivers that can directly be juxtaposed against comparable companies in the buyout target's respective industry, hence highlighting the sponsor's acquisition-making capabilities.

In summary, the examination of leveraged buyouts in this study revealed arguments in support of the school of agency theoretical thinking, whether with respect to agency costs of free cash flow, monitoring and control or use of management incentives. The study has further contributed meaningfully to other topics in finance, such as acquisition performance and value attribution research: to the best of the author's knowledge, no prior study on the performance of buyout transactions has been published with a comparable sample size or breadth of performance driving (control) variables.

### 7.2.2. Contributions to Strategic Management Research

Strategic Management researchers have focused their attention in the acquisition literature on the way resources and knowledge are transferred between acquirer and target. The resource-based view of the firm (Penrose 1959; Rumelt 1984; Wernerfelt 1984; Barney 1986; Dierickx and Cool 1989) sees the ability to share and redeploy resources within and across organizations as the dominant source of sustainable competitive advantage. The present study has introduced the LBO organization and its team of investment managers as important resources in the value creation process. As a result of their unique organizational configuration, LBO firms, when compared to strategic buyers, are purely financially motivated, non-strategic acquirers, which make no attempt to foster synergies among their portfolio companies (Baker and Montgomery 1994). The second empirical chapter has outlined characteristics, skills and capabilities of investment managers, and related these to performance. Within the team context, the influence of certain attributes and team configurations was subsequently measured against acquisition performance. One interesting finding relates to the fact that among prior relevant professional experiences, investment managers with corporate and/or managerial backgrounds had a highly significant, positive impact on buyout performance. According to Barney (1986), the expertise and social capital of the members of the top management team constitute the most valuable resource to the company. The potentially higher "relatedness" between LBO firm resources with corporate experience/capabilities and target company management resources may lead to higher "synergistic values" between them and entails superior performance.

The buyout event gives the LBO firm direct access to the resources of its portfolio company. As most acquisitions are standalone rather than based on build-up strategies, the LBO firm effectively chooses not to share any of these resources with other portfolio companies. Consequently, a large portion of the value creation of the LBO has to come from an increase in the profitability of the portfolio company's resource bundle as a standalone business. Therefore, it is crucial to the success of the LBO to enhance the utilization of these resources. The LBO firm has a range of options for increasing the resource efficiency of its portfolio company (e.g. cost cutting, capacity optimization, introduction of new incentive systems, stretched budgets, pressure from financial leverage, etc.). Motivated by these strategic options, this study, in its third empirical chapter, reviews these options with a view on buyout performance. Among the strategic events, there is support for the fact that expansionary activity, either through geographical expansion and/or add-on acquisitions, has a higher, positive impact on acquisition performance than a reduction in the business' asset and resource configuration – radical organizational change, consolidation and relocation of assets did adversely affect performance. This finding authenticates the potentially detrimental factor to resource efficiency under the resource-based view of the firm, which is caused by the disruptive effect of changes in the resource base of the portfolio company. This view had received earlier support from studies relating, in particular, managerial turnover to performance in a general acquisition context, which found that managerial turnover reduces acquisition performance (Cannella and Hambrick 1993; Krishnan, Miller et al. 1997; Zollo and Singh 2000). In conjunction with the weak findings of the agency theoretical reasoning for a "market for corporate control" hypothesis in buyouts (Manne 1965; Jensen and Ruback 1983), the resource-based view may therefore bear higher than anticipated relevance in the leveraged buyout context.

Finally, this study has also endeavored to make a contribution to the literature field of competitive advantage, business strategy and acquisition performance. The analysis of business strategy characteristics in the third empirical chapter has sketched a typology of suited target companies. Among the key findings, no generic business strategy was clearly superior; however, niche businesses with smaller market shares performed very well from a return perspective. This could be the result of an often followed (mid-cap market) buyout firm acquisition rationale to acquire and grow an attractive niche business with the prospect of selling it at a premium to a strategic investor. The buyout firm thereby almost acts as an "entrepreneurial business broker" by pre-assessing and matching strategic buyers' resource portfolio configuration weaknesses. Further findings, for instance that buyout targets with more simplistic product diversification, distribution channels and/or customer base outperform, give further evidence that the buyout firm's strategic pre-assessment of target businesses may be considerably driven by the notion of an easy integration capability of the standalone business into a (larger) strategic player's business model.

### 7.2.3. Applications of Findings to Private Equity Practitioners

The present study was fundamentally enhanced through the qualitative input from a range of Private Equity industry practitioners, including General Partners, Limited Partners (especially Private Equity fund of funds), gatekeepers, industry associations and Private Equity information providers. The research model of this study had been designed in accordance with the three major and most frequently quoted areas of due diligence focus when assessing buyout returns: (i) the equity market and target industry financial environment in order to evaluate the BLO firm's acquisition performance track record, (ii) buyout firm investment manager profiles and experience in order to assess track records of individual managers across time and the buyout firm's potential to generate (top quartile) performance in the future, and (iii) buyout strategies in order to establish the link between observed performance and strategic action for a judgment on the appropriate level of attention, execution capability and integrity in executing buyout transactions. In all three dimensions, meaningful contributions were presented for (i) Private Equity fund (of fund) asset manager and due diligence professionals seeking to improve their evaluation tools/metrics, as well as (ii) investment managers seeking to improve their investment decisions based on historical trends and statistical probability.

In the first empirical chapter, the unprecedented sample size that builds the basis of this study offered insight into the relative attractiveness for buyout investment according to industry sectors. Through a comparison with public markets, the amount of excess value creation potential in several industries was exposed. The accompanying analysis of the impact of financial developments in buyout target industries led to important findings – in specific, it was established that buyout firms demonstrate a superior investment timing capability: the financial prospects at the time of entry in an industry on average were very positive regarding top line and profitability growth; when industry conditions weakened, sponsors exited the business. The value attribution and financial comparison between target companies and industry peers demonstrated that buyout targets' financial performance was significantly better in all metrics. Buyout firms were also found to have benefited from valuation multiple arbitrage. The value attribution according to various industry sectors demonstrated that the set of value creating strategies across sectors differs. Furthermore, investment decisions with respect to entry and exit of the focal investments were presented and differences between U.S. and European buyout activity highlighted.

The second empirical chapter offered insights into the typology of investment managers and buyout firms. Traditionally an area of severe opaqueness due to lack of public information, this study collected and examined data on the characteristic profile of buyout investment managers, which was made explicit with respect to education, professional experience and buyout deal experience within the team context. Furthermore, buyout firms were assessed with regard to hierarchy and diversity and subsequently tested for impact on performance. From a Private Equity practitioner point of view, the results could support the assessment of investment manager teams, which so far has concentrated almost exclusively on the acquisition track record of individual buyout managers.



Although a viable initial approach, the proposed assessment methodology in this study goes further by taking into account the organizational configuration of buyout firms, i.e. their knowledge pools concerning acquisition experience across industries, countries, transaction types, as well as team diversity and structure/hierarchy and relates these factors to performance. The linkage of observed buyout performances to a broader picture of the General Partner firm will indubitably lead to an enhanced understanding of the “GP effect” in the value creation process.

Following the notion of the GP effect further, the last empirical chapter of results provides insights into the effectiveness of certain strategic decisions taken by buyout firms. The data, which has mainly been sourced from LBO firm’s self-reported deal strategy information in PPMs, but also from the Limited Partners’ due diligence, demonstrates that several dynamics differentiate leveraged buyouts from corporate acquisitions. The lower dependency *on*, or availability *of*, synergistic strategies generally leads either to an expansionary or downsizing strategy. This study’s first attempt of an evaluation of several integral measures implemented by the LBO firm had suggested that expansionary activity is more beneficial; in fact, acquiring a target business purely based on an objective to cut costs has demonstrated to have an adverse effect on performance. Although still in its infancy, future research in the field of analyzing value drivers in leverage buyouts is likely to continue concentrating on the links between buyout strategies and performance.

### **7.3. Limitations of Study and Areas of Future Research**

The presented study’s research approach has been of an exploratory nature. In the highly un-researched field of leveraged buyout performance, it has attempted to offer a broad overview of potential sources and drivers of value creation. The breadth of the presented results and statistics leads to the conclusion that similar to the field of M&A research, the research topic in the future will have to be further sub-divided. Each of the three chapters of empirical results is thereby seen as one major area to deepen the understanding of academia and practitioners. First of all, the first empirical chapter offers scope to deepen the analysis of industry trends, especially with a greater emphasis on the risk-return relationship of investment in different sectors. From a finance research point of view, this study has neglected the fact that a different level of systematic and non-systematic risk is involved in various industry sectors and geographic regions. However, on this point it should be noted that this study has not intended to assess market- and risk-adjusted gross returns (to investors), but solely focused on the drivers that explain a certain level of buyout performance. In addition, finance research may refine the application of the herein developed value attribution formula, e.g. for intermediate cash flow (distribution or injection) events. The application to a larger set of buyouts will allow drawing more conclusions regarding industry dynamics.

Secondly, the second empirical chapter offers the opportunity to further deepen the understanding of the performance of investment manager teams in the buyout context. Reference should be given

to existing research on the performance of corporate management teams and the broad field of literature on corporate governance, performance of boards of directors and agency theory. The buyout firm could also be evaluated further through the field of organizational research, following the initial classification of Baker and Montgomery (1994), network theory, and learning curve theory. Finally, the broad scope for future research through the strategic management field has been touched upon above (see section 7.2.2.): research on the sources of a competitive advantage of buyout targets and the application of the resource-based view are evident research topics. Buyouts represent a unique test ground to evaluate how resource efficiency can be increased without the existence of synergistic factors. In this regard, the analysis of top management teams at buyout targets, whose expertise and social capital constitutes the most valuable resource to the company (Barney 1986), may be of particular weight.

With respect to the latter point, this study has also intentionally omitted one area of potential future research: the acquisition-related dynamics initialized through the buyout firm on the portfolio company management level. The third empirical chapter focusing on buyout strategies has touched upon some of these topics, which relate to operational changes, organizational changes, cultural changes, incentive system changes, etc. From a research perspective, the interaction between portfolio company managers and GP firm managers should represent an interesting, yet challenging research topic; especially in light of the fact that a large part of the M&A literature nowadays emphasizes post-acquisition integration capabilities as prominent acquisition success factor (Zollo and Singh 2000; Welppe 2004). Likewise, buyout returns may to a greater extent than so far anticipated be driven by an effective “GP vs. Corporate Management” relationship. The experiences and perspectives on this relationship gathered from buyout target management teams in this regard should be of particular interest to future research.

*The author would be delighted to be challenged on the results of the study presented above and/or involved in any new or extended streams of future research based on these findings.*

*Nicolaus Loos*

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# 8. Appendices

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Model		Coefficients <sup>(a)</sup>						
		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	<i>Entry Type</i>							
	1980	-2,171	1,104	-,048	-1,967	,049	,852	1,174
	1981	-1,674	,666	-,074	-2,514	,012	,588	1,700
	1982	-,423	,650	-,019	-,651	,515	,618	1,619
	1983	-,611	,575	-,034	-1,062	,288	,500	1,999
	1984	,468	,537	,031	,872	,384	,405	2,470
	1985	-,713	,518	-,052	-1,377	,169	,358	2,792
	1986	-,540	,474	-,054	-1,140	,255	,225	4,452
	1987	-,984	,478	-,095	-2,058	,040	,243	4,122
	1988	-,522	,455	-,060	-1,145	,252	,190	5,274
	1989	-,699	,470	-,068	-1,487	,137	,247	4,053
	1990	-,600	,452	-,072	-1,327	,185	,175	5,729
	1991	-,586	,448	-,075	-1,307	,191	,157	6,382
	1992	-,545	,445	-,069	-1,223	,221	,162	6,188
	1993	-,516	,436	-,076	-1,184	,237	,123	8,141
	1994	-,283	,432	-,043	-,656	,512	,121	8,274
	1995	-,047	,427	-,008	-,110	,913	,108	9,275
	1996	,189	,428	,029	,442	,658	,117	8,512
	1997	,428	,430	,067	,996	,319	,112	8,930
	1998	,814	,439	,109	1,856	,064	,148	6,757
	1999	1,360	,451	,161	3,017	,003	,181	5,524
	2000	1,192	,492	,100	2,424	,015	,299	3,340
	2001	2,253	,796	,076	2,831	,005	,704	1,421
	ACQUISITION	,661	,150	,135	4,407	,000	,547	1,829
	ACQUISITION FINANCING	,748	,405	,049	1,844	,065	,738	1,355
	GROWTH CAPITAL	,278	,230	,028	1,205	,228	,936	1,068
	RECAPITALISATION	,662	,628	,025	1,055	,292	,880	1,137
	AUCTION	,463	,464	,024	,997	,319	,911	1,098
	BUY-SIDE-INTERMEDIARY	-,606	,307	-,055	-1,974	,049	,654	1,528
	NEGOTIATED SALE	-,555	,228	-,074	-2,434	,015	,548	1,826
	<i>Exit Type</i>							
	X1985	1,855	,760	,063	2,442	,015	,773	1,294
	X1986	1,542	,460	,098	3,354	,001	,596	1,677
	X1987	2,515	,469	,154	5,358	,000	,621	1,609
	X1988	2,972	,396	,230	7,500	,000	,546	1,830
	X1989	2,861	,418	,196	6,840	,000	,623	1,605
	X1990	1,964	,442	,120	4,439	,000	,699	1,430
	X1991	1,729	,361	,144	4,787	,000	,568	1,760
	X1992	1,528	,356	,130	4,289	,000	,558	1,791
	X1993	1,464	,299	,172	4,891	,000	,415	2,409
	X1994	1,551	,301	,177	5,147	,000	,433	2,309
	X1995	1,355	,287	,175	4,714	,000	,371	2,693
	X1996	1,265	,277	,176	4,563	,000	,344	2,910
	X1997	1,182	,265	,182	4,466	,000	,307	3,257
	X1998	,950	,257	,159	3,694	,000	,278	3,601
	X1999	,905	,261	,144	3,473	,001	,300	3,337
	X2000	,631	,245	,131	2,576	,010	,198	5,050
	X2001	-,001	,275	,000	-,005	,996	,350	2,857
	X2002	,056	,332	,005	,169	,866	,494	2,023
	X2003	,625	,568	,028	1,100	,272	,808	1,238
	BANKRUPTCY (mode)	-2,119	,894	-,072	-2,369	,018	,557	1,794
	PRIVATE EXIT	,071	,205	,012	,347	,729	,455	2,200
	PUBLIC EXIT	,571	,180	,076	3,173	,002	,887	1,128
	AUCTION	,201	,612	,008	,328	,743	,926	1,079
	BANKRUPTCY (type)	,115	1,371	,003	,084	,933	,552	1,812
	SELL-SIDE-INTERMEDIARY	,397	,917	,010	,433	,665	,927	1,079
	NEGOTIATED SALE	-,088	,187	-,016	-,471	,637	,439	2,277

(a) Dependent Variable: Gross IRR Performance

**Table 69: Coefficients and Collinearity Statistics on Combined Entry and Exit Dummy Variables**

## Appendix 2: Industry financial and public market variable effect

Variable (Dummy) Tested	N <sup>(1)</sup>	Descriptive Statistics					
		Minimum	Maximum	Mean	Std. Deviation	Pearson Correlation	Sig. (2-tailed)
<b>Level 3</b>							
Industry Performance	637	-0,565	1,171	0,172	0,165	,180(**)	0
Excess Return over Index	637	-1,649	10,272	0,560	1,282	,992(**)	0
Market Performance	1127	-0,490	1,086	0,137	0,117	,120(**)	0
Excess Return over Market	1127	-1,522	10,142	0,476	1,352	,996(**)	0
EBITDA Industry Exit	844	80,718	53.658.864	5.780.442	6.771.081	-,070(*)	0,041
EBITDA Margin Entry Date Ind	807	0,060	0,364	0,158	0,040	,110(**)	0,002
EV/EBITDA at Entry Date Ind	846	2,302	67,951	9,228	5,299	,074(*)	0,031
Multiple Expansion CAGR Industry	827	-0,774	0,926	0,062	0,141	,073(*)	0,037
Deleverage Ind	846	-10,423	0,717	-0,220	0,717	,079(*)	0,022
Sales CAGR x+2	766	-0,627	1,309	0,091	0,129	-,084(*)	0,021
Margin CAGR n-2	798	-0,478	0,808	0,021	0,112	,099(**)	0,005
Margin CAGR n-1	798	-0,670	1,267	0,024	0,167	,100(**)	0,005
Margin CAGR n+1	798	-0,670	1,275	0,022	0,175	-,070(*)	0,049
Margin CAGR x-1	757	-0,670	1,267	0,037	0,201	,072(*)	0,048
Sales CAGR n-2	798	-,269	1,996	,087	,233	,063	,075
<b>Level 4</b>							
Industry performance	572	-,587	1,213	,153	,185	,157(**)	0
Excess Return over Index	572	-1,432	10,312	,627	1,303	,990(**)	0
Market Performance	1127	-,490	1,086	,137	,117	,120(**)	0
Excess Return over Market	1127	-1,521	10,141	,475	1,352	,996(**)	0
Sales Industry Exit	696	0	155.640.458	15.672.491	17.956.521	-,075(*)	0,049
Sales CAGR Industry	679	-,713	5,118	,128	,275	,091(*)	0,018
EBITDA CAGR Industry	704	-,777	5,091	,171	,369	,127(**)	0,001
EBITDA Margin CAGR Industry	674	-,769	3,142	,033	,184	,090(*)	0,019
Multiple Expansion CAGR Industry	704	-,779	1,556	,057	,188	,095(*)	0,012
EBITDA Margin Entry Date Ind	694	-,024	697,313	1,984	34,135	,003	,944
EV/EBITDA at Entry Date Ind	725	-7,613	154,970	10,501	10,734	,055	,137
EV/EBITDA at Exit Date Ind	726	,705	71,296	12,297	10,283	,055	,139
Sales CAGR n+1	667	-,588	5,118	,135	,396	,125(**)	0,001
Sales CAGR n+2	667	-,713	3,779	,124	,260	,101(**)	0,009
Sales CAGR x-2	653	-,713	1,994	,135	,209	,114(**)	0,004
Margin CAGR n+2	666	-,534	3,377	,025	,204	,104(**)	0,007
Margin CAGR x-2	629	-,477	,990	,041	,176	,122(**)	0,002
Margin CAGR x-1	629	-,769	3,142	,101	,521	,116(**)	0,004
Deleverage Ind	728	-20,874	,779	-,376	1,804	,058	,115
<b>Level 6</b>							
Industry Performance	523	-0,661	2,049	0,178	0,251	,125(**)	0,004
Excess Return over Index	523	-1,564	10,303	0,636	1,349	,983(**)	0
Market Performance	1127	-0,490	1,086	0,137	0,117	,120(**)	0
Excess Return over Market	1127	-1,522	10,142	0,476	1,352	,996(**)	0
Sales CAGR Industry	609	-1,000	12,909	0,191	0,725	0,06	0,141
EBITDA Margin Exit Date Ind	619	-1,544	3,566	0,163	0,181	0,077	0,057
EBITDA Margin CAGR Industry	598	-25,504	1,076	-0,037	1,055	0,005	0,903
EV/EBITDA at Exit Date Ind	648	-73,205	1.245,336	16,643	52,273	0,004	0,913
Multiple Expansion CAGR Industry	624	-1,027	13,160	0,107	0,625	,101(*)	0,011
Deleverage Ind	659	-189,551	8,764	-0,480	7,456	0,026	0,509
Sales CAGR x-1	580	-0,800	12,909	0,234	0,959	,085(*)	0,041

(1) Total sample size of tested cases (all realized transactions).

(2) Number of cases where dummy variable = 1, i.e. number of transactions per year.

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

Table 70: Descriptive and Correlation Statistics on Industry Financial Performance Driver (Level 3/4/6)

**Appendix 2: Industry financial and public market variable effect (continued)**

Model		Coefficients <sup>(a)</sup>			t	Sig.	Collinearity Statistics	
		Unstandardized Coefficients		Standardized Coefficients			Tolerance	VIF
		B	Std. Error	Beta				
<i>Level 3 Industry Financials</i>								
1	(Constant)	,545	,075		7,234	,000		
	Industry Performance	1,020	,313	,137	3,261	,001	1,000	1,000
2	(Constant)	-,048	,213		-,228	,820		
	Industry Performance	,964	,311	,129	3,098	,002	,996	1,004
	EBITDA Margin Entry Date Ind	3,841	1,289	,125	2,979	,003	,996	1,004
3	(Constant)	-,297	,228		-1,303	,193		
	Industry Performance	,746	,318	,100	2,344	,019	,941	1,063
	EBITDA Margin Entry Date Ind	3,313	1,293	,107	2,561	,011	,977	1,024
	EV/EBITDA at Entry Date Ind	,045	,015	,125	2,902	,004	,923	1,084
4	(Constant)	-,134	,244		-,549	,584		
	Industry Performance	,535	,355	,072	1,507	,133	,745	1,343
	EBITDA Margin Entry Date Ind	2,436	1,409	,079	1,729	,084	,811	1,233
	EV/EBITDA at Entry Date Ind	,047	,016	,132	2,977	,003	,859	1,164
	Sales CAGR x+2	-,663	,395	-,071	-1,680	,094	,943	1,060
	Sales CAGR n-2	,353	,208	,074	1,699	,090	,894	1,118
	Margin CAGR x-1	,119	,266	,021	,446	,656	,729	1,372
	Margin CAGR n-1	,706	,299	,105	2,359	,019	,863	1,159
5	(Constant)	-,065	,257		-,253	,801		
	Industry Performance	,292	,380	,039	,767	,443	,648	1,543
	EBITDA Margin Entry Date Ind	1,833	1,446	,059	1,268	,205	,769	1,301
	EV/EBITDA at Entry Date Ind	,052	,017	,146	3,112	,002	,767	1,304
	Sales CAGR x+2	-,854	,407	-,092	-2,097	,036	,883	1,132
	Sales CAGR n-2	,249	,215	,052	1,159	,247	,831	1,203
	Margin CAGR x-1	,225	,273	,041	,826	,409	,693	1,443
	Margin CAGR n-1	,620	,302	,092	2,052	,041	,842	1,188
	Multiple Expansion CAGR Ind	,850	,486	,088	1,750	,081	,663	1,508
	Deleverage Ind	,059	,082	,031	,724	,469	,901	1,110

(a) Dependent Variable: Gross IRR Performance

**Table 71: Coefficients and Collinearity Statistics on Industry Financial Performance Driver (Level 3)**

**Appendix 2: Industry financial and public market variable effect (continued)**

Model		Coefficients <sup>(a)</sup>			t	Sig.	Collinearity Statistics	
		Unstandardized Coefficients		Standardized Coefficients			Tolerance	VIF
		B	Std. Error	Beta				
<i>Level 4 Industry Financials</i>								
1	(Constant)	,657	,074		8,912	,000		
	Industry Performance	,746	,309	,110	2,415	,016	1,000	1,000
2	(Constant)	,376	,137		2,738	,006		
	Industry Performance	,615	,312	,090	1,970	,049	,970	1,031
	EBITDA Margin Entry Date Ind	1,867	,769	,111	2,429	,016	,970	1,031
3	(Constant)	,228	,154		1,483	,139		
	Industry Performance	,490	,328	,072	1,491	,137	,872	1,147
	EBITDA Margin Entry Date Ind	1,773	,784	,106	2,261	,024	,927	1,079
	EV/EBITDA at Entry Date Ind	,009	,005	,077	1,665	,097	,938	1,066
	EV/EBITDA at Exit Date Ind	,009	,009	,049	,965	,335	,800	1,250
4	(Constant)	,220	,155		1,415	,158		
	Industry Performance	,193	,349	,028	,553	,580	,764	1,310
	EBITDA Margin Entry Date Ind	1,759	,801	,105	2,196	,029	,878	1,139
	EV/EBITDA at Entry Date Ind	,000	,007	,002	,035	,972	,534	1,871
	EV/EBITDA at Exit Date Ind	,013	,010	,071	1,279	,202	,648	1,544
	EBITDA Margin CAGR Industry	-,214	,537	-,035	-,398	,691	,266	3,759
	Sales CAGR n+2	,083	,270	,020	,309	,757	,481	2,078
	Sales CAGR x-2	,333	,355	,057	,938	,349	,549	1,823
	Margin CAGR n+2	,838	,545	,111	1,539	,125	,383	2,614
	Margin CAGR x-2	,532	,407	,085	1,308	,192	,480	2,082
5	(Constant)	,343	,159		2,157	,032		
	Industry Performance	,060	,350	,009	,170	,865	,746	1,340
	EBITDA Margin Entry Date Ind	1,588	,800	,095	1,985	,048	,866	1,154
	EV/EBITDA at Entry Date Ind	,014	,008	,120	1,683	,093	,388	2,576
	EV/EBITDA at Exit Date Ind	-,006	,012	-,035	-,537	,592	,473	2,115
	EBITDA Margin CAGR Industry	,103	,544	,017	,190	,849	,255	3,923
	Sales CAGR n+2	-,192	,282	-,046	-,679	,497	,433	2,312
	Sales CAGR x-2	,460	,355	,078	1,295	,196	,539	1,857
	Margin CAGR n+2	,747	,541	,099	1,382	,168	,381	2,623
	Margin CAGR x-2	,478	,419	,076	1,143	,254	,447	2,237
	Deleverage Ind	,279	,137	,100	2,038	,042	,825	1,212
	Multiple Expansion CAGR Ind	1,121	,416	,182	2,697	,007	,432	2,317

(a) Dependent Variable: Gross IRR Performance

**Table 72: Coefficients and Collinearity Statistics on Industry Financial Performance Driver (Level 4)**

**Appendix 2: Industry financial and public market variable effect (continued)**

Model		Coefficients <sup>(a)</sup>			t	Sig.	Collinearity Statistics	
		Unstandardized Coefficients		Standardized Coefficients			Tolerance	VIF
		B	Std. Error	Beta				
<i>Level 6 Industry Financials</i>								
1	(Constant)	,619	,067		9,271	,000		
	Industry Performance	,824	,221	,170	3,724	,000	1,000	1,000
2	(Constant)	,569	,078		7,333	,000		
	Industry Performance	,791	,223	,163	3,546	,000	,985	1,015
	EBITDA Margin Exit Date Ind	,331	,265	,057	1,250	,212	,985	1,015
3	(Constant)	,550	,088		6,248	,000		
	Industry Performance	,774	,226	,160	3,426	,001	,960	1,041
	EBITDA Margin Exit Date Ind	,315	,267	,055	1,178	,239	,968	1,033
	EV/EBITDA at Exit Date Ind	,002	,004	,021	,455	,650	,953	1,050
4	(Constant)	,525	,090		5,816	,000		
	Industry Performance	,788	,230	,162	3,428	,001	,928	1,077
	EBITDA Margin Exit Date Ind	,277	,282	,048	,985	,325	,872	1,147
	EV/EBITDA at Exit Date Ind	,001	,004	,014	,287	,774	,935	1,069
	EBITDA Margin CAGR Industry	-,036	,047	-,036	-,756	,450	,923	1,084
	Sales CAGR Industry	,233	,202	,056	1,154	,249	,900	1,112
5	(Constant)	,554	,091		6,111	,000		
	Industry Performance	,682	,230	,141	2,961	,003	,906	1,103
	EBITDA Margin Exit Date Ind	,238	,281	,041	,847	,397	,858	1,166
	EV/EBITDA at Exit Date Ind	-,001	,004	-,011	-,237	,813	,908	1,102
	EBITDA Margin CAGR Industry	-,031	,047	-,031	-,661	,509	,919	1,088
	Sales CAGR Industry	,405	,211	,096	1,917	,056	,807	1,239
	Multiple Expansion CAGR Industry	,200	,076	,121	2,617	,009	,961	1,041
	Deleverage Ind	,151	,073	,099	2,066	,039	,886	1,128

(a) Dependent Variable: Gross IRR Performance

**Table 73: Coefficients and Collinearity Statistics on Industry Financial Performance Driver (Level 6)**



**Appendix 3: Correlation Matrix on Deal Entry Condition Variables**

		Correlation Statistics											
		Gross IRR Performance	EBITDA		EV/EBITDA at Entry Date Ind	Sales CAGR n-2	Sales CAGR n-1	Sales CAGR n+1	Sales CAGR n+2	Margin CAGR n-1	Margin CAGR n+1	Margin CAGR n+2	
			Mfg. Entry Date Ind	Entry Date Ind									
Gross IRR Performance	Pearson Correlation	1											
	Sig. (2-tailed)												
	N	1685											
EBITDA Margin Entry Date Industry	Pearson Correlation	,003	1										
	Sig. (2-tailed)	,944											
	N	694	694										
EV/EBITDA at Entry Date Industry	Pearson Correlation	,055	,018	1									
	Sig. (2-tailed)	,137	,629										
	N	725	693	725									
Sales CAGR n-2	Pearson Correlation	,004	,067	,163(**)	1								
	Sig. (2-tailed)	,911	,082	,000									
	N	666	666	666	666								
Sales CAGR n-1	Pearson Correlation	,015	,055	,004	,497(**)	1							
	Sig. (2-tailed)	,708	,157	,916	,000								
	N	666	666	666	666	666							
Sales CAGR n+1	Pearson Correlation	,125(**)	,083(*)	,026	,040	-.005	1						
	Sig. (2-tailed)	,001	,033	,503	,299	,907							
	N	667	667	666	666	667	667						
Sales CAGR n+2	Pearson Correlation	,101(**)	,055	,378(**)	,054	,005	,602(**)	1					
	Sig. (2-tailed)	,009	,158	,000	,164	,896	,000						
	N	667	667	666	666	666	667	667					
Margin CAGR n-2	Pearson Correlation	,010	,245(**)	-.023	,365(**)	,224(**)	,034	-.028	1				
	Sig. (2-tailed)	,799	,000	,553	,000	,379	,476	,476					
	N	660	660	660	660	660	660	660	660				
Margin CAGR n-1	Pearson Correlation	,041	,231(**)	-.058	,210(**)	,374(**)	,020	,001	,579(**)	1			
	Sig. (2-tailed)	,291	,000	,137	,000	,000	,601	,980	,000				
	N	665	665	665	665	665	665	665	665	665			
Margin CAGR n+1	Pearson Correlation	,002	-.041	,204(**)	,028	-.037	-.040	,025	-.128(**)	-.029	1		
	Sig. (2-tailed)	,951	,285	,000	,467	,337	,298	,522	,001	,457			
	N	666	666	666	666	666	666	666	666	665	666		
Margin CAGR n+2	Pearson Correlation	,104(**)	,081(*)	,303(**)	,067	-.016	,082(*)	,163(**)	-.005	-.206(**)	-.530(**)	1	
	Sig. (2-tailed)	,007	,036	,000	,086	,676	,034	,000	,896	,000	,000		
	N	666	666	666	666	666	666	666	666	665	666	666	

\*\* Correlation is significant at the 0.01 level (2-tailed).  
 \* Correlation is significant at the 0.05 level (2-tailed).

**Table 74: Correlation Statistics on Deal Entry Condition Variables**

**Appendix 3: Correlation Matrix on Deal Exit Condition Variables**

		Correlation Statistics										
		Gross IRR Performance	EBITDA Mrg. Exit Date Ind	EV/EBITDA Exit Date Ind	Sales CAGR x-2	Sales CAGR x-1	Sales CAGR x+1	Sales CAGR x+2	Margin CAGR x-2	Margin CAGR x-1	Margin CAGR x+1	Margin CAGR x+2
Gross IRR Performance	Pearson Correlation	1										
	Sig. (2-tailed)											
	N	1685										
EBITDA Mrg. Exit Date Ind	Pearson Correlation	,008	1									
	Sig. (2-tailed)	,832										
	N	695	695	1								
EV/EBITDA at Exit Date Ind	Pearson Correlation	,055	,040	1								
	Sig. (2-tailed)	,139	,297									
	N	726	693	726								
Sales CAGR x-2	Pearson Correlation	,114(**)	-,074	,068	1							
	Sig. (2-tailed)	,004	,057	,083								
	N	653	653	652	653							
Sales CAGR x-1	Pearson Correlation	,012	-,053	-,049	,653(**)	1						
	Sig. (2-tailed)	,765	,178	,215	,000							
	N	653	653	651	652	653						
Sales CAGR x+1	Pearson Correlation	,007	,985(**)	,039	-,083(*)	-,061	1					
	Sig. (2-tailed)	,849	,000	,321	,033	,121						
	N	654	654	652	653	653	654					
Sales CAGR x+2	Pearson Correlation	-,046	-,220(**)	,025	,030	-,007	-,081(*)	1				
	Sig. (2-tailed)	,241	,000	,519	,437	,039						
	N	654	654	652	653	653	654	654				
Margin CAGR x-2	Pearson Correlation	,122(**)	,718(**)	-,038	,195(**)	,092(*)	-,039	-,079(*)	1			
	Sig. (2-tailed)	,002	,000	,347	,000	,021	,326	,048				
	N	629	629	629	629	629	629	629	629			
Margin CAGR x-1	Pearson Correlation	,116(**)	,699(**)	-,007	,248(**)	,083(*)	,067	-,029	,905(**)	1		
	Sig. (2-tailed)	,004	,000	,858	,000	,037	,093	,471	,000			
	N	629	629	629	629	629	629	629	629	629		
Margin CAGR x+1	Pearson Correlation	,053	,019	,193(**)	,149(**)	,227(**)	-,074	-,016	,048	,135(**)	1	
	Sig. (2-tailed)	,187	,633	,000	,000	,000	,065	,689	,230	,001		
	N	629	629	629	629	629	629	629	629	629	629	
Margin CAGR x+2	Pearson Correlation	,067	,575(**)	,042	,274(**)	,094(*)	-,008	-,067	,738(**)	-,835(**)	,442(**)	1
	Sig. (2-tailed)	,092	,000	,293	,000	,019	,849	,096	,000	,000	,000	
	N	626	626	626	626	626	626	626	626	626	626	626

\*\* Correlation is significant at the 0.01 level (2-tailed).  
 \* Correlation is significant at the 0.05 level (2-tailed).

**Table 75: Correlation Statistics on Deal Exit Condition Variables**

Appendix 4: Strategy Coding Database – PC Characteristics, Pre-deal Strategy and Financials Input

### PC Characteristics/ Pre-deal strategy

1. GP code

GP name  #Name?

2. PC code

PC name  #Name?

3. Country of origin

4. Geographic scope

5. Industry description

6. Industry index

7. Type of goods:  Consumer  Industrial  Service

8. Cyclicity of industry  Stable  Seasonal  Cyclical

9. Industry growth at time of investment (Annual growth rate)  %

10. Expected revenue growth at time of investment (Annual growth rate)  %

11. Date of acquisition  Date of exit

12. IRR  %

### Financials

Entry year  Exit year

Revenues  5.7

EBITDA  -10.1

EBIT  -11.9

NetDebt  -4.7

EV

Equity

13. Market position  Largest  Top 2-5  Small

14. Market structure  Monopoly/Dominated  Oligopoly  Non-concentrated

15. Product diversification

16. Generic strategy approach

17. Customer base

18. Distribution channels

19. Organizational structure

20. Governance structure

21. Ownership concentration

Appendix 4: Strategy Coding Database – Deal Characteristics, Management Team and Exit Input

### The Deal

22. Seller

23. Acquired ownership share  %

24. Seller type

25. Deal source

26. Negotiation process

27. Alternative bids came from:

- Strategic buyers
- Financial buyers
- LBO fund

28. Number of (external) co-investors

29. Type of co-investors:

- Strategic
- Financial

30. Does previous owner stay involved as:

- Equity investor
- Debtholder (vendor's note)
- Part of management

### The management team

33. Was the top management of the company actively pushing for independence at the origin of the buyout idea?

34. Equity participation of management  %  
If Yes, what percentage

35. Was the deal entered with new (MBI) or existing Management team (MBO)?

36. Responsible GP managers for this deal:

- 
- 
- 

### The exit

37. Divestment method  Specify the buyer

38. Fully/partial exit

Appendix 4: Strategy Coding Database – Strategy and Key Events Input

Strategy/ Key events

<input type="checkbox"/> Information on strategy/ key events given		39. Which of the following events occurred during the buyout?				Does GP claim to have been at the origin of this event
	Occurred	Initially planned	Not successfully implemented	As "intervention" during post-acquisition phase		
Strategic reorientation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Organizational restructuring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
New company/brand names	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Expansion of product line	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
New reporting system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
New IT system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
New incentive plans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
New marketing approach	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
New pricing strategy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
New R_D strategy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Increased use of outsourcing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Relocation of facilities (low-wage countries)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

40. Divestitures (occurred)   
 If divest. proceeds as % of initial EV \  %

41. Type of closed units  
 Core business  
 Non-business

42. Add-on acquisitions (occurred)   
 Add-on acquisitions (number)   
 Acq. value as % of initial investment

43. Direction of acquisition  
 Horizontal  
 Diversifying

44. Addition of co-investor (occurred)   
 Co-investor:  
 Financial  
 Strategic

**Appendix 4: Strategy Coding Database – Strategy and Key Events Input (cont'd)**

	Occurred	Initially planned	Not successfully implemented	As "intervention" during post-acquisition phase	Does GP claim to have been at the origin of this event
Consolidation of facilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Layoffs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Geographic expansion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Joint ventures/ Alliances	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intervention of GP Investment Managers in management of the PC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Specify position					
<div style="border: 1px solid black; padding: 2px;">                     Position <input type="text"/> </div> Record: 1 of 1					
Replacements in/ Additions to the PC top management team					
<div style="border: 1px solid black; padding: 2px;">                     Position <input type="text"/> </div> Record: 1 of 2					
Specify position					
<div style="border: 1px solid black; padding: 2px;">                     Position <input type="text"/> </div> Record: 1 of 2					

**Appendix 5: GP Investment Manager Coding Database – Manager’s Education and Private Equity Exposure, Professional Career History & Titles**

**Managers**

PE experience (since)


PE experience (no of years)

Ownership of carry (%)

Current board member

Board seats (#)

**Education**

School name  

If you couldn't find the School name on the list above, click the button!

Degree name

Degree class

Degree start (year)

Degree end (year)

Other diploma (CFA, CPA ...)

**Managers**


Manager code

Manager name

Age

GP code

GP name


If you couldn't find the GP code or name in one of the lists above, click the button! 

Job title:

Year when joined GP

**Positions**

Company name

If you couldn't find the company in one of the lists above, click the button! 

Job title

Job category

Job start

Job end

Executive position

Current position

### Appendix 6: GP Investment Manager and Transaction Matching Tool

GP code

PC code

Company name

If you couldn't found the PC in one of the lists above, click the button!

Industry

Acquisition date

Exit date

IRR

Manager 1

Manager 2

Manager 3

Manager 4

Manager 5



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## EDUCATION

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**Nov. 2000 – Aug. 2004**      **University of St. Gallen (HSG), Switzerland**  
*Doctoral Programme*

**Jan. 2003 – Dec. 2003**      **INSEAD, Fontainebleau**  
*Visiting PhD Student & Research Associate*  
INSEAD Buyout Research Center / Strategy Department

**Aug. 2000 – Nov. 2000**      **INSEAD, Singapore**  
*Research Associate*  
Project/Master Thesis: *'Technopreneurship in Singapore'*

**April 1998 – Aug. 2000**      **Leipzig Graduate School of Management (HHL)**  
*Diplom-Kaufmann / Graduate Degree Studies*  
Majors: Finance/Accounting, Strategic Management

**Oct. 1999 – Jan. 2000**      **Ecole Supérieure de Commerce de Paris (ESCP-EAP), Paris**  
*Exchange Semester Programme*  
Corporate Finance Major

**Jan. 1999 – Sept. 1999**      **Australian Graduate School of Management (AGSM), Sydney**  
*M.B.A. / Joint Degree Program with HHL*  
Majors: Finance/Accounting, Strategic Management

**June 1999 – July 1999**      **MBA Summer School Program AGSM, Hong Kong**  
*M.B.A. Summer School*  
Corporate Finance Major

**Oct. 1996 – Feb. 1998**      **University of Münster, Germany**  
*Vordiplom / Undergraduate Degree Studies*  
Business/Economics

**Aug. 1992 – July 1993**      **Clinton High School, Clinton, TN, U.S.A.**  
*Highschool Exchange / Graduation*

**Aug. 1988 – June 1995**      **Immanuel-Kant-Gymnasium, Hamburg**  
*Abitur (German High School)*

## TUTORING

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**Oct – Dec 2003**                      **Paris Graduate School of Management (ESG)**  
*Supervisor for several M.B.A. Master thesis*

## SCHOLARSHIPS

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**April 1998 – July 2000**            **HHL – Scholarship of Henkel KGaA., Germany**

**Aug. – Nov. 2000**                    **INSEAD – Haniel German National Merit Foundation**

## PROFESSIONAL EXPERIENCE

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**March 2001 – current**            **J.P. Morgan, London / New York**  
*Mergers & Acquisitions, Leveraged Finance*  
Broad transaction experience in Leveraged Buyouts

**February – May 2000**            **Deutsche Bank Investment Banking, Frankfurt**  
*Internship – Mergers & Acquisitions*

**July – September 1998**        **PriceWaterhouseCoopers Corporate Finance Consulting, Berlin**  
*Internship – Corporate Finance*

**April – July 1998**                **Deutsche Bank & Chamber of Commerce Leipzig, Germany**  
*Consulting Project*

**Feb. 1998 – April 1998**        **Arthur Andersen, Hamburg**  
*Internship – Auditing*

**July 1997 – Sept. 1997**        **Boltze International, Hamburg**  
*Internship – German Mittelstand, Finance and Marketing*

**May – July 1996**                **Hypo-Vereinsbank, Hamburg**  
*Internship – Private Banking and Trading*

## PROFESSIONAL QUALIFICATIONS

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**March 2001**                        **Securities and Futures Authority (SFA), United Kingdom**  
General Securities Representative

## ORGANIZATIONS

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INSEAD Buyout Research Center, Young Leaders Network, Academy of Management, American Finance Association, HHL Alumni, AGSM Alumni

## MILITARY SERVICE

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**July 1995 – April 1996**        **Corps No. 6, Breitenburg, Germany**  
German Military Service