Public Pension Fund Investments: The Role of Governance Structures

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Introduction

This paper reports findings from an ongoing research project that examines the role formal governance structures play in the success of state-administered pension fund investment programs.[2] Toward this end, governance structures are defined narrowly as an arrangement of formal rules that have been adopted, by legislators and pension systems, for purposes of directing and controlling the management of public pension assets. Previous research has shown that these structures can play an important role in the performance of public pension fund investments (Useem & Mitchell 2000; Yang and Mitchell 2004; Langensjo 2012). Research conducted by Langensjo (2012) suggests that successful governance structures can improve investment returns by as much as 2 percent.

Despite this potential, research on the relationship between governance structures and performance is scant. To date, only a handful of research articles have been conducted that takes a systematic approach toward examining it in the context of public pension funds. The majority of these are limited to examinations of a relatively narrow set of governance structures including investment restrictions (Burgess & Fried 1999, Burgess & Fried 2004, Michas 1984) and rules governing board composition (Murphy & Van Nuys 1994; Mitchell and Hsin 1997). Only two studies attempt to comprehensively examine the role of governance structures, including a study by Useem and Mitchell (2000) and a study by Yang and Mitchell (2004).

This study adds to this scant body of research in three important ways. First, it considers a broader set of rules, including rules governing oversight, transparency and the efficiency by which investment programs are carried out. Second, it centers on the long-term success of pension funds. Previous research centers on near term performance. A focus on long-term performance is important because of the long-term investment horizon of pension fund investments. Finally, it uses updated data. Useem and Mitchell's study was based on data from 1993 and the study by Yang and Mitchell was based on data from 2000. As will be discussed in the paper, a paradigm shift has occurred over the past couple of decades in terms of investment goals and design of governance structures. It is therefore important to re-examine the role of governance structures in this new context.

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[2] The study is a precursor to an expanded study that will be conducted during the spring of 2017. The

[2] The study is a precursor to an expanded study that will be conducted during the spring of 2017. The expanded study will be based on original data collected as part of the researcher research program.

The principal motivation behind this study is a need to find solutions to address the fiscal challenges that many State administered pension systems face in the United States. Data prepared by the Center for Retirement Research (2015) suggest that 64 percent of state administered pension systems in the US has less than 80 percent of the assets they need to meet pension obligations (at the end of fiscal year 2014). The 80 percent threshold is often considered to be a generally accepted threshold for determining whether pension plans are financially healthy or not (Brainard and Zorn 2012). Furthermore, the aggregate value of unfunded liabilities held by states has been estimated to somewhere between $1 trillion and $3 trillion, depending on the measurement technique that is used. The latter estimate is based on a mark-to-market valuation of pension liabilities (Rauh 2015), and the former is based on the values reported in Governmental Financial Reports.

While the adoption of measures aimed at enhancing the performance of public pension fund investments is not a silver bullet for addressing the fiscal condition of public pension systems, it holds promise for being an important part of the solution. The returns earned on pension assets account for, on average, over 60 percent of the overall funding of pension systems. In addition, the compounding effects of the returns, causes relatively small improvements to have a significant impact on the long-term funding of pension funds.

The study was carried out, using a mixed methods approach, including a case study and a quantitative study. The case study was included to aid the development of the hypotheses that were tested in the quantitative analysis, and to offer further nuance to the interpretation of the results that were generated. The quantitative study was applied to produce results that are generalizable beyond specific pension plans. It applied a binary logistic regression model to analyze the relationships between long-term investment performance and a set of formal rules that are hypothesized to influence the extent to which state pension funds meet long-term performance targets.

The findings of the analyses indicate that pension systems are more likely to meet their performance targets if they are governed by a formal structure that (1) extends plan autonomy, (2) places emphasis on transparency, and (3) and limits inefficient investment practices. The results also indicate that pension plans that operate in states that are relatively corrupt are less likely to meet their investment goals. It might therefore be advisable for pension plans that operate in corrupt environments to limit autonomy, and to adopt rules that increase public transparency and prevent inefficient investment practices.

Governance of Public Pension Funds

The term governance is a concept that is used and defined in a variety of different ways depending on the context. The wiki page titled “governance”, currently identifies 16 different contexts within which the term is used including, but not limited to public governance, private governance, meta-governance, collaborative governance, global governance, non-profit governance and environmental governance (Wikipedia 2016). In the context of public pension funds management, definitions of governance typically stem from corporate governance (see, Carmichael and Palacios 2003; Hess & Impavido 2003), which defines governance as “…the mechanisms, processes and relations by which a corporation is controlled and directed (Shailer 2004).”

The application of a definition drawn from corporate governance to the governance of public pension funds is appropriate, because the need for governance of public pension funds arises from the same issues that give rise to the need for corporate governance (Hess & Impavido 2004; Carmichael, 2002). These issues include moral hazard and conflicts of interest. Moral hazard and conflicts of interest arise when ownership and control of assets are separated. Under such conditions, individuals may fail to manage assets prudently, because they do not bear the full consequences of their actions (Eisenhardt 1989). The need for governance, thus, arises from a need to combat issues of moral hazard and conflicts of interest.

The remainder of this section describes the different authority levels that govern (i.e., directs and controls) public pension investments, and the various governance models they operate within. It also describes the arrangement of rules that make up formal structures and how these have changed over the past three decades.

The Control and Direction of Public Pension Funds

In the context of public pension funds, assets are primarily controlled and directed (i.e., governed) at three authority levels, including the state-level, system-level and the operational-level (Stalebrink et al. 2015).

State level authority

At the state level, the major decision makers are elected officials such as state legislators and governors. They control and direct public pension fund investments by enacting constitutional and statutory laws. The resulting laws outline the basic governance structure within which a pension system operates. It includes three types of laws. First, it includes laws that regulate the size and composition of the fiduciary body, and the procedures that dictate how members are assigned to fiduciary bodies.

Second, it includes laws that regulate investment decision-making, such as lists of allowable investments (i.e. the "legal list"), prudent person statues, asset allocation limits and rules related to investments that are made for social or economic purposes (i.e., economically targeted investments (ETIs)).

Finally, it includes laws that regulate oversight of a pension system and rules to ensure transparency and accountability. Common rules regulating oversight include rights by a higher-level authority to review and monitor the activities of a lower level authority. Examples of rules regulating transparency include disclosures about conflicts of interest, revolving door practices (e.g., placement agents) and pay to play practices. Finally, common rules regulating accountability include clear authority lines and consequences for imprudent behavior. In theory, transparency and availability of means to punish corrupt officials deter corrupt behavior.

In a limited number of states, elected officials are also responsible for adopting key actuarial assumptions. In South Carolina, for example, the general assembly adopts the actuarial assumed rate of return, which is used to determine the value of outstanding pension obligations. These decisions, however, are typically made at the system level.

System level

At the system level, the major decision makers include members of the fiduciary bodies that govern the administration and investments of public pension plans. The pension

system's fiduciary body is charged with two central tasks. First, it is charged with establishing rules that make up the parameters within which investment strategies are developed and implemented. These rules include language that defines risk tolerance levels, asset allocation targets, investment return targets, and strategies to enhance the efficiency by which investment strategies are implemented. The fiduciary bodies' ability to carry out this function is contingent on the autonomy that it is awarded by state laws.

Second, the fiduciary body is responsible for overseeing the implementation of investment strategies. Toward this end, it establishes rules that clarify the authorities and responsibilities of investment personnel, as well as the process to recruit, evaluate and monitor them. Often, investment policies also establish standards of prudence, ethical rules (rules of conflicts) and rules to uphold internal control. The combined set of rules developed by the fiduciary body is often referred to as the system's formal investment policy.

Operational level

At the operational level, the relevant decision makers include investment officials responsible for the implementation of investment strategies. In most pension systems, investment officials consist of a combination of internal and external investment professionals. These officials influence investment decisions by applying their professional judgment and expertise within the authority provided by state laws and formal investment policies. In addition to carrying out day-to-day operational activities, the investment function often advises the fiduciary body on the merit of prospective investment policies. It is not uncommon for senior investment officials to serve as members of an investment advisory council, charged with aiding the fiduciary body in developing and revising formal investment policies.

Other levels

In addition to these three levels of authority, it should be noted that federal laws impose some but, very limited influence on public pension investment decisions. This influence is limited, because state pension systems are exempt from a significant portion of the 1974 Employee Retirement Income Security Act (ERISA), including ERISA's reporting, disclosure, and funding requirements (Title I) and plan termination insurance (Title IV) (EBRI 2005).

Governance Models

In practice, states use one of four different models to govern pension assets (Miller and Funston 2014). The first model is to rely on one single governing body, referred to as a board of trustees, which has responsibility over both investment activities and administration of the pension system. Under this arrangement, the board typically consists of appointed and elected members that represent a broad range of stakeholders including some combination of ex officio members, beneficiaries and union representatives. These board members fulfill the duties of the board, but delegate the implementation of investment activities to an executive or implementing agency. Miller and Funston (2014) reports that a little more than half of the largest 55 state administered pension funds in the US are governed under this model.

A second model separates the fiduciary duties of administration and investment activities

between a board of trustees and an investment council (sometimes referred to as investment board). Under this arrangement, the board of trustees serves as the principal administrator of the pension system and the investment council has the fiduciary responsibility over investments activities. The logic of having a separate governance body responsible for investment activities is that decision-making about such activities place high demands on investment expertise. The statutory structures that govern the composition of investment councils therefore typically require that the majority of voting members meet certain investment expertise and experience eligibility requirements. A little less than half of the state-administered plans utilize this model.

Similar to second model, the third model separates the fiduciary duties of administration and investment management between a board of trustees and an investment council. However, both fiduciary bodies report to an oversight board.

A final model is to rely on a single elected or appointed individual serving as a trustee of the retirement fund, such as a state treasurer or state comptroller. Similar to the other models, investment operations are delegated to an executing unit. There are only four states that operate under this model, including Connecticut, Michigan, New York, and North Carolina (Miller and Funston 2014). With the exception of New York, the sole trustee in these states is the State Treasurer. In Connecticut and North Carolina the treasurer position is elected and in Michigan it is an appointed. In New York, the administration of public pensions and the fiduciary responsibility over pension investments falls on an elected state comptroller.

Governance Structures

In this research, governance structures are defined narrowly as an arrangement of formal rules that have been adopted, by legislators and pension systems for purposes of directing and controlling the management of public pension assets. These rules fall into four general categories, including:

- *Investment rules:* Rules that govern how pension assets are invested, including rules that restrict and guide investment decision-making. Examples include lists of allowable investments (i.e. the "legal list"), prudent person statues, asset allocation limits and rules related to investments that are made for social or economic purposes (i.e., economically targeted investments (ETIs)).
- *Transparency rules:* Rules aimed at increasing transparency about public pension operations. They include but are not limited to conflict of interest disclosures, performance information and information about investment operations.
- *Oversight rules:* Rules that give a higher-level authority rights to review and monitor activities of a lower level authority.
- *Accountability rules:* Rules that assign responsibility for decisions to individuals or groups of individuals (i.e., a board of trustees). An example is rules that hold board members personally liable for imprudent investment decisions.

Over the past three decades, the arrangement of these rules has undergone two fundamental changes. First, they have become more comprehensive. Prior to the 1980s, states and systems generally downplayed the importance of comprehensive governance structures. Investment and management decisions often occurred in a highly centralized regulatory vacuum with limited oversight and transparency (Miller, et al. 1998; Musalem

& Palacios 2004: xxiv). This changed during the 1980s and 1990s, due to a number of developments that revealed a need for a more systematic approach to govern public pension funds. These developments included a growing significance of pension funds in fiscal matters, and a number of high profile investment debacles that revealed issues of underfunding and mismanagement (Miller, et al 1998).

To address the need for a more systematic approach to public pension funds governance, elected officials and pension systems undertook a number of efforts, including the adoption of comprehensive formal investment policies to direct investment decision, and state laws aimed at increasing oversight and transparency of investment activities (Thompson 1989). These efforts were often guided by professional organizations, such as the Governmental Finance Officers Association (GFOA) and National Association of Retirement Administrators (NASRA), which placed priority on aiding government to adopt and implement formal investment policies. Today, the use of a comprehensive set of formal rules governing public pension fund investments is ubiquitous across state pension systems.

The second fundamental change that has occurred is a shift in the goals of public pension investment programs. These programs have historically placed emphasis on preserving the principal (preservation of the principal) and as such sought to minimize risk. In several states this goal was partly a result of investment debacles that lead to a constitutional ban on stocks (e.g., South Carolina and Indiana). In other states it was simply adherence to a public value system that was inconsistent with speculation and risk. Typically, it led to investments in high-grade domestic fixed income securities, such as treasury issued securities.

Over the past three decades the emphasis on preserving the principal has shifted toward maximizing long-terms yield. Miller et al (1998) attributes this shift to several developments including growth in equity markets, the increased role of pension funds in fiscal affairs, and expanded investment opportunities. Additional developments that have contributed include expanded investment opportunities in financial markets, fiscal constraints (driven by expansion of benefits such as COLA additions), new knowledge about investing (e.g., modern portfolio theory), and a general acceptance of market solutions to improve the effectiveness and efficiency of government run operations (i.e., New Public Management).

In most US state pension systems, the shift toward yield maximization generated at least four important changes to the existing set of governance structures. First, it changed the distribution of control across the three different authority levels described above. More specifically, decision-making authority was decentralized across these three authority levels for purposes of empowering pension officials. This is partly exemplified by the enactment by state legislatures of a variety of laws that increased pension systems' autonomy over investment operations. Autonomy is a core element of New Public Management (NPM) (van Thiel 2000, Pollit et al 2001). It proposes that autonomy will result in performance enhancements, as long as professionalism, expertise and proper economic incentives are present. Along similar lines state legislators also removed restrictions to expand the investment options available to pension funds. For example, most states replaced legal list with prudent person statues to allow the funds to more

easily adept to changing market opportunities and conditions (Johnson 1993; Haskell 1990).

The shift in emphasis toward yield maximization also changed the demands for expertise and professionalism. The traditional goal of preserving the principal placed relatively limited demands on expertise and professionalism. In essence, investment strategies were aimed at minimizing risk and assuring sufficient liquidity to meet current obligations. The governance and implementation of such strategies were typically confined to immunization strategies, where maturities of fixed income securities issued by the US Treasury were matched with pension obligations. Furthermore, accountability would be based on compliance with a relatively limited set of investment mandates (i.e., whether investment in Treasury bill occurred or not).

The successful pursuit of yield maximization places higher demands on expertise and professionalism. It requires investment professionals to make complex choices and judgments across a large number of available opportunities in dynamic environments. Given these demands, many states and pension systems have added or strengthened eligibility requirements for serving as a member on public pension boards or as an investment official.

Third, the shift in emphasis toward yield maximization changed the demands for oversight. To offset the reduced control over public pension operations that resulted from decentralization of authority, legislators enacted laws to increase their ability to oversee the investment activities of public pension systems.

Finally, the shift changed the requirements for transparency and accountability. Given the focus on yield maximization and the use of more decentralized authority structures, increased emphasis has been placed on holding pension systems and investment officials accountable based on how well they meet performance goals. These performance goals in turn are based on major benchmark indexes and comparisons with their corporate counterpart. Furthermore, the expanded opportunities to invest in equities and alternative investments have increased the need for conflict of interest disclosures. Similarly, an increased reliance on third party investment professionals has lead to an increased need for disclosures to prevent revolving door practices and placement agents.

The extent of the change that has occurred in the goal of public pension investing and in formal structures that have accompanied this change reflects a paradigm shift. Table 1, summarizes this paradigm shift by contrasting the main characteristics of governance structures associated with yield maximization and preservation of the principal.

Table 1: *Governance Structures*

Rules	***Structure 1- Yield Maximization***	***Structure 2 – Preservation of Principal***
Distribution of control	Decentralized	Centralized
Expertise and professionalism	High demands	Limited demands
Oversight	High demands	Limited demands
Transparency and Accountability	Performance orientation, disclosures related to investment activities and third party contracts	Compliance orientation

Theoretical Framework: An Agency Perspective on the role of Governance Models in Public Investing

A good theoretical entry point for outlining the contributions that formal governance structures make toward the performance of public pension investments is agency theory. Agency theory centers on diagnosing the causes and consequences of problems that arise whenever one person or a group of people delegates and entrusts another person to act on their behalf (i.e., an agency relationship). Agency theory helps to conceptualize the need for governance structures to combat agency problems that arises in these relationships. It also provides a theoretical foundation that suggests factors that can help combat agency problems. In the context of public pension funds, agency relationships arises when a fiduciary body is entrusted with making decisions on behalf of the stakeholders of public pension funds, or when a fiduciary body delegates authority to investment professionals (i.e., the investment function) to act on its behalf.

Stakeholders

There are a number of different stakeholders of public pension funds. The primary stakeholders are taxpayers (current or future generations of taxpayer), plan sponsors (the government), employees, and beneficiaries of public pension plans. Among these groups, the beneficiaries have the most direct stake in the financial wellbeing and performance of a pension system (Mitchell 2002; Hess & Impavido 2003). In many States, the prevailing state statutes and constitutions therefore identifies the beneficiaries of pension systems as the primary stakeholder and require fiduciaries to manage pension funds in the best interest of this group (Hess & Impavido 2003).

Taxpayers (future or current) are stakeholders, due to the fact that benefits associated with defined benefit plans are paid for via general taxes. Moreover, the benefits are typically protected by state statute or constitution. Unless changes are enacted to the legal framework, financial shortfalls are therefore ultimately paid for by taxes. To some extent, the government itself (the plan sponsor) is also a stakeholder, due to the fact that it is responsible for ensuring that sufficient annual contributions are paid. The size of these contributions is partly determined by the financial health of the system (unfunded liabilities needs to be amortized) and the financial performance of pension fund investments (it has the potential to offset or add to the unfunded liabilities). In addition, a healthy financial plan can have implications of the ability of a government to attract and retain good government employees (Mitchell 2002). It is well know that pension benefits constitute an important consideration in the overall compensation package offered to public employees.

The Need for Governance Structures - Residual losses

Agency theory identifies three types of costs that arise from agency relationships, including residual losses, bonding costs, and monitoring costs (Jensen and Meckling, 1976). The former of these – residual losses - is useful for purposes of conceptualizing the need for governance structures. They occur when agents make decisions that are not aligned with the principals' best interest. Meckling and Jensen (1976) refer to residual

losses as "the reduction in welfare experienced by the principal as a result of this divergence."

Residual losses result from two types of agency problems, including moral hazard and conflicts of interest. Moral hazard occurs because the person to whom decision-authority is delegated does not bear the full consequences of his/her actions. As a result they might be inclined to engage in risk-taking behavior that is not aligned with the wishes of the principals, including excessive or overly conservative risk taking behavior. The latter is an example of "shirking." Shirking occurs when agents are not motivated to fully engage themselves in serving the principal. Studies centered on the effects of board composition on risk propensity suggest that public pension funds that are run by trustees that are retirees tend to be less prone to risk-taking, because they do not bear the wealth consequences of their decisions (Murphy and Van Nuys 1994; Mitchell and Hsin 1997). Given this they have weak incentives to maximize the value of pension assets. Another example of shirking is when active portfolio managers charge full fees without fully engaging themselves in exploiting market inefficiencies.

Hence, the historical emphasis on preserving the principal might be an example of shirking. Such risk taking behavior fails to serve the interests of the principals, because it creates opportunity costs. These opportunity costs arises from the fact that unwillingness to take risks prevents (or at least discourages) pension plans from pursuing higher-reward investments opportunities, and from capitalizing on the benefits of diversifying across a broader set of asset classes. As illustrated by Markowitz, diversification into additional asset classes will always reduce risk for a given level of return, as long as the asset classes are not perfectly correlated (Markowitz 1952).

The second type of issue where agency relationships results in residual losses is when conflicts of interest are present. Conflicts of interest arise when agents have the opportunity to pursue individual interests (for their own gain) that are not aligned with the interests of the principals. There are multiple examples where conflicts of interests are present in the case of public pension fund investments. A common example is the presence of investments that serve political and economical goals, including socially and economically targeted investing (Coronado, et al 2003, Mohan and Zhang 2011, Munnell 1983, Munnell and Sunden 2001). The literature is inconclusive regarding the question of whether such decisions have a significant effect on risk levels and investment performance. Mohan and Zhang (2011) found limited evidence that economically targeted investment policies was associated with lower pension investment risk. Coronado, et al (2003) found that ETIs are associated with lower investment returns. Nevertheless, these types of decisions represent a breech in the fiduciary duties of the fiduciary body, which is charged with acting in the best interest of the beneficiaries.

Combatting Residual Losses via Governance Structures

From an agency perspective, the adoption of formal governance structures can be viewed as an active response to agency problems, aimed at lowering residual losses. According to research conducted on agency relationships, residual losses are minimized when two conditions are met (Eisenhardt 1989). The first is when the interests of principals and agents are aligned (i.e., they seek the same outcome) and the second is when the principal is made aware of (i.e., is knowledgeable about) the consequences of agents' decisions.

From a principal agent theory perspective, the overarching goal of formal governance structures, thus, is to ensure (or contribute toward) that the above two conditions are met.

Agency theory suggests two types of measures that can aid toward this end, including measures that help monitor agents' activities, and measures that controls agents' behavior. The use of measures that help monitor agents' activities contribute toward the reduction of agency costs by reducing information asymmetries between the principals and agents, thereby making principals more knowledgeable about the consequences of agent's decisions. They include but are not necessarily limited to rules that requires systematic auditing and reporting of operations to internal and external interests. Theoretically, it is argued that such oversight and transparency measures contribute toward the reduction of residual losses by increasing the risk that non-prudent behavior is detected. Oversight, thus, acts as a disciplining mechanism that reduces the propensity of agents to act in their own interest, due to fear of detection. This, off course, presumes that there are consequences for agents who act imprudently.

Measures that regulate the behavior of agents are aimed at steering agents toward decisions that are aligned with the principals' interests. These include rules that constrain agents from making certain decisions and rules that encourage and guide them toward making decisions that consistent with the principals' interests. The remainder of this section discusses how these two categories of measures relate to the governance of public pension fund investments. Specifically, it discusses how monitoring measures and measures that regulates are used to reduce shirking, sub optimal risk taking and conflicts of interest, in the context of public pension funds.

Monitoring Measures

The formal structures that govern public pension fund investments include a number of rules that have been adopted for purposes of monitoring the actions of the agents. These and other monitoring measures are aimed at removing the information asymmetries that arise from delegation of decision-making authority. The agent is naturally privy to more information than the principal, because s/he is closer to the decision-making process. In addition, agents are often professionals and experts and have, in this capacity, a knowledge advantage over principals.

Monitoring measures include rules that govern both information that is internal to the organization and information that is aimed at keeping external interests informed (i.e., public transparency). To ensure public transparency, pension systems are often required to make information about the funds publicly available, and respond to public requests for information. In addition, public pension systems have a number of rules that dictate the frequency and form of information that needs to be provided for purposes of maintaining internal controls. Good examples include requirements to make their comprehensive annual reports (CAFR) publicly available, and rules that require them or respond to public requests for certain information in a timely manner (i.e., freedom of information acts).

The effects of monitoring measures depend only partly on how effectively they contribute toward making stakeholders knowledgeable about imprudent decisions (i.e., decision that are misaligned with the principals interests). They also depend on the potential benefits that an agent reaps if imprudent decisions remain undetected and the costs s/he incurs if

detected. Detection of imprudent decision can have a number of adverse effects on agents including legal, economical, social and professional repercussions. Hence, agents' decision to engage in imprudent behavior is a function of the potential gains of imprudent behavior and the risk and cost of such behavior being detected.

A challenge faced in the governance of public pension funds is that stakeholders often have limited incentives to gather and analyze information that reveals imprudent decision-making. Among the stakeholders of public pension funds, it is questionable whether citizens impose any significant disciplinary effect on pension funds. They have relatively limited incentives to hold public officials accountable, given that benefits often are guaranteed via constitution. Furthermore, the cost and ability of gathering and analyzing information is likely to outweigh the benefits of such efforts. It can be argued that citizen groups have slightly higher incentives to engage in monitoring activities given that they can share information costs across a larger pool of individuals. This limitation imposes a major constraint on the disciplinary effects that monitoring rules can have on agents.

Nevertheless, there are external interests that do engage in monitoring of public pension funds. As already noted, credit rating agencies analyze and rate the credit quality of pension systems. As part of their rating activities, they frequently solicit and access information about the financial health and performance of public pensions. In this capacity, they are likely to have disciplinary effects on the behavior of agents. In addition, the media has played a role in drawing attention to improprieties. A good example is the attention that has been given toward the actuarial rate of return that governments and pension systems select as a basis for discounting their pension obligations (Walsh 2012). Based on the findings of a handful of academic studies (Biggs, 2010; Norcross & Biggs, 2010; Novy-Marx & Rauh, 2009, 2010, Rauh 2015, Stalebrink 2014), it has been revealed that governments select actuarial rates of returns that understate the true value of pension obligations.

Measures that Control Behavior

Formal governance structures also include a number of rules that have been adopted for purposes of constraining and guiding agents to undertake actions that are aligned with principals' interests. These measures are geared toward enhancing the efficiency of public pension investments and to prevent overly risky behavior. In terms of rules aimed at enhancing the efficiency of investment activities, fiduciary bodies often adopt guidelines and quantitative restrictions aimed at establishing investment portfolios that capitalizes on the benefits of diversification. Relevant policies include but are not limited to asset allocation targets and asset allocation restrictions. Another example is policies that impose restrictions on active portfolio management activities. A number of pension systems have adopted policies that restrict active investment activities to less efficient markets.

Relevant rules aimed at preventing overly risky or imprudent behavior include written language that specifies investment goals and mission, quantitative restrictions on allocations in certain asset classes and securities, and prudent person statutes. Although they are not conclusive, studies conducted on risk–taking behavior suggest that public pension plans tend to be more risk averse, relative to private plans (EBRI 2005).

The emphasis that a particular state or system places on restricting the fiduciary body or the investment function determines the level of autonomy that a pension plan enjoys. Governance structures that center on rules that guide decision-making are considered more autonomous. The design of these structures is based on the belief that autonomy translates into improved performance. This assumption is a core element of New Public Management (NPM) (van Thiel 2000, Pollit et al 2001). It proposes that autonomy will result in performance enhancements, as long as professionalism and expertise are present.

Research on the effects of autonomy on performance at the board level, conducted in private sector contexts, suggest that autonomous or independent members of a fiduciary body are more likely to engage and make positive contributions in strategic decision-making; and less prone to fall prey to external pressure (Bowman & Useem 1994, Charkham 1994). At the same time, however, autonomy increases opportunities for agents to serve their own interests. Hence, if the interests of principals and agents are poorly aligned, autonomy can translate into an increase in agency costs. Using Niskanen's theory of budget maximization (1971), Stalebrink (2015) illustrates that the presence of significant levels of autonomy at the operating level can lead to inefficiencies and corruption. These findings are consistent with the conclusions drawn by an emerging body of research that have challenged the application of private sector style governance and management practices in the public sector on the basis that they may result in an array of negative consequences, including but not limited to reduced transparency and increased corruption (Stalebrink 2007, Chang 2008, Vinnari, E. M, & Nasi, S. 2008).[3]

Research Objective & Previous Research

While the paradigm shift that has occurred in the governance and management of public pension assets has been ubiquitous across public pension systems, it has by no means lead to uniform governance structures. Some systems have proceeded relatively slowly while other systems have changed quickly. For example, most state legislatures passed legislation to allow for equity investments during the 1980s. However, West Virginia, Indiana and South Carolina did not remove their bans on investments in equities until the end of the 1990s. Furthermore, public pension funds vary in terms of the depth and relative emphasis they place on the various categories of rules that make up governance structures. For example, some states place more emphasis on oversight and transparency than others. A recent paper by Stalebrink et al (2015) attributes these differences to differences in the political, economical and fiscal contexts within which pension systems in different states operates.

The objective of this research is to examine whether existing differences in governance structures can help to explain the success by which pension plans meet their long-term performance goals. Previous research has shown that governance structures can play an important role in the performance of public pension funds (Useem & Mitchell 2000;

[3] While it is outside the scope of this research, it is important to note that the adoption and enforcement of governance structures come at cost. From a societal perspective, it is beneficial to expend resources on governance only as long as they result in a marginal benefit. That is, for each additional dollar that is spent on establishing and enforcing governance structures, it needs to reduce residual losses by at least 1 dollar. In this research the sole focus is on the effect of governance structures. Hence, determining the cost of governance structure lies outside the scope of the study.

Yang and Mitchell 2004). Research conducted by Langensjo (2012) and Useem and Mitchell (2000) indicate that a successful governance structures can improve rate of returns by 1 percent to 2 percent.

Despite this performance potential research on the relationship between governance structures and performance is limited. In the literature review that preceded this research only a handful of research articles were found that took a systematic approach toward examining it. The majority of these were limited to examining a relatively narrow set of governance structures including investment restrictions (Burgess & Fried 1999, Burgess & Fried 2004, Michas 1984) or board composition (Murphy & Van Nuys 1994; Mitchell and Hsin 1997). The former set of studies focused on whether select diversification restrictions interfere with the creation optimal or efficient investment portfolios. They illustrate that overly restrictive quantitative restrictions imposed on the proportion of foreign investments that pension funds are allowed to hold has an adverse effect on investment performance. The latter set of studies has shown that board composition affects the riskiness of public pension fund investment portfolios. Specifically, they founds that pension plans run by a large proportion of trustees that are retirees tend to be less prone to risk-taking, because they do not bear the wealth consequences of their decisions.

Only two studies have been produced to date that attempts to comprehensively examine the role of governance structures, including a study by Useem and Mitchell (2000) and a study by Yang and Mitchell (2004). The former study is based on longitudinal data from 1993, collected by the Public Pension Coordinating Council (PPCC) and commonly referred to as the PENDAT data. The PENDAT data includes detailed survey data related to plan and governance characteristics for 291 state and local pension plans. The study centers on examining how board size and composition, investment restrictions, performance evaluations, and investment decisions affect investment strategies and performance. The research shows that governance structures affect investment performance indirectly through the effect they have on investment strategies. Specifically, the researchers show that four types of governance structures affects investment strategies including investment restrictions, board purview (i.e., board autonomy), independent performance evaluations and board size and composition. They also show that investment strategies that center on equity and international investing and tactical investing can influence near term financial performance.

The study by Yang and Mitchell (2004) is based on an updated data set (data from 2000). Similar to the study by Useem and Mitchell, the research is based on the PENDAT data. In their study, Yang and Mitchell finds that board composition, investment practices and transparency can have an important impact on investment performance.

This research expands on this previous research in three important ways. First, it examines a broader set of rules than previously has been considered, including rules that seek to reduce information asymmetry between principal and agents (i.e., monitoring efforts) and rules that seek to directly regulate the behavior of agents to act in the best interest of principals. Specifically, it considers rules governing oversight, transparency and the efficiency by which investment programs are carried out.

Second, it centers on the long-term success of pension funds. The studies by Useem and Mitchell (2000) and Yang and Mitchell (2004) center on near term performance. A focus on the effects that governance structures have on the long-term performance is important because of the long-term investment horizon of pension fund investments.

Finally, it uses updated data. Useem and Mitchell's study was based on data drawn from 1993 and the study by Yang and Mitchell is based on data from 2000. As will be discussed in the paper, a paradigm shift has occurred over the past 3 decades in the management of public pension funds. This paradigm shift is characterized by a fundamental shift in the goals and strategies of public pension funds management as well as by the comprehensiveness of the structures that govern public pension funds. It is therefore important to re-examine the role of governance structures plays in public pension investing in its new context.

The focus on formal rules was selected because the majority of rules that affect investment decisions are established at the State and system level. The findings of this research can therefore be used to recommend actions that are under the control of elected officials and members of fiduciary bodies. Informal rules, such as norms and practices are often more difficult to change and control.

Methodology

This research is conducted using a two-pronged approach, including a case study and a quantitative study. The case study was conducted partly to aid the process of identifying valid proxies to be used in the quantitative study. It was also conducted to develop a more nuanced understanding of the rules that governs public pension fund investment decisions. As indicated above, relatively limited research has been conducted on the relationship between governance structures and investment performance, beyond studies of the effects of quantitative restrictions. With the exception of Useem and Mitchell (2000) and Yang and Mitchell (2004) study, the effects of other categories of rules that make up governance structures have largely been ignored, including rules relating to transparency, conflicts of interests, political interference and expertise.

To conduct a case study prior to a quantitative examination of a phenomenon is a relatively common methodological approach (Ryan et al. 2002, Silverman 2006, Yin 2003). When previous research is limited on a particular topic, a case study holds potential for generating important and unforeseen insights that, together with the theoretical foundation, will impact the development and precision of the hypotheses that are tested.

The quantitative study was conducted using a binary logistic regression model. It was conducted for purposes of generating generalizable insights and recommendations regarding how pension funds ought to design their governance structures.

It is important to note that the statistical portion of this study is a precursor to an expanded study that will be carried out during the spring of 2017, which will be based on the results of this study. The expanded study will be carried out using original data that is currently being collected by the researcher. This data will allow for an expanded sample size and more precise data. It is not uncommon for researchers to use secondary data sources as a means to establish statistical relationships before engaging in the time

consuming endeavor of collecting original data. It is also important to note that this does not mean that the results of this study are invalid. Rather, studies that are based on secondary data typically produce more conservative estimates of relationships compared to studies that are based on secondary data sources. This means that the presence of statistically significant relationships typically is valid in precursor studies, but that the strength of the relationships needs to be interpreted with caution.

Case Study

The case study was based on two retirement systems, including the School Retirement System (SRS) of the State of Nebraska and the South Carolina Retirement System. These two cases were selected following a broad based review of state pension systems that was aimed at identifying two contrasting cases, in terms of investment performance and governance characteristics. The review revealed that the SRS has had a strong track record of meeting its long-term investment performance expectations. On average, over the past 10 years (2005-2014), it exceeded its performance targets by 4.96 percent, annually, placing it at the absolute top of the 78 state administered systems included in this study. Its average performance target during this time period was 8 percent and its average annual return was 12.96 percent. By contrast, the South Carolina Retirement System ranks third from the bottom among the 78 retirement systems. During the 10-year time period, actual returns were, on average, 1.6 percent below its average performance target. Its average annual return during the time period was 4.98 percent and its average long-term performance target was 7.6 percent.

Furthermore, the review revealed that, although the two systems were relatively autonomous, they exhibited very different characteristics in regard to rules aimed at upholding transparency and oversight. They also differed in terms of rules governing the expertise held by decision-makers.

The two cases also have faired differently in terms of their fiscal condition. The SRS has been relatively successful in keeping its funding status above the 80 percent threshold (83 percent funding ratio in 2013), while the South Carolina Retirement system falls well below this threshold (62 percent funding ratio). The characteristics, associated with the two cases that were revealed in the review of the cases are summarized in Table 2, below.

Table 2: Characteristics of Cases

State	Met long-term **performance** expectations	Levels of **autonomy** enjoyed	Rules governing **oversight and transparency**	Rules governing **expertise** of pension officials	Funding Ratio
Nebraska	Yes	High	Strong	Strong	83%
South Carolina	No	High	Weak	Strong	62%

Based on the theoretical foundation, the focus of the case study was on acquiring a better understanding of the role of rules that falls in the four categories discussed earlier in the paper, including rules that govern how pension assets are invested (i.e., investment rules), rules aimed at increasing transparency, rules that facilitates review and monitor activities (i.e., oversight rules), and rules that assign responsibility for decisions (i.e., accountability rules).

The data for the case study was gathered from a combination of documents including news sources, Comprehensive Annual Financial Reports (CAFRs), investment policies, state statutes, and board meeting minutes. A source of data that proved to be particularly valuable in the examination of the two cases was the Center for Public Integrity's 2015 State Integrity Investigation. Based on interviews and survey data collected from relevant public officials, this investigation assessed the rigor of efforts that state governments undertake for purposes of combatting corruption (Qui, et al 2015). The investigation provides assessments that are specific to the governance and management of state public pension funds, including assessments of rules pertaining to transparency, expertise, and conflicts of interests.

The School Retirement System of the State of Nebraska

The School Retirement System of the State of Nebraska was authorized to begin operations in 1961 (Chapter 84 Section 1302 of the Nebraska Revised Statutes). It is one of three defined benefit plans in the Nebraska Public Employees Retirement Systems (NPERS). The other two systems are the Nebraska State Patrol Retirement System, and the Nebraska Judges' Retirement System. At the end of FY 2015, the School Retirement System served close to 60,000 members and had $9.4 billion in accumulated assets (NASRA 2015). It is by far the largest of the three defined benefit systems, holding more than 95 percent of the total assets. Relative to other systems, NPERS ranks at 61 out of 94 State administered retirement systems in terms of its size. The median size of State retirement systems is $23 billion. The fund is also relatively well funded. At the end of FY 2013, it had a funding ratio of 83 percent.

The School Retirement System is governed by the Public Employees Retirement Board (PERB), which is charged with governing the activities of all the pension plans in the NPERS. The PERB consist of eight governor appointed voting members and one non-voting ex officio member (the state investment officer) (Chapter 84 Section 1501 of the Nebraska Revised Statutes). Despite the high proportion of appointed members it is important to note that six of the members are representatives of different retirement plans. Furthermore, the retirement board has limited influence on the establishment of rules that governs investment decisions. These duties are delegated to the Nebraska Investment Council, which consist of five voting members appointed by the Governor and confirmed by the Legislature, and two ex officio members (the State Treasurer and the Public Employees Retirement System's Executive Director) (Nebraska Investment Council 2015a). The Council establishes investment policies for all the different funds in the NPERS. These policies serve as the framework within which the State Investment Officer, staff and external managers operate. Hence, the key fiduciary body for the School Retirement System is the Nebraska Investment Council.

Performance (and Allocations)

The Investment Council establishes its own goal within its statutory mission. Specifically, it seeks to "…achieve superior returns while maintaining prudent levels of risk." (Nebraska Investment Council 2015a).

In terms of its investment performance, the Council has a long track record of success in meeting investment targets and key benchmarks. Over the last decade and a half, the investment activities associated with the three defined benefit plans have generated some

of the strongest and most consistent performances among state-administered pension funds. Over the past 10 years, it has not only consistently met its performance benchmarks it has also consistently exceeded its long-term target returns. For the time period covered by available data (2001-2013) it generated an average long-term annual return of 9.45 percent. This exceeds its performance target by 1.45 percent, which has been consistently set at 8 percent throughout the given time period. In addition, the fund also fairs well in relation to comparable benchmarks. A good comparison is the 7Twelwe index, which unlike a traditional 60/40 portfolio that is balanced across stocks and fixed income assets represents a multi-asset balanced portfolio. Over the 14 years that comparative data is available (2001 to 2013), the index produced an annual return of 6.94 percent. During the same period, the average annual investment return for the Nebraska School Pension funds was 9.45 percent (i.e., it exceeded the indexes by 2.5 percent).

In terms of asset allocations, the fund invests about 70 percent of its assets in risk enhancing investments (stocks, private equity and real estate) and 30 percent in risk mitigating investments (Fixed Income) (Nebraska Investment Council 2013, p7). The risk enhancing investments are allocated as follows:

- Domestic Stocks: 31.5 percent
- International Stocks: 15 percent
- Private Equity (REITs and direct holdings): 5 percent
- Real Estate: 5 percent
- Fixed Income: 30 percent

Compared to plans that invest in alternative investments, the council has been relatively cautious. It began to invest in private equity in 2005 and the Council has set the target allocation at 5 percent (Nebraska Investment Council 2015c, p. 20). At the end of FY 2013, the average holdings in private equity among state administered pension plans was 17 percent, and 6 percent in real estate (Center for Retirement Research 2015). Analyzed over time, allocation data indicates that the council has been relatively cautious in its pursuit of private equity investments.

Oversight and Political Interference (Independence)

As indicated earlier in the paper, pension boards play a critical role in overseeing public pension fund investment activities. The system places significant emphasis on ensuring oversight. The Investment Council has a standing committee that reviews both Council activities and activities related to the implementation of investment programs. This Committee is charged with conducting reviews on a quarterly basis. The reviews centers on assessing the adequacy of controls, compliance with state law and council policies, and accuracy of fees to external managers. The chair of the Investment Council selects the Standing Committee.

However, to execute their oversight role effectively and independently fiduciary bodies need to be surrounded by a governance structure that prevents political interference. In the Nebraska case, the exploration of rules aimed at limiting political interference was partly drawn from the 2015 State Integrity Investigation, which assessed the extent to which decision-makers are protected from political interference. In the investigation, the Nebraska PERB received a top score (100/100) and it was concluded that, although appointed by the governor, the members of the pension system's governing body are able

to execute their duties with limited political interference, because they have to be approved by the legislature and drawn from 6 different constituencies (representatives from each of the six retirement systems within PERB). In addition, two additional members are members at-large and cannot be employees of the state or any related political sub division. The assessment score was based on an in-person interview with the state investment officer, Michael Walden-Newman, who's statements supported a view that the decision-makers within the pension system "…always operate with independence from any branch of the state government, making investment and fund-management decisions without fear or favor." (Qui, et al 2015).

A review of the Council's investment policy echoes this assessment. It suggests that several proactive steps have been taken both by the legislature and the Council to limit political interference. For example, to limit opportunities for economically targeted investing, the legislature has adopted a policy aimed at minimizing politically motivated decisions. Specifically, Section 72-1239.01 of the State Investment Act states that "…no assets of the retirement system…shall be invested or reinvested if the sole or primary investment objective is for economic development or social purposes or objectives." (Section 72-1239.01 of the State funds investment)

In addition, the Council's sole responsibility is asset management. It does not make any decisions regarding contribution levels or disbursement of funds. While this is typical for state administered pension systems, the separation of funding and investment duties limit the temptation to move toward riskier investments to recoup investment losses or funding shortfalls.

A drawback that raises some concern about the independence of the Council is the Governor's influence over the investment Council. The governor selects the five voting members and the chairperson of the investment council. In addition, although s/he is subject to the approval of the governor and the legislature, the Investment Council selects the State Investment Officer.

Autonomy

State law delegates the administration of the pension system to the PERB. Specifically, it dictates that the board shall "administer the retirement systems." (Chapter 84 - STATE OFFICERS 84-1503 - Board; duties). The board in turn, delegates the fiduciary responsibility over pension investments to the Investment Council, which receives substantial autonomy in overseeing and establishing rules that govern investment decisions for all the funds in the NPERS.

The investment philosophy adopted by the investment council suggests that emphasis is placed on creating a decentralized organizational structure, within which the investment function is empowered to utilize its expertise and professionalism. Specifically, the investment philosophy states: "The guiding philosophy is to allow sufficient flexibility in the management process while maintaining reasonable parameters to ensure prudence and care in the execution of the investment program." (Nebraska Investment Council 2015c) This decentralized structure is reflected in the diversification guidelines that the Council has adopted. Compared to most other pension systems the diversification guidelines are relatively broad. Specifically, they allow

- Up to 20 percent to be managed by any one manager.
- Up to 35 percent of assets invested in foreign assets.
- Up to 30 percent max in a single industry.

Transparency

The exploration of rules aimed at ensuring transparency was partly drawn from the 2015 State Integrity Investigation. As part of the investigation, the PERB received a top score (100/100). The assessment evaluated the extent to which laws were present that require pension funds to publicly disclose information about their investment activities, including "…investment positions, fees, performance reports, contracts, consultant reports, and commissions paid to brokers." According to the assessment, the PERB is required, by state law to publicly disclose information on all these items (Nebraska State Law 84, Section 712, effective 1866, last revised 2013).

Expertise

The PERB also received a top score (100/100) in the Center for Public Integrity's assessment of the extent to which rules exist that regulates requirements for investments expertise and professional experience. According to the assessment, this score was justified by the high demands that are placed on members of the Investment Council. According to State law (double check), members must have "…at least seven years of experience in the field of investment management or analysis or have at least 12 years of experience in the financial management of a public or private organization."

Conflicts of Interest

The State Integrity Investigation indicated that the PERB performed relatively poorly in terms of preventing conflicts of interests. The investigation indicates that the PERB scores very high on the presence of rules that requires decision-makers to file disclosure forms (Nebraska State Law 49, Section 1493; effective 1976, last revised 2002). However, it fairs relatively poorly on the presence of regulations that prevents opportunities for self-dealing or other malfeasance. While decision-makers are regulated from receiving gifts, family members are not regulated (Nebraska State Law 49, Section 14,101; effective 1976, last revised 2001). It also fairs poorly on preventing revolving door practices. There are currently no laws in effect that prevents a public official that has had a senior role in the pension systems to assume a position with any private sector firm.

Other factors

An interesting and unanticipated finding deals with the efficiency of investment activities. As part of its investment philosophy, the Nebraska Investment Council makes it explicit that its investment philosophy is based on "…widely accepted theoretical and empirical bases." As part of this, it recognizes that "…investment strategies will reflect a mix of active and passive investments, with passive investments being emphasized in the more efficient markets." Furthermore, the Council imposes strict limitations on active investment managers and monitors adherence to these restrictions on a quarterly basis. Finally, it recognizes that "…costs must have a meaningful impact on returns. Investment strategies will utilize cost effective approaches." (Nebraska Investment Council 2013, p93)

Consequently, an additional set of rules that might be worth exploring in the quantitative study are rules aimed at limiting the presence of inefficient investment operations. One example of such inefficiencies is restrictions against active portfolio management practices in efficient markets. It is well known that active portfolio management practices often fails to generate any added value to investment returns, after cost have been deducted. Given this, it is often recommended that investors invest their funds in passive portfolios. This recommendation is often justified based the efficient market hypothesis (EMH), which states that all public information is quickly and accurately reflected in security prices (Fama 1970, Fama & French 1988, Fama 1991). Empirical testing of the semi-strong form efficiency suggests that mutual fund managers are not able to outperform the market on a risk-adjusted basis (Malkiel 1995). Evidence also suggests that mutual fund managers are unable to successfully time the market (Henriksson, 1984).

It should be noted that there are several critics of EMH. Grossman and Stiglitz (1980) draw attention to information costs, arguing that it is impossible for markets to be perfectly efficient, because investors needs to be compensated for the cost of trading and information gathering. If investors are not sufficiently compensated there would be no reason for them to trade and markets would collapse. Grossman and Stiglitz refer to this as the impossibility of informationally efficient markets.

Due to contrary evidence (e.g., the recent real estate bubble) the EMH has also been questioned by the emerging field of behavioral finance (Vermers, Shiller). Scholars in this field argue that markets often are driven by investors that make emotional and irrational decisions and that this lead to inflated market values.

Regardless of which view one takes, the empirical evidence suggest that it is difficult to beat markets that operates at relatively high levels of efficiency. Rational markets are difficult to beat because mispriced securities are quickly detected leading to market correction. Irrational markets are difficult to predict because of the difficulty of predicting irrational behavior. In addition, adherence to the EMH appears to play an important role in the investment community and within public pension funds (Stalebrink 2016).

Another related area of inefficiency arises from investment in alternative assets. As indicated above, the Nebraska investment Council proceeded relatively cautiously in terms of allocating assets into alternative assets. A possible explanation for this is that the Council has sought to reduce information asymmetries and to gain access to successful private equity funds, by building relationships over time. As noted by Stalebrink (2015) building investment relationships over time is a common strategy to bridge information asymmetry gaps and to build networks aimed at gaining access to successful private equity funds. Hence, it might be productive to explore regulatory approaches that reduce information asymmetries associated with private equity investments and approaches that facilitates network building.

South Carolina Retirement System (KRS)[4]

This case is currently progress and will be added to the final version of the paper.

[4] Information regarding this case will be added.

Quantitative Study: Hypotheses

The quantitative portion of this research analyzed the effects of a number of relevant formal rules on the success by which pension funds meet their long-term performance targets. Toward this end, seven different hypotheses were developed. These hypotheses were developed partly from the theoretical foundation and partly from the insights gained from the case studies. The hypotheses are categorized into three categories, including transparency hypotheses (TH), oversight hypotheses (OH) and operational efficiency hypotheses (OEH). The former two categories are included to examine how rules that influence transparency and oversight affect the success by which pension plans meet performance targets. As noted in the theoretical portion of the paper, these rules affects agency costs by disciplining agents to act in a manner that is aligned with the interests of the principals. The third category (OEH) is included to capture the effects of rules that are aimed at improving the efficiency by which investment operations are carried out.

Transparency Hypothesis 1 (TH1): Rules Governing Conflicts of Interest

Rules governing conflicts of interests are intended to ensure that board members and individuals involved in the management of pension funds do not own assets or have interests that influence the decisions they make on behalf of the pension fund. They include asset disclosure forms for current members, restrictions to reduce the movement of high-level employees across the public and private sectors, and restrictions on gifts received by pension fund officials. Conflicts of interest are problematic because they result in self-interested agents acting in a manner that is inconsistent with the interests of the principals. In this research, it is hypothesized that pension systems that operate in an environment that is governed by rules that forbid and make conflicts of interest transparent reduces instances of conflicts of interest. If this holds true, then the presence of such rules would reduce agency costs and enhance the likelihood that pension performance targets are met.

Transparency Hypothesis 2 (TH2) - Rules Governing Disclosure of Placement Agents

Rules governing disclosures relating to placement agents are intended to make fees and terms relating to services provided by placement agents transparent. A placement agents is a well connected person, acting as a middle man, who helps entities that are offering investment services to connect with senior people in pension funds (making introductions and setting up meetings). The background behind these rules is that placement fees, in many cases, have been considered to be too high in relation to the services provided, thus, adversely affecting the performance of the funds (by increasing costs). Sometimes they involve former board members who direct business to a fund for a fee.[5] In this research, it is argued that these rules increase the risk that excessive fees are detected, disciplining agents to be more cautious in acquiring placement agents at excessive fees. As such, it hypothesized that pension systems that operate in an environment that is governed by

[5] Examples of placement agent fees that have been considered excessive or problematic include Kentucky Employees Retirement Systems (15 million in fees between 2004 and 2010) (Hundley 2010) and CalPERS (50 million in fees to a former board member) (Hundley 2010).

rules that requires disclosures relating to placement agents are more likely to meet their performance targets, compared to systems that operate in the absence of such rules.

Transparency Hypothesis 3 (TH3) - Rules Governing Transparency about Investment Operations

Rules governing the transparency of investment operations are intended to give citizens insight into the operations of public pension fund investments, including information about officials serving on the pension funds, and detailed information about investment activities, and performance. To be effective, the information needs to be relevant and accessible in a timely manner. Given this, it hypothesized that pension systems that operate in an environment that is governed by rules that requires disclosures about investment activities and investment personnel in a timely manner are more likely to meet their performance targets, compared to systems that operate in the absence of such rules. [6]

Oversight Hypothesis 1 (OH1): Board Composition

Previous research suggests that the ability of a fiduciary body to properly oversee public pension assets can be compromised by political pressure. This pressure can enter into the decision-making process through politically appointed board members (Murphy and Van Nuys, 1994; Davis and Useem 2000; Coronado et al 2003). While board members hold the principal responsibility for overseeing the management of pension investments, their proximity to the political process might lead them to pursue decisions that are not consistent with a yield maximization goal.

A possible result of political pressure is decisions to use public pension funds for purposes of supporting social and economic goals, including using pension assets to support economic development within the state (i.e., economically targeted investments) and banning investments in certain countries or industries (i.e., divestures). With the exception of a study by Munnell and Sunden (2001), research on the effects of ETIs indicates that these investments lead to a sacrifice of returns on plan assets (Mitchell and Hsin 1997, Iglesias & Palacios 2000, Coronado et al 2003). To prevent the influence of such motives many states, have adopted state statutes that prevent certain investments for social and economic purposes.

Previous research has also shown that the proportion of politically appointed board members influence the discount rate that pension systems use to discount their pension obligations (Stalebrink 2014). In over 95 percent of the state administered pension systems, this rate is typically set by the fiduciary body based on a recommendation from a professional actuary. However, due to the large impact the rate has on the funding ratio and the funding of pension system, it is often tempting for fiduciary bodies to override an actuary's recommendation or selecting a "team player" that is likely to recommend a higher rate (Hess 2005, Hess & Squire 2009).

[6] A common concern about disclosures about investment operations is that successful funds become the subject for "copycat funds" (Frank, et al 2004). To avoid this problem, disclosures about investment operations need to be designed to ensure that they do not compromise a competitive advantage.

The selection of an artificially high discount rate has two implications for the ability of pension plans to meet their long-term investment goals. The first arises from the fact that GAAP for state and local governments prescribes that the adopted discount rate should be based on the estimated long-term investment yield for the plan. Artificially high discount rates will therefore reduce the prospect of meeting performance targets.

In addition, the adoption of a higher discount rate might result in irresponsible investment strategies, designed to meet the need for additional investment returns. Developing strategies to meet additional returns have been particularly challenging for systems that are required to hold a large portion of their assets in fixed income securities. The low yield on these securities have made it necessary for these systems to allocate a relatively large portion of their assets into riskier investment types, such as private equity (Stalebrink 2015). Some states, such as the case of South Carolina currently hold close to half of their assets in alternatives assets.

Given that the composition of boards of trustees can affect both allocations and the discount rate (in ways that reduces a system's prospects of meeting their performance) it is hypothesized that the proportion of politically appointed board members is negatively related to a systems success of meeting long-terms performance targets.

Oversight Hypothesis 2 (OH2): Rules Governing Expertise

The ability of a fiduciary board to properly conduct its oversight duties (and to develop proper investment strategies) is contingent on the level of expertise that its members hold. In the context of investing, the presence of expertise is of great importance given the knowledge intense nature of this industry. In practice, this has meant that states have adopted rules that govern the level of expertise and professional backgrounds of board members. They are typically required to meet certain minimum eligibility requirements, related to educational background and experience working in the investment industry. Consequently, it is hypothesized that rules governing levels of expertise affects a plan's ability to meet its performance targets positively.

Operational Efficiency Hypothesis 1 (OH1): Rules Governing Efficiency of Investment Process

As indicated by earlier research, rules governing the efficiency of investment practices can affect investment performance. As noted in the literature review section, empirical evidence suggest that active investment activities often carry limited benefits when carried out in markets that are relatively efficient[7], but that they can have merit in less efficient markets.

Another investment area that might hold potential for efficiency improvements is investments in alternative assets. The investments have grown in importance over the last decade as pension funds have sought to further their diversification and find opportunities to increase returns. However, efforts to acquire alternative investments are often both challenging and can be costly due to high management costs and risks. Investments opportunities in alternatives are often plagued by substantial information asymmetries and high management costs. In addition, due to the rapid expansion of private equity

[7] Using this strategy, pension funds operate as free riders that benefits from the costs incurred by active traders.

investments there has been an undersupply of quality agents. A large portion of these high-risk investments has often performed poorly.

As shown in the study by Stalebrink (2015) and by the Nebraska case study, some pension funds have sought to overcome these challenges by building relationships over time. Such relationship building holds promise for bridging the information asymmetry gap and to build networks aimed at gaining access to successful private equity funds. Given the risk levels associated with private equity, they tend to limit their overall exposure to private equity funds, by avoiding allocation into a disproportionately large portion of investments into alternatives.

Given these prior insights, it is hypothesized that pension funds that proceed slowly and takes a cautious approach to investments in private equity are more likely to meet their performance targets, compared to funds that expand rapidly and aggressively into these investments.

Operational Efficiency Hypothesis 2 (EH2): Rules Governing Autonomy

Rules governing the autonomy of boards are intended to strike a balance between the need to constrain individuals from acting imprudently and to facilitate the productive use of professionalism (judgment) and specialization (expertise) in the investment decision-making process. As noted earlier in the paper, the use of autonomy to achieve improved performance is a core element of NPM. It proposes that autonomy will result in performance enhancements, as long as professionalism, expertise and proper economic incentives are present (i.e., incentives that align the interests of principals and agents). In this research it is therefore hypothesized that rules governing levels of autonomy affect the financial performance of public pension funds, as long as professionalism, expertise and proper incentives are in place.

It should be noted that the incentive structure associated with public pension investment decisions is complicated by a lack of property rights to guide decision-making and a public value system that is inconsistent with compensation tied to performance.[8] In the absence of proper economic incentives, alternative drivers can come into play. As noted earlier, Niskanen (1971) argues that incentives in the public sector are tied to the political process and take the shape of budget maximization. A contrasting perspective is that public service is a calling, and that fiduciaries therefore can be relied on to act in the best interest of the public (i.e., they operate as benevolent public utility maximizers).

A summary of the six hypotheses is provided in Table 1.

Table 3: Summary of hypotheses

Hypothesis	***Variable***	***Expected relationship***
TH1	Conflicts of interest disclosures	+
TH2	Placement agents disclosures	+
TH3	Investment operation disclosures	+
OH1	Board composition (political appointees)	-
OH2	Expertise	+

[8] These compensation structures and values typically only apply to assets that are managed in-house.

OEH1	Efficiency of investment process (private equity)	+
OEH2	Autonomy	+

Methodology

The quantitative study was carried out using a logistic regression model. The logistic regression model is appropriate when the dependent variable is dichotomous.

Data

The availability of recent data on governance characteristics of public pension funds is scarce. The PENDAT data used by Yang and Mitchell (2004) was discontinued and replaced by a new survey in 2000, known as the Public Funds Survey. Compared to its predecessor, it is much more limited in terms of providing information on key governance characteristics. Given the existing data constraints, data was collected from a combination of data sources. First, data was collected from a combination of Comprehensive Annual Financial Reports (CAFRs) and from the public plans data that is developed and maintained through a collaboration of the Center for Retirement Research at Boston College, the Center for State and Local Government Excellence, and the National Association of State Retirement Administrators (Public Plans Data 2015). The public plans data provides plan level data for 78 State administered plans, covering the time period 2001-2013. These data sources were used for purposes of collecting data related to board composition and the performance of public pension funds.

Second, data was drawn from the 2015 State Integrity Investigation that is conducted by the Center for Public Integrity (2015). Based on interviews and survey data collected from relevant public officials, it assesses the rigor of efforts that state governments undertake for purposes of combatting corruption (Qui, et al 2015), including a variety of rules aimed at increasing transparency and reducing conflicts of interest. Moreover, the investigation provides assessments that are specific to the governance and management of public pension funds, including assessments of the extent to which individual states and pension systems require asset disclosure forms for current members, impose restrictions for purposes of preventing "revolving door" practices, and restrictions on gifts received by pension fund officials. The assessments are presented using numerical scores ranging from 0 to 100 on each of these items, with a higher score indicating the presence of more rigorous rules. A few items were rated as "moderate" or "no." In these cases, a rating of 75 for moderate and a rating of 0 for no were awarded.[9]

Finally, data was drawn from the most recent survey data collected by the National Association of State Treasurers (NAST). This survey was conducted in 2005 and provides a variety of data that can serve as proxy for autonomy.

[9] A potential issue with this data is that it was collected in 2014, and as such does not match the public plan data. However, formal rule change relatively slowly. As such, it was deemed to be an acceptable data source.

Dependent Variable

The dependent variable in this research seeks to capture whether the pension fund, over time, has been able to successfully meet its target returns. This dummy variable is calculated as the difference between the average return earned by pension funds from 2004-2013 and the average annually adopted target return for the same time period. Plans that successfully met or exceeded their performance targets over the given time period were coded with a 1, and plans that failed to meet their performance targets were coded as 0. The variable is referred to as "Performance."

The benefit of measuring the performance in relation to investment targets is that it controls for differences in portfolio risk across pension funds. The dependent variable centers on deviations from the target return. It is assumed that risk is accounted for in the target returns with funds that have riskier investment allocations applying higher target returns than funds that have less risky allocations. In addition, the focus on the long-term performance is consistent with the investment goals of pension funds, given their long-term investment horizon. The long-term focus also removes the influence of short-term variations. As noted above, the data for this variable was collected from the public plans data.

Independent Variables

The analysis includes nine independent variables that are used to test the above hypotheses.

Rules Governing Conflict of Interest Disclosure (TH1) (+)

The first variable is used to capture the effects of rules that govern disclosures conflicts of interest. As indicated above, these rules are intended to ensure that board members and individuals involved in the management of pension funds do not own assets or interests that influences the decisions they are making on behalf of the pension fund. Data for this variable was collected from The Center for Public Integrity (2015). It provides a numerical assessment of the extent to which individual states and pension systems require current members to file asset disclosure forms, impose restrictions for purposes of preventing movement of high level officials across the public and private sectors, and impose restrictions on gifts received by pension fund officials. A scale ranging from 0 to 100 was used. The numerical assessment is based on six questions (questions 6 to 11 of the questionnaire) in the questionnaire that relate to conflicts of interests. The variable was calculated based on the combined score for the six questions, equally weighted. As indicated by the above hypothesis, it is expected that the presence of more rigid rules have a positive impact on pension funds ability to meet performance goals. The variable is referred to as "ConflictofInterst."

Rules Governing Placement Agent Disclosures (TH2)(+)

The second variable was added to capture the effects of rules that combat issues relating to placement agents. Data for this variable was also collected from the Center for Public Integrity. It provides a numerical assessment whether placement agents are required to disclose fees and terms for providing services, using a scale ranging from 0 to 100. Specifically, it provides a numerical assessment related to three questions (the initial three questions of the questionnaire) relating to disclosures of fees and terms associated

with services provided by placement agents. This variable was based on the combined score for the three questions, equally weighted. As indicated by the above hypothesis, it is expected that the presence of more rigid rules have a positive impact on pension funds ability to meet performance goals. The variable is referred to as "PlacementAgents."

Investment Operation Disclosures (TH3) (+)

The third variable was added to capture the effects of rules that govern citizens' access to information about public officials in a timely manner, including disclosure forms related to officials serving on the pension funds, and detailed information about investment activities. Data for this variable was collected from the Center for Public Integrity. It provides a numerical assessment whether pension funds are required to provide detailed information about their investment activities and whether the public have access asset disclosures of decision-makers at state-run pension funds within a reasonable time and at no cost (questions 12 to 15 in the questionnaire). Again, a scale ranging from 0 to 100 was used and the variable was based on the combined score for the two relevant questions, equally weighted. As indicated by the above hypothesis, it is expected that the presence of more rigid rules have a positive impact on pension funds ability to meet performance goals. The variable is referred to as "Investmentdisclosures."

Political interference (OH1) (+, -)

Two different variables were added to capture the effects of rules aimed at limiting political interference. The first measure was collected from the Center for Public Integrity. It provides a numerical assessment of the rigor of rules aimed at reducing political interference for each state pension system. Specifically, the questionnaire include an assessment of the extent to which pension decision-makers are protected from political interference (question 5 in the questionnaire), using a scale ranging from 0 to 100. As indicated by the above hypothesis, it is expected that the presence of more rigid rules have a positive impact on pension funds' ability to meet performance goals. This variable is referred to as "Politicinterferrules."

The second measure was the proportion of politically appointed board members. It was included to capture the effects of rules that govern board composition. The data was collected from CAFRs and public information about the boards that were available on pension system's individual websites. It was calculated as the proportion of politically appointed board members in relation to the size of the board. It is expected that the proportion of politically appointed board members have an adverse effect on pension funds ability to meet performance goals. The variable is referred to as "PoliticalapptBRD."

Expertise (OH2) (+)

As discussed above, the ability of fiduciary bodies to fulfill their oversight duties (and other duties) is contingents on the level of investment expertise and experience they have. A variable was therefore added to capture the presence of rules that regulate the level of expertise that board members hold. Data for this variable was collected from the Center for Public Integrity. It provides a numerical assessment of whether pension investment decisions are made by independent experts, using a scale ranging from 0 to 100. As indicated by the above hypothesis, it is expected that the presence of more rigid rules

governing expertise have a positive impact on pension boards ability to fulfill their oversight duties and therefore also a positive impact on funds' ability to meet performance goals. This variable is referred to as "Expertise."

Autonomy (OEH2)(+/-)

The sixth variable was added to capture the effects of the relative autonomy that pension plans enjoy. The data was collected from data provided by the NAST (2005), CAFRs and public information about the boards that were available on pension systems' individual websites. Using the resulting data, an index developed with ranking of 1-3 (3 suggesting least autonomy), based on the level of constraints that were imposed on portfolio allocation decisions. Plans were rank ordered into three groups, based on whether investment decisions were governed by statue/constitution, prudent person rule, and investment policy. The plans received one point for each of these constraints if they were present. A total of 3 points would therefore indicate the highest level of constraints and a score of 0 the lowest level of constraints. Using the score, the plans were codified as autonomous if the received a total score of 0 or 1 (the least amount of constraints and thus the highest level of autonomy), and less autonomous if they received a total score of 2 or a 3. Autonomous plans were codified as 1 and less autonomous plans were codified as 0. The variable is referred to as "AutonomyDichotom."

Rules governing efficiency of investment process (OEH2) (+)

A common issue for public pension funds have been the limited benefits they have gained through active portfolio management practices. Another area of inefficiency has been identified in alternative investing, as it relates to investments in private equity funds. Investments in private equity are valuable to pension funds as a result of the diversification benefits they offer (Stalebrink 2015). However, they are also endowed with significant levels of risk and information asymmetry. To address these problems, it is deemed prudent for pension funds to increase their holdings slowly and over time and to limit their overall allocations (Stalebrink 2015). Pension funds that adopt rules that limit the pace by which pension funds diversify into private equity and that sets limit on the overall level of allocations are therefore expected to have a higher tendency to meet their performance goals.

To test this, a variable was generated using data from the public plans data. It provides allocations into alternative assets (excluding real estate investments) for the years 2001 to 2013. The variable was developed as a dichotomous variable, based on three criteria. These included:

1. No more than 5 percent increase in the proportion of allocations (in relation to overall allocations) in any given year.
2. No more than 30 percent allocations in alternatives in any year
3. 10 years of investments in alternatives.

If a pension plan met these three criteria it was coded as "1". If it failed to meet one or more of the criteria it was coded as "0". As indicated by the above hypothesis, it is expected that the presence of more rigid rules aimed at combatting inefficient investment practices will have a positive impact on pension funds ability to meet performance goals. The variable is referred to as "Efficiencyofpractice."

Other Relevant Variables

An additional variable that is likely to influence the extent to which state pension funds breach fiduciary responsibilities is the presence of corruption in a particular government. In a recent study, Wald and Zhang (2015) found that pension funds in states with more corruption have lower performance. A corruption variable was therefore added to list of independent variables. Data on corruption was retrieved from the website "538," which included data compiled and aggregated from a study by Dincer and Johnston (2014). In their study, Dincer and Johnston surveyed 280 state political reporters about their perception of how corrupt they thought the branches of their state governments were during the year of 2013, using a scale ranging from "not at all common" to "extremely common." Based on this data, a dichotomous variable was created that codified the top 3 most corrupt states as "1", and the remaining states as "0". It is expected that higher levels of corruption will augment agency problems and thus have a negative impact on the ability of a government to meet its performance goals. The variable is referred to as "Corrupttop3rd."

In the larger study that will be conducted in the spring of 2017, a variable will be added to capture the effects that the size the pension system has on performance. Previous research conducted in the context of corporate pension funds suggests that scale effects can play an important role in the overall performance of pension investment programs (Ambachtsheer et al 1998; Miller and Funston 2014). A summary of the variables in the model is presented in Table 4.

Table 4: Summary of Variables

Variable	**Data**	**Source**	**Time Period**	
Dependent				
Performance	Difference between the average return earned by pension funds and the average target return for the same time period	Public plans data (Center for Retirement Research 2015)	2004-2013	
Independent			Data Year(s)	Expected Relationship
Conflict of Interest	Average score of assessment areas relating to conflict of interest (equal weight). A higher score indicates more rigorous conflict of interest disclosure rules.	State integrity data (Center for Public Integrity) (Qui, et al 2015).	2013	
Placement agents	Assessment score received on whether agents are required to disclose fees and terms for providing services. A higher score indicates more rigorous placement agent disclosure rules.	State integrity data (Center for Public Integrity) (Qui, et al 2015).	2014	+
Investment Disclosures	A higher score indicates more rigorous disclosure	State integrity data (Center for		+

	rules about investment operations	Public Integrity) (Qui, et al 2015).		
Political Interference	Assessment of rules	State integrity data (Center for Public Integrity) (Qui, et al 2015).		+
	Proportion board members	CAFRs		_
Autonomy	A higher score indicates more autonomy.	NAST (2005)		+
Professionalism/Expertise	A higher score indicates higher degree of expertise.	State integrity data (Center for Public Integrity) (Qui, et al 2015).		+
Efficiency of practice	Dichotomous; 1 indicates presence of rule to regulate efficiency, 0 indicates lack of rules	Public Plans Data	2001-2013	+
Corruption	A higher score indicates more corruption.	Fivethirtyeight.com & Dincer & Johnson (2014) or surveys of State House reporters (Boylan and Long, 2003)	2013	_

Analysis

This section presents the descriptive statistics and the preconditions for the analysis. Following this, the bivariate correlations and the regression results are presented.

Descriptive Statistics

Table 3 presents the descriptive statistics for the variables that are included in the analysis. The data used in this research cover one or more State pension plans from each of the 50 US states. The total number of plans included in the study was 76 plans. These plans represent the largest plans in the US. According to NASRA, they account for over 80 percent of all participants and assets (http://www.nasra.org/states).

The dependent variable in the study is "Performance." This variable is dichotomous, where the code "1" represents an outcome where the pension plan met its performance goal and "0" represents a situation where it failed to meet it. The average (0.3289) indicates that the majority of the plans did not meet their performance goals during the given time period. Specifically, 33 percent of the plans (25) in the data set succeeded in meeting their performance goals and 67 percent failed to meet them (51).

Four of the variables in the data set are discrete, including "Placementagents", "Politicinterferrules", "Investmentdisclosures" and "Expertise." The values represent the scores that the pension plans were awarded based on the assessments conducted by the

Center for Integrity. As noted earlier, the scores ranged from 0 to 100. The maximum, minimum and standard deviation values indicate that there is a large variation in the assessments across the pension plans within each of these variables.

The remaining three explanatory variables are dichotomous, including "Efficiencyofpractice", "Autonomydichotom" and "CorruptionDichotom." The statistics for the variable "Efficiencyofpractice" indicates that approximately half of the states in the data set approached alternative investing in a manner that is consistent with good practice. The variable "Autonomydichotom" indicates that only a quarter of the states in the data set meet the threshold for autonomy.

Table 5: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Performance	76	.00	1.00	.3289	.47295
PoliticalapptBRD	76	.00	100.00	53.3779	32.93328
Conflictofinterest	76	33.33	100.00	81.5537	19.03320
Placementagents	76	.00	100.00	60.1964	30.21765
Politicinterferrules	76	.00	100.00	85.0000	25.15287
Investmentdisclosures	76	12.50	95.00	59.8618	15.51593
Expertise	76	.00	100.00	87.3026	21.34543
Efficiencyofpractice	75	.00	1.00	.5067	.50332
AutonomyDichotom	76	.00	1.00	.2500	.43589
Valid N (listwise)	75				

Bivariate Correlations

Table 5 provides a correlation matrix that includes all of the variables that are included in the study. The matrix indicates that there are significant correlations between "Performance" and the variables "Investmentdisclosures," "AutonomyDichotom," "EfficiencyofPractice" and "Corrupttop3rd." It also indicates that the statistically significant variables carry the expected signs. A preliminary interpretation of the relationships that are studied, thus, is that at least four of the variables are able to explain the success by which public pension funds are able to meet their performance goals.

The correlation matric also indicates that there are statistically significant relationships across several of the explanatory variables, including "ConflictofInterst" and "Investmentdisclosures", "ConflictofInterst" and "Expertise", and "Placementagents" and "Expertise", "Investmentdisclosures" and "Corrupttop3rd". However, all the correlations are relatively low, which suggest that problems of multicollinearity are limited. The highest correlation is between "Politicinterferrules" and "Expertise", which has a correlation of 0.452.

Table 6: Correlations

		Performance	PoliticalapptBRD	Conflictofinterest	Placement agents	Politicinterferrules	Opennesstopublic	Autonomy Dichotom	Expertise	Efficiencyofpractice	Corrupttop3rd
Performance	Pearson Correlation	1	-.151	-.008	-.104	.011	.250*	.307**	.102	.245*	-.236*
	Sig. (2-tailed)		.192	.946	.371	.923	.029	.007	.379	.034	.040
	N	76	76	76	76	76	76	76	76	75	76

Politicalappt BRD	Pearson Correlation	-.151	1	-.101	-.081	.144	-.097	-.063	.065	-.044	.113
	Sig. (2-tailed)	.192		.386	.489	.214	.403	.591	.578	.706	.331
	N	76	76	76	76	76	76	76	76	75	76
Conflictofinterest	Pearson Correlation	-.008	-.101	1	.217	.194	.303**	-.084	.313**	.037	.188
	Sig. (2-tailed)	.946	.386		.059	.093	.008	.468	.006	.753	.104
	N	76	76	76	76	76	76	76	76	75	76
Placementagents	Pearson Correlation	-.104	-.081	.217	1	.201	.218	-.034	.295**	.127	.334**
	Sig. (2-tailed)	.371	.489	.059		.081	.059	.769	.010	.276	.003
	N	76	76	76	76	76	76	76	76	75	76
Politicinterferrules	Pearson Correlation	.011	.144	.194	.201	1	-.079	-.006	.452**	-.013	-.138
	Sig. (2-tailed)	.923	.214	.093	.081		.497	.958	.000	.911	.236
	N	76	76	76	76	76	76	76	76	75	76
Investmentdisclosures	Pearson Correlation	.250*	-.097	.303**	.218	-.079	1	.178	.119	.100	.248*
	Sig. (2-tailed)	.029	.403	.008	.059	.497		.124	.307	.393	.031
	N	76	76	76	76	76	76	76	76	75	76
AutonomyDichotom	Pearson Correlation	.307**	-.063	-.084	-.034	-.006	.178	1	-.034	.023	.031
	Sig. (2-tailed)	.007	.591	.468	.769	.958	.124		.770	.845	.793
	N	76	76	76	76	76	76	76	76	75	76
Expertise	Pearson Correlation	.102	.065	.313**	.295**	.452**	.119	-.034	1	.030	-.104
	Sig. (2-tailed)	.379	.578	.006	.010	.000	.307	.770		.799	.372
	N	76	76	76	76	76	76	76	76	75	76
Efficiencyofpractice	Pearson Correlation	.245*	-.044	.037	.127	-.013	.100	.023	.030	1	-.092
	Sig. (2-tailed)	.034	.706	.753	.276	.911	.393	.845	.799		.430
	N	75	75	75	75	75	75	75	75	75	75
Corrupttop3rd	Pearson Correlation	-.236*	.113	.188	.334**	-.138	.248*	.031	-.104	-.092	1
	Sig. (2-tailed)	.040	.331	.104	.003	.236	.031	.793	.372	.430	
	N	76	76	76	76	76	76	76	76	75	76

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Regression Results

Given that the dependent variable is categorical (dichotomous) and the predictor variables include a mix of discrete and categorical variables, a binary logistic regression was used to analyze the relationships between performance and the explanatory variables. Specifically, the regression is used to predict or determine the effects of the above explanatory variables on the likelihood that pension systems successfully meet their performance goals. The results from the regression analysis are presented in Table 7.

As indicated by Table 7, 3 of the variables are statistically significant, including the variables "Investmentdisclosures," "AutonomyDichotom," and EfficiencyofPractice." These also carry the expected sign. Hence, three of the four variables in the correlation matrix remain statistically significant in the full model. The fourth variable,

"Corrupttop3rd," is statistically significant just outside the 5 percent level, carrying the correct sign.

Two of the statistically significant variables carry substantial strength. The first variable, "AutonomyDichotom", is a dichotomous variable. It has an odds ratio (Exp(B)) of 5.345. It suggest that pension systems that develops a governance structure that places emphasis on autonomy are 5.345 times more likely to meet their performance goals.

The second variable, "Efficiencyofpractice", is also a dichotomous variable. It has an odds ratio (Exp(B)) of 4.012. It suggest that pension systems that develop a governance structure that places emphasis on caution in investment in alternative assets are 4.012 times more likely to meet their performance goals.

The third variable that is statistically significant, "Investmentdisclosures," has less explanatory power. It has an odds ratio (Exp(B)) of 1.053. It predicts that the odds of a pension fund meeting its performance goal are 1.053 times higher for pension funds that have rules aimed at preventing conflicts of interest than they are for those that do not.

Two of the variables are not statistically significant, but carry the expected sign, including "Expertise" and "CorruptionDichotom."

Finally, two variables fail to show a particular direction, at the same time as they are statistically insignificant, including PoliticalapptBRD, Politicinterferrules.

Table 7: Variables in the Equation

								95% C.I.for EXP(B)	
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1[a]	Conflictofinterest	-.001	.017	.008	1	.930	.999	.966	1.032
	Placementagents	-.011	.011	.971	1	.325	.989	.967	1.011
	Investmentdisclosures	.051	.024	4.704	1	.030	1.053	1.005	1.103
	Politicinterferrules	.000	.017	.000	1	.985	1.000	.968	1.033
	PoliticalapptBRD	-.006	.010	.334	1	.563	.994	.975	1.014
	AutonomyDichotom(1)	1.676	.693	5.847	1	.016	5.345	1.374	20.797
	Expertise	.021	.017	1.428	1	.232	1.021	.987	1.057
	Efficiencyofpractice(1)	1.389	.660	4.428	1	.035	4.012	1.100	14.634
	Corrupttop3rd(1)	-1.343	.724	3.441	1	.064	.261	.063	1.079
	Constant	-5.391	2.504	4.634	1	.031	.005		

a. Variable(s) entered on step 1: Conflictofinterest, Placementagents, Investmentdisclosures, Politicinterferrules, PoliticalapptBRD, AutonomyDichotom, Expertise, Efficiencyofpractice, Corrupttop3rd.

Table 8, indicates that the model has a relatively high explanatory power. As indicated by the Nagelkerke R Square in Table 4, the model explains 38.7 percent of the variation in the dependent variable (Nagelkerke R Square=0.387).

Table 8: Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	70.992[a]	.279	.387

a. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Finally, table 9 indicates that the model correctly classified 78.7 percent of the cases.

Table 9: Classification Table

			Predicted		
			Performance		Percentage Correct
	Observed		.00	1.00	
Step 1	Performance	.00	45	5	90.0
		1.00	11	14	56.0
	Overall Percentage				78.7

a. The cut value is .500

Summary and Conclusion

This paper has examined the role that formal governance structures play in the performance of public pension fund investments. The study was carried out, using a mixed methods approach, including a case study and a quantitative study. The findings of the study suggest indicates that pension systems are more likely to meet their performance goals if they apply a governance structure that (1) extends autonomy to the plan, (2) places emphasis on ensuring public transparency, and (3) and prevents inefficient investment practices. The results also indicate pension plans that operates in states that are relatively corrupt are less likely to meet their investment goals. It might be advisable for pension plans that operate in corrupt environments to limit autonomy, and to adopt rules that increase public transparency and prevent inefficient investment practices.

References

Ambachtsheer, K., Capelle, R. & Scheibelhut (1998), Financial Analysts Journal, Vol. 54, No. 6 (Nov. - Dec., 1998), pp. 15-21.

Ambachtsheer K., Capelle R., Lum H., (2006), Pension Fund Governance Today: Strengths, Weaknesses, and Opportunities for Improvement', *Financial Analysts Journal, October 2006.* http://www.rotman.utoronto.ca/icpm/2.pdf

Bentley, A., 2009. The New York State Comptroller As Sole Trustee of the Common Retirement Fund: a Constitutional Guarantee? Albany Law Review, 72, 761-769

Bowman Edward H., and Michael Useem (1995)" The Anomalies of Normal Governance."pp. 21-49 n Edward Bowman and Bruc Keogut, eds., Redesigitng the Firm, NewYork: Oxford University Press.

Burgess D. and J. Fried, ‘‘The Foreign Property Rule: A Cost-Benefit Analysis,’’ Journal of Pension Economics and Finance 4, no. 3 (2004): 273–289;

Burgess D. and J. Fried, ‘‘Canadian Retirement Savings Plans and the Foreign Property Rule,’’ Canadian Public Policy – Analyses de Politiques 25, no. 3 (1999):395–416.

Center for Retirement Research at Boston College (2015). Public Plans Database (2001-2013). Chestnut Hill, MA.

Chang, Ha-Joon (2008) *Bad Samaritans: The Myth of Free Trade and the secret history of Capitalism*, Bloomsbury Press, USA; Nield, Robert. *Public Corruption: The Dark Side of Social Evolution*, Anthem Press, UK.

Carmichael, Jeffrey and Robert Palacios (2003), “A Framework for Public Pension Fund Management”, Paper presented at the Conference on Public Pension Fund Management, World Bank, Washington DC.

Charkham, Jonathan (1994). Keeping Good Compan: A Study of Corporat Governance in Five Countries. New York: Oxford University Press.

Clark, G., & Urwin, R. (2008). Best- Practice pension fund gover-nance. *Journal of Asset management,* Vol 9, issue 1, ss. 2-21.

Michas, N. A. ‘‘Pension Funds: More Diversification,’’ Canadian Public Policy 10, no. 1 (1984): 47–53.

Eisenhardt, K. “Agency Theory: An Assessment and Review.” Academy of Management Review, Jan (1989), Vol 14, No. 1, pp. 57-74.

Employee Benefit Research Institute (2005). Fundamentals of Employee Benefit Programs, Part V – Public Sector, Chapter 41. EBRI, Washington DC.

https://www.ebri.org/pdf/publications/books/fundamentals/Fnd05.Prt05.Chp41.pdf

Fama, Eugene, Efficient Capital Markets: A Review of the Theory and Empirical Work, *Journal of Finance*, 1970, vol. 25, issue 2, pages 383-417

Fama, E. (1991). Efficient capital markets: II. Journal of Finance, Vol. 6, issue. 5, p. 1575–1617.

Fama, E., French, K. (1988). Permanent and temporary components of stock prices. Journal of Political Economy, Vol. 96, issue. 2, p. 246–273.

Frank, Poterba and Shackelford (2004)

Grossman, S. J. and Stiglitz, J. E. "On the Impos sibility of Informationally Efficient Markets." The American Economic Review, Vol. 70, No. 3, (June 1980), pp. 393-408.

Haskell, Paul. (1990). "The Prudent Person Rule for tmstee investment and modem portfolio theory," North Carolina Law Review, 69 N.C.L. Rev. 87.

Henriksson, R. D. (1984). Market timing and mutual fund performance. *Journal of Business* 57.

Hess D., & Impavido, G. Governance of public pension funds: Lessons from corporate governance and international evidence. In A. Musalem and R. J. Palacios (Eds.), Public

Pension Fund Management, Proceedings of the Second Public Pension Fund Management Conference in May 2003, Washington DC, The World Bank.

Johnson, Stephen. (1993). 'Trustee investment: the Prudent Person Rule or modem portfolio theory, you make the choice," Syracuse Law Review, 44 Syracuse L. Rev. 1175.

Langensjo, M. (2012). AP-fonderna i pensionssystemet – effektivare förvaltning av pensionsreserven (SOU 2012:53). Stockholm, Sweden: The Swedish Government. G. Miller, G., Larson, C. and P. Zorn, Investing Public Funds 22 (Chicago, IL: Government Finance Officer Association, 1998).

Markowitz, H. M. (1952) ‘‘Portfolio Selection,’’ Journal of Finance 7, no. 1, 77–91.

Miller, R and Funston, R. (2014) Public Pension Governance that Works. Funston Advisory Services, LLC

NASRA (2015) The Public Funds Survey. National Association of Retirement Administrators (NASRA) http://www.nasra.org/files/Public%20Fund%20Survey/AppendixA.pdf, Accessed September 1, 2016.

Nebraska Investment Councils (2015a) About the Nebraska Investment Council. http://www.nic.ne.gov. Accessed September 1, 2016.

Nebraska Investment Councils (2015b) Investment Philosophy. http://www.nic.ne.gov/policy/11-21-11%20Statement%20of%20Investment%20Philosophy.pdf, Accessed September 10, 2016

Nebraska Investment Councils (2015c) Policy on Private Equity. http://www.nic.ne.gov/policy/NIC%20Private%20Equity%20Policy%202016%20.pdf. Accessed September 1, 2016

Nebraska Investment Council (2013). Comprehensive Annual Report. http://www.nic.ne.gov/policy/Annual%20Report%202013.pdf Accessed September 10, 2016.

Niskanen, W. A. (1971). Bureaucracy and public economics. New York, NY: Elgar.

Qui, Yue, Zubak-Skees C. & Lincoln, E. (2015) How does your state rank for integrity, The Center for Public Integrity. Accessed November 2015 https://www.publicintegrity.org/2015/11/09/18822/how-does-your-state-rank-integrity

Rauh, Joshua (2015) Unfunded Pension Debts Of U.S. States Still Exceed $3 Trillion, Hoover Institute Essay, August 25, 2015.

Ryan, B., R. Scapens och M. Theobald (2002). ”Research method and methodology in finance and accounting”. Cengage learning.

Silverman, D. (2006). ”Interpreting qualitative data: Methods for analyzing talk, text and interaction”. Sage.

Shailer, Greg. *An Introduction to Corporate Governance in Australia*, Pearson Education Australia, Sydney, 2004

Stalebrink, O. J. (2007). An investigation of discretionary accruals and surplus-deficit management: Evidence from Swedish municipalities, Financial Accountability and Management, 23 (4), 441-458.

Stalebrink, O.J., G. Cheng & D. Matkin. (2015) *Taking Stock: An Analysis of the Institutional Framework that Governs Investment Decisions of Public Sector Pension Plans.* Paper presented at the National Conference of the American Society for Public Administration (ASPA), Chicago, Ill.

Stalebrink, O. J. (2016) Public Pension Funds and Alternative Investments: A Tale of Four Swedish National Pension Funds, *International Journal of Public Administration. 39* (2) *107-121.*

Stalebrink, O. J. (2014) Public Pension Funds and Assumed Rates of Return: An Empirical Examination of Public Sector Defined Benefit Pension Plans. *American Review of Public Administration, 44* (1)*,* 91-110.

Stalebrink, O.J., Kriz, K. & Guo, W. (2010). Prudent Public Sector Investing and Modern Portfolio Theory: An Examination of Public Defined Benefits Plans. *Journal of Public Budgeting and Finance, 30 (11)*, 28-46.

Swedish Public Television (2015) Banken Lurar Sina Kunder [The Bank Cheats its Customers], Plus, February 11, 2016. Swedish Public Television (SVT). http://www.svt.se/plus/banken-lurar-sina-kunder-ar-efter-ar.

Useem, M., & Mitchell, O. S. (2000). Holders of the purse strings: Governance and performance of public retirement systems. Social

Science Quarterly, 81(2), 489–507.

Vinnari, E. M, & Nasi, S. (2008). Creative accrual accounting in the public sector: Milking water utilities to balance municipal budgets and accounts. Financial Accountability and Management, 24(2), 76-116.

Wald John K. and Hongxian Zhang (2015) Corruption, Governance, and Public Pension Funds
http://www.efmaefm.org/0EFMAMEETINGS/EFMA%20ANNUAL%20MEETINGS/2015-Amsterdam/papers/EFMA2015_0092_fullpaper.pdf

Walsh, M. W. (2012, May 22). Public pensions faulted for bets on rosy returns. New York Times, pp. A1 and A3.

Wikipedia (2016). Governance. https://en.wikipedia.org/wiki/Governance Accessed September 10, 2016.

Yang, Tongxuan & Mitchell Olivia S. (2004) Public Pension Governance, Funding, and Performance:A Longitudinal Appraisal. Working Paper. The Wharton School. University of Pennsylvania.

Yin, R. (2011). ”Applications of case study research”. Sage.