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Diversity and Performance

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This study measures the performance of U.S. firms initiating same-sex domestic partnership benefit (SSDPB) policies. The results show that holding these firms upon their SSDPB initiation in a calendar portfolio earns a four-factor annualized excess return (alpha) of approximately 10% over the 1995–2008 sample period, beating 95% of all professional mutual funds in the United States. This finding is robust to several tests of reverse causality. SSDPB adopters also show significant improvement in operating performance relative to nonadopters.

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1. Introduction

This study documents that firms that adopt same-sex domestic partnership benefit (SSDPB) policies show substantive and permanent improvements in firm value and operating performance. These results hold after controlling for firms that were as likely to adopt an SSDPB policy but did not (propensity matching). Additional tests indicate little evidence of performance ramp-ups prior to SSDPB adoption. The results collectively suggest that a commitment to diversity is associated with significant performance advantages.

This empirical investigation is valuable because strong theoretical arguments exist both in support of diversity and against it. A diverse community or organization, although susceptible to social fracture, is also likely to be open to new ideas and opportunities (e.g., Hong and Page 2004). Trivers (2011, Chap. 8) argues that soliciting diverse viewpoints reduces self-deceit and suppresses overconfidence, a decision-making trait that is shown to be value decreasing (e.g., Malmendier and Tate 2005). On the other hand, a nondiverse homogeneous community or organization is more likely to share common norms and culture, social factors crucial to resolving unforeseen contingencies and building mutual support (e.g., Currani et al. 2009, van der Leij 2011). The net impact of these two opposing forces cannot be resolved purely analytically but must be assessed empirically.

Demonstrating that a commitment to diversity causally affects organizational performance faces two key challenges. First, it requires an organization-wide efficiency or performance measure with properties that can be exploited to establish causality. Second, it requires a measure of diversity with meaningful variation across the sample. In most settings, it is difficult to meet these two identification criteria simultaneously. For example, there is little variation in organizations' *formal* policies toward women and minorities because of protections afforded to these employees by Title VII of the Civil Rights Act and other statutes.[1] Likewise, settings with ex post performance measures reflecting the organizational impact of diversity are hard to locate. For example, the Goff et al. (2002) setting shows the reverse causation much more strongly, namely, that ex ante high performing organizations are more likely to be racially diverse.

We argue that studying SSDPB adoptions in publicly-held corporations addresses both the above challenges, and thus provides a powerful setting to measure discrimination's impact on organizational performance. The adoption of an SSDPB policy is a useful measure of organizational commitment to diversity, as the issue of gay rights is of ongoing importance in discussions on the topic of inclusiveness in the United States (Yoshino 2002, Black et al. 2007, Glaeser 2004).[2] Attitudes toward gays can reflect broader attitudes related to tolerance and diversity (Ayers and Brown 2005).[3] An organization's stance on gay rights is thus likely to be a good proxy for its *real* attitudes toward diversity in general. This is a particularly crucial point for this study, because the effect of

[1] For details, see the U.S. Equal Employment Opportunity Commission's Federal Laws Prohibiting Job Discrimination Questions and Answers at http://www.eeoc.gov/facts/qanda.html (last modified November 21, 2009).

[2] Also see President Obama's Presidential Memorandum on International Initiatives to Advance the Human Rights of Lesbian, Gay, Bisexual, and Transgender Persons at http://www.whitehouse.gov/the-press-office/2011/12/06/presidential-memorandum-international-initiatives-advance-human-rights-l (December 6, 2011).

[3] For polls supporting this view, see the Pew Research Center at http://people-press.org/.

an organization's overall attitude toward diversity on the workings of the organization as a whole is what we are primarily interested in.

American society expresses considerable heterogeneity in its attitudes toward gays. Some believe that granting protective rights to gays carries socially harmful effects or negative externalities. Others believe that homosexuality is a benign biological attribute, and gays should be afforded the same inclusive opportunities as others.[4] Judicial and legislative attitudes toward gays reflect the different perspectives in the debate and currently vary from state to state.[5] Likewise, one of the most contentious social policies confronting the U.S. Armed Forces since racial integration is the treatment of gay soldiers and the impact of this inclusiveness on overall battlefield performance.[6] As a result, there is considerable variation in the United States in organizations' and communities' nominal treatment of gays that is empirically observable to a researcher.

One way in which an organization can express its attitude toward gays is in its choice of whom to cover in its healthcare benefits. Health benefits are obviously invaluable to individuals and their families and expensive to obtain in the United States without employer support (Konrad 2009). Furthermore, because *private* enterprise SSDPBs are not mandated by any federal or state legislation in the United States, offering such benefits is a voluntary choice of the private employer (Fahim 2007). Therefore, the offering of an SSDPB policy can proxy for an organization's attitudes toward gays as well as its overall attitude toward diversity.

To assess the impact of a diversity policy on the organization, we must look to organization-level measures of performance. We use public firms in this study. These firms disclose accounting and other information regularly, which investors use to construct a forward-looking measure of the value of the organization to its owners, namely, the stock price. Furthermore, the stock price and the accounting data can be measured at regular intervals, greatly facilitating the construction and the causal interpretation of the empirical tests. Our treatment sample consists of approximately 300 firms that adopted an SSDPB policy in the 10-year period starting in the mid-1990s.

Our analysis proceeds in two main steps. First, we recognize that different firms face different costs and benefits of adopting diversity policies (e.g., a firm in a conservative demographic area might face more internal social dissent for its diversity policies compared to a firm in a liberal demographic area). We construct a model of propensity to adopt diversity policies, and find that predicted firm and geographic factors are significantly associated with a firm's decision to adopt. We use this model to identify control firms that had a similar propensity to adopt as the treatment firms but did not do so. We then conduct an extensive set of tests comparing the performance of these two groups of firms. Our results, summarized in this section's opening paragraph, collectively suggest that SSDPB policies are associated with better organizational performance.

The magnitude of our performance results is substantial (the annual alpha is of the order of 10%), raising the immediate question: If nonadopting control firms faced similar cost-benefit trade-offs as their treatment counterparts, why did they choose not to adopt? One standard microeconomics answer, which we elaborate in §2.1, is that the economy is not constantly in equilibrium, potentially resulting in the presence of firms that have not yet made their optimal choice or are pursuing other goals (Alchian 1950; Kreps 1990, Chap. 19). Our empirical tests clearly cannot conclusively distinguish this view from an efficient market view; all we suggest is that Alchian and Kreps provide a framework for interpreting the observed pattern of adoption choices.

Another important observation of note is that our results are specific to actual social trends. Over the sample's time period, many have come to believe in SSDPB policies and gay rights generally. It is therefore possible that companies that "front-ran" these social values enjoyed benefits by being viewed as vanguards. However, had attitudes hardened over the sample period, these firms would have been at a competitive disadvantage in hiring prospective workers, and our results could have been different.

Finally, the idea of inclusion or diversity is closely related to discrimination, whose social trend is well researched in economics. Much of this research aims to establish the presence of discrimination or its impact on the discriminated.[7] However, from a historical perspective, the larger debate in America has

[4] For experimental evidence on the biological basis of sexual orientation, see Bogaert (2006) and Moan and Heath (1972).

[5] As examples of institutional expressions of America's diverse attitude toward gays, see the Supreme Court decisions *Lawrence v. Texas*, 539 U.S. 558 (2003); *Boy Scouts of America et al. v. Dale*, 530 U.S. 640 (2000); *Hurley v. Irish-American Gay, Lesbian, and Bisexual Group of Boston*, 515 U.S. 557 (1995); and *Bowers v. Hardwick*, 478 U.S. 186 (1986). At the state level, see the ongoing litigation on Cal. Proposition 8: *Perry v. Schwarzenegger*, U.S. Appeals Court 9th Circuit No. 10-16696 (2010). Also see *National Pride at Work, Inc. et al. v. Governor of Michigan*, No. 265780 (2007), and *Strauss v. Horton*, 46 Cal. 4th 364 (2008).

[6] For example, see the February 2, 2010, U.S. Senate Armed Forces Committee hearings on this issue at http://armed-services.senate.gov/.

[7] See, for example, Athey et al. (2000), Bertrand and Mullainathan (2004), Charles and Guryan (2008), Goldin and Rouse (2000), Hong et al. (2011), and Morgan and Vardy (2009). In addition,

always been whether various forms of discrimination and segregation hurt or benefit the community as a whole (e.g., McPherson 1989). The focus of this study is on the community as a whole, not on specific categories of individuals.

2. Hypothesis Development and Research Design

The traditional economic theory of the firm started by defining the firm as a production function; information economics then reframed the firm as a production process run by people who were tied to a common goal via a nexus of contracts. This view raised the question of recursion: contract enforcement presumes the enforcement of the enforcer, which in turn presumes the enforcement of the enforcer's enforcer, and so on. In answering this question, modern economic theory reverted to its original Enlightenment-era engagement with philosophy, history, and other social sciences in recognizing the importance of values, trust, shared norms, morals, and other cultural underpinnings as the deepest foundations of human exchange (e.g., Israel 2011, Chap. 3). Once these foundations were laid, human exchange could thrive in a community. And once human exchange thrived and thrived repeatedly, it set the stage for the development of myriad explicit and implicit (i.e., reputation based) contracts that in turn facilitated more human exchange.

Applying this framework to organizations, economic theory began to highlight the role of management; managers were no longer just labor or factors of production, and neither were they just principals in a principal-agent setting; instead, their job was to build the deeper foundations necessary for the continued viability and success of the organization (Kreps 1990, Chap. 19; 1991; Baron and Kreps 1999; Bloom and van Reenen 2007; Edmans 2011).

To illustrate this perspective of management, consider a well-known feature of explicit incentive contracts, namely, their incompleteness and inability to incorporate unforeseen contingencies. Management can use culture and social norms to credibly signal to all employees how management will behave in such unforeseen contingencies. In addition, complex business decisions with high stakes are undertaken by teams of employees. These decisions engage the participants at both the cognitive and the primal level, often triggering feelings such as fear, anxiety, and anger (Romer 2000, Lo and Repin 2002). Recent biological research on neuropeptides confirms what scholars in social psychology have long suspected: The social milieu strongly conditions these primal feelings at the biological level (Donaldson and Young 2008, Robinson et al. 2008). As a result, management policies conditioning the social milieu can significantly affect day-to-day level activities such as meetings, negotiations, dispute resolutions, etc. In turn, these social dynamics can generate significant organizational impact beyond the traditional economic incentive tools of explicit contracts and wages.

A meaningful case study of the above argument is Simons (2000), who describes managerial decision making at Johnson & Johnson. Johnson & Johnson has about 250 operating units, and management decision making is an elaborate system of information exchange throughout the organizational hierarchy. The information gathered from these activities is central to the company's operations, guiding both strategic investment and managerial performance evaluation. Because the company operates in an environment of advanced fast-moving technologies, the information exchange process is multidimensional, comprising of financial reports, credo documents, and face-to-face meetings. Norms and cultural factors are critical in persuading managers across the organization to share their views, hunches, and other information candidly. Top management in Johnson & Johnson is therefore especially keen on fostering appropriate social dynamics in the company.

It is in this social dynamics context that the ideas of diversity gain significance. Exclusionary policies could foster homogeneity and facilitate the development of effective social norms. By contrast, an advantage of diversity is that it can bring in people with different experiences and orientations, leading to new ideas and new ways of problem solving. Diverse perspectives can reduce self-deceptive patterns of overconfidence in a decision maker (Trivers 2011), and diverse collaborations can increase the marginal efficiency of the group, creating a positive social externality (Barabasi 2005). However, a diversity policy such as SSDPB triggers not just a direct financial cost of implementing and administering benefits, but also worries about employee fraud (employees misrepresenting their relationship to obtain benefits for individuals who are not their domestic partners), possible adverse publicity, complexity related to providing and administering domestic partner benefits, and various potential legal liabilities (Hewitt Associates 2005).

In summary, therefore, an organization's diversity policies have strong conceptual linkages to the workings of an organization as a whole, but the force of these linkages is something that can be assessed only with an empirical procedure. We turn to empirical estimation next.

Rubenstein (2001) examines whether the enactment of gay rights laws spurs more complaints by gays, but does not directly assess the overall value to the community from such activities. Kalev et al. (2006) explore the sociological and cultural causes that drive organizations to become more diverse and tolerant, but do not assess the value-added effect of these policies.

2.1. Empirical Estimation of Diversity Benefits in the Equilibrium

As pervasive and powerful as social dynamics of attitudes are, they operate in amorphous sociological ways that are elusive to traditional archival measurement methods (Sah 1991, Athey et al. 2000, Cuddy et al. 2007)—it is far more difficult to measure employee "mindsets" and their "openness to new ideas and solutions" than their wages.[8] Consequently, most studies use a "revealed-preference" approach by tying the social factors under consideration to measurable economic outcomes such as improved performance (Edmans 2011). We follow a similar route. Recognizing that every policy choice has costs and benefits, we first build a model of propensity to adopt SSDPB. We then compare the financial performance of the adopters with firms that showed an equal propensity to adopt but chose not to do so.

Before explaining the specifications of empirical analyses, we remark on the equilibrium implications of any empirical approach that shows that the performance of firms across two categories, i.e., adopters versus nonadopters, is different. In a competitive economy with optimizing firms, firms in the lower-performing category should not exist. However, studies such as Alchian (1950) and microeconomic texts such as Kreps (1990, Chap. 19) offer an alternative view. These authors argue that the disciplining implications of the neoclassical theory of the firm, namely, that "natural selection" or takeovers should eliminate nonprofit maximizing firms, are too strong.[9]

Kreps (1990) discusses two additional theories of the firm. First, in §19.2, he suggests that firms maximize the private objectives of the manager, whatever they may be. Given the imperfect nature of its disciplining mechanisms, such an economy will contain some nonprofit maximizing firms. Kreps then notes that the manager may not even know how to go about achieving his or her goals. That is, top management may not even be knowledgeable about the firm's production or expropriation possibility frontier. In such situations, as described in Simons's (2000) aforementioned Johnson & Johnson case study, management must search for optimal choices (with the notion of search including copying other firms' strategies). In §19.3, Kreps (1990) illustrates how such an economy evolves. In particular, firms can make errors or inefficient choices and survive, as long as these inefficiencies are not too severe. That is, there could be firms that exhibit a high propensity to adopt a value-increasing policy but choose not to do so. This possibility is crucial for our tests. We next discuss how we choose these nonadopters.

2.1.1. SSDPB Adoption Tests. Any policy adoption decision rests on management's assessment of costs and benefits. For example, Hong et al. (2011) argue that financial slack reduces the costs of implementing "social responsibility" policies. Likewise, social attitudes in the local demography can affect a firm's diversity policy choices: geography matters for diversity policies. Our first step, therefore, is to explicitly model diversity as a choice variable by regressing SSDPB adoption on a variety of firm, industry, geography, and other characteristics such as measures of financial slack (e.g., Hong et al. 2011). We use the results of this regression in a propensity score matching procedure to identify comparable nonadopters.

We recognize that our set of explanatory variables is incomplete: we could have missed out important intangible factors driving policy decisions. Likewise, a nonadopting firm could effectively be an adopter if it uses alternative mechanisms such as more pay and other benefits instead of SSDPBs. However, we see no way to circumvent these concerns. With this caveat in mind, we move on to performance tests, using comparable nonadopters as the control sample.

2.1.2. Stock Returns Tests. Our main tests examine future stock returns, or future changes in stock price, to SSDPB adoption. Our key (and standard) assumption underlying our use of stock returns as the organization's performance measures is that financial markets are reasonably, but not fully informationally efficient (see, e.g., Edmans 2011). With this institutional assumption, the main advantage of using future stock returns is that overall expectations of "doing well already" are to a large extent captured in the current level of the stock price.

We construct calendar portfolios to control for clustering in the timing of adoption as well as other risk factors and examine future long-run returns to SSDPB adoption. We do not examine short-run returns for two reasons. First, as we state in the next section, companies did not advertise these policies to the public at large; so we do not have the exact adoption date. More importantly, we follow recent finance studies such as Hong and Stein (1999) and Edmans (2011) that argue that, unlike hard information such as the discovery of an oil field, it is much more difficult to immediately evaluate the future profit impact of the adoption of an organizational culture indicator. Even management is typically not privy to such information because it often endorses a specific cultural mindset based on a hunch, not crisp, private information (Baron and Kreps 1999, p. 1). Consequently, it is only

[8] For example, it is difficult to directly assess the channels through which Google's "Do No Evil" credo has fostered that company's creativity.

[9] Kreps (1990, pp. 724–729) discusses several reasons why these disciplining mechanisms could have weaknesses.

when this culture yields tangible news—new ideas, revenue generators, cost savings, etc.—that investors can update their valuation models and drive stock prices.[10]

The above argument suggests that further exploration of the price discovery mechanism and operational benefits would be of considerable value in establishing the net benefits of diversity policies. We discuss these tests next.

2.1.3. Operational Metrics Tests. One inference of positive returns to SSDPB adoption is that this policy improved firm productivity. The impact of cultural and social policies on productivity can take several pathways. For example, employees may figure out more effective uses of existing tangible assets. In this case the firm would see an increase in operating performance without any significant changes in tangible inputs such as capital investments and R&D (e.g., consider an academic department that ceases infighting and increases its research collaborations in existing laboratories). Alternatively, an increase in social cohesion may result in effectively targeted new capital and human investment, which could lead to increased performance (e.g., consider an academic department that overcomes ideological deadlocks among faculty members and embarks on an ambitious hiring and expansion program).

Such considerations lead Edmans (2011) to note that it is difficult to measure precisely the pathways through which human resource policies improve firm productivity; instead he supplements his returns tests with direct tests of profitability. We do the same. In addition, we recognize that management could also adopt an SSDPB policy systematically with other changes (e.g., an overall wage increase), making it difficult to separate the impact of SSDPB adoption. To address this issue, we also explore concurrent changes in various investment and financing policies.

2.1.4. Reverse Causality Tests. Productivity improvement is not the only explanation for positive returns to SSDPB adoption. An alternative reverse causality explanation is that firms anticipating better future stock performance could be more likely to adopt SSDPB policies.[11] In addition, it is possible that management has private positive news about the firm that it attempts to signal to the market by adopting costly policies such as SSDPB policies (these policies' costs arise from both compensation and potential negative publicity). Under these alternative scenarios, one should see a positive association between SSDPB adoptions and future returns, either because investors recognize an SSDPB policy as a credible signal of good news, or because that good news filters out over time (either through explicit disclosure or informed speculator trading).[12]

In a partial attempt to control for the signaling hypothesis, we argue that for job security and compensation purposes, management is almost always interested in keeping the stock price high, and therefore desires to communicate private good news to the market quickly via various disclosure channels (e.g., Kothari et al. 2009, Hong et al. 2000). In particular, one way to enhance the credibility of good news is to quantify its impact on future earnings. We therefore examine management's forecasts of future earnings and test whether these forward-looking accounting disclosures of adopting firms differ significantly from their corresponding nonadopting counterparts.[13] We also check if our results hold for the subset of large firms, which prior research argues are under much greater capital market scrutiny than smaller stocks and thus less susceptible to delayed disclosure and information asymmetry problems (Lakonishok and Lee 2001, p. 101; Hong et al. 2000).

3. Data

Although companies offering pro-gay policies have traditionally been quiet about advertising these policies to the public at large, they presumably would wish to inform gay-rights groups. We contacted the Human Rights Campaign (HRC; http://www.hrc.org/), the largest American lesbian, gay, bisexual, and transgender civil rights group, and found that they maintained a large data set on the year of the SSDPB adoption. The HRC annual-level data fit well with our medium-run empirical analyses.[14]

[10] For example, Edmans (2011) argues that investors are unable to immediately assess the performance impact of widely published cultural indicators, such as employee satisfaction rankings, and incorporate them only over time as these cultural factors improve productivity.

[11] However, managerial ability to predict systematically how investors will move the firm's stock next year is controversial in the literature (e.g., Butler et al. 2005).

[12] We focus on the good news scenario because our results indicate that an SSDPB policy is positively related to future returns.

[13] Management may on occasion wish to manage earnings downward (e.g., in anticipation of an options grant). Our presumption is that these incentives are not systematically different across the treatment firm and its control counterpart in the adoption year.

[14] We were unable to get the precise month of SSDPB adoptions directly; most companies' investor relations refused to answer our telephone queries on their SSDPBs. Our surmise was that we could not credibly convince the companies that we were academic researchers and not representing large and politically powerful conservative organizations such as American Family Association that have a history of targeting pro-gay companies. Such corporate quietness is fairly standard investor relation practice (Rutenberg 2009). Finally, a Factiva news article search on the mainstream business press also yielded little useful information on adoption event announcements. Specifically, we randomly chose 30 SSDPB

The HRC has devoted substantial resources to tracking gay-right policies in U.S. companies. The version of the HRC data set we acquired spanned 1990–2006. The number of publicly held private sector firms in the HRC sample numbered 412.[15] This is about 5% of the 8,500 publicly held firms in the CRSP database. For comparison, the total number of private sector firms (both public and privately held) in the HRC database was about 8,700. This number is about 1% of the seven million private sector firms (establishments) that filed taxes in 2002 (http://www.census.gov/econ/census02/). To compare these adoption rates, we turn to the smaller end of the 8,500 public firms in CRSP. Computations using the data in panel B of Table 1 indicate that the adoption rates in the lower two size quartiles of publicly held firms are 0.2% and 0.9%, respectively.

Of the 412 public firms that have an SSDPB policy (for data limitations, we treat the SSDPB policy as a binary choice, ignoring any variations in premiums, coverage, etc.), the year of initiation was missing for several firms, as was stock price information from the monthly CRSP database. The number of usable firms when intersected with CRSP is 379. Of these firms, 30 did not have CRSP data in their SSDPB initiation year, but enter the database subsequently. We include these firms in the years their data are available.

Table 1, panels A–C, presents the descriptive statistics of our data. Despite several firms not being in the CRSP database in their SSDPB initiation year, the SSDPB firms are primarily large (panel B in Table 1 measures size every fifth year), span a wide range of industries from technology to financial services, and display a steady increase in their numbers with time.

Table 1 Descriptive Statistics of Firms That Adopt Same-Sex Domestic Partnership Benefits (SSDPB) Policies

Panel A: Timetable of SSDPB adoptions

Year	Number of firms initiating SSDPB policies
1990	2
1991	0
1992	3
1993	6
1994	13
1995	10
1996	12
1997	26
1998	32
1999	40
2000	46
2001	53
2002	27
2003	41
2004	28
2005	28
2006	12
Total	379

Panel B: Size of SSDPB firms[a]

Market value quartile in CRSP universe	Percentage of SSDPB firms
1 (smallest)	1.06
2	5.28
3	12.40
4 (largest)	81.27

Panel C: Industry classification of SSDPB firms[b]

Two-digit SIC	Percentage of SSDPB firms in the SIC code
Food 2000	3.24
Printing and publishing 2700	4.41
Chemicals 2800	7.65
Computer hardware 3500	5.29
Other electrical equipment 3600	6.47
Transportation equipment 3700	3.24
Measuring instruments 3800	3.82
Air transport 4500	2.35
Communications 4800	3.24
Electric, gas 4900	3.53
Nondurable goods 5100	1.18
General merchandise stores 5300	2.06
Eating and drinking places 5800	1.47
Miscellaneous retail 5900	1.47
Depository institutions 6000	5.88
Nondeposit credit 6100	2.06
Security brokers 6200	2.35
Insurance 6300	5.88
Insurance agents 6400	1.18
Holding offices 6700	1.76
Hotels 7000	1.76
Business services (e.g., software) 7300	13.24
Health services 8000	1.76
Engineering, architecture, consulting 8700	2.35

[a]Market value quartiles are computed over the entire CRSP universe in five-year epochs starting in 1990. Each SSDPB firm is assigned to its market value quartile in its SSDPB initiation epoch.

[b]Only SIC codes with participation >1% are reported.

4. Analysis

4.1. Determinants of SSDPB Adoption

The costs and benefits of adoption can vary across firms. In Table 2, we analyze the economic and geographic factors that could determine the SSDPB adoption. We consider the entire COMPUSTAT database over the sample period 1990–2006.[16] As explanatory factors, we include firm size (logged book value of

adopters and searched for the company and "same sex" in Factiva for all dates. Of the 30 firms, only three companies had press coverage on their SSDPB adoption. Two of the three articles gave the exact date; the third article, about a church's boycott of the firm's services because of the SSDPB adoption, did not provide the adoption announcement date. This suggests that our announcement sample would be very small.

[15] Another desirable property of the time-period 1990–2006 is that SSDPBs were not pervasively offered by all large U.S. corporations, so we can easily locate control firms for our statistical analyses.

[16] We exclude 1991, a year of no SSDPB adoption (Table 1, panel A).

Table 2 Determinants of SSDPB Adoption

Dependent variable	SSDPB = 1 in adoption year
Regressor	Coefficient (Z-statistic)
Intercept	−12.608*** (−25.32)
Log(*assets*)	0.805*** (28.74)
ROA this year	2.228*** (2.81)
ROA last year	−1.333 (−1.47)
ROA two years ago	2.716*** (4.27)
Cash	2.295*** (6.81)
R&D	5.379*** (8.51)
Firm age	0.025 (0.36)
Wage growth	0.083 (0.30)
Pacific	1.066** (2.39)
Mountain	0.614 (1.15)
West South Central	0.399 (0.84)
South Atlantic	0.522 (1.16)
West North Central	1.010** (2.13)
East North Central	0.120 (0.26)
Middle Atlantic	0.604 (1.35)
New England	0.442 (0.90)
East South Central	—
Number of observations	90,251

Notes. This table reports the rare event logistic regression of SSDPB (equals 1 in adoption year and 0 otherwise) on firm characteristics in a pooled sample of firms and years. The sample is the entire COMPUSTAT sample over the years 1990–2006, with treatment firms permanently dropping out of the panel in the year after their adoption years. *ROA* is the operating income after depreciation scaled by book value of assets. *Cash* is the amount of cash and cash equivalent (short-term investments) scaled by the book value of assets. *R&D* is the amount of research and development expenditure scaled by book value of assets (missing R&D is coded as 0). *Firm age* is the log number of years since a firm shows up in CRSP. *Wage growth* is the log growth rate of SG&A (selling, general, and administrative) expenditures; when missing, it is replaced by the log growth rate of book value of assets. *Pacific* (*Mountain, West South Central, South Atlantic, West North Central, East North Central, Middle Atlantic, New England,* and *East South Central*) is a dummy variable that equals 1 if a firm is located in the Pacific West (Mountain, West South Central, South Atlantic, West North Central, East North Central, Middle Atlantic, New England, and East South Central) region of the United States based on the U.S. Census Bureau classification. Specifically, the New England region consists of the following states: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont. The Middle Atlantic region consists of the following states: New Jersey, New York, and Pennsylvania. The East North Central region consists of the following states: Indiana, Illinois, Michigan, Ohio, and Wisconsin. The West North Central region consists of the following states: Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota. The South Atlantic region consists of the following states: Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, and West Virginia. The East South Central region consists of the following states: Alabama, Kentucky, Mississippi, and Tennessee. The West South Central region consists of the following states: Arkansas, Louisiana, Oklahoma, and Texas. The Mountain region consists of the following states: Arizona, Colorado, Idaho, New Mexico, Montana, Utah, Nevada, and Wyoming. The Pacific region consists of the following states: Alaska, California, Hawaii, Oregon, and Washington. The baseline dummy is East South Central. Z-statistics based on standard errors clustered by firm are presented in parentheses.

*, **, and *** indicate significance at the 0.1, 0.05, and 0.01 two-tailed levels, respectively.

assets); performance (return on assets (ROA), the operating income after depreciation scaled by book value of assets, in the adopting year, and ROA in the one year and two years before the adoption year); financial condition (the amount of cash and cash equivalent scaled by the book value of assets); R&D (the amount of research and development expenditure scaled by book value of assets); firm age (the log number of years since a firm shows up in CRSP); wage growth (log growth rate of the selling, general, and administrative expenditures; when missing, it is replaced by the log growth rate of book value of assets); and the geographic location of the firm's headquarters as the economic determinants of the SSDPB adoption. We follow the U.S. Census Bureau classification and divide the firm location into nine regions: Pacific, Mountain, West South Central, South Atlantic, West North Central, East North Central, Middle Atlantic, New England, and East South Central.

Our reasoning for choosing these factors is as follows: Firms with more financial resources are perhaps more likely to adopt an SSDPB policy because they can afford it and the incremental cost of adoption is smaller (Hong et al. 2011). To the extent that larger firms and firms with more cash are more likely to have more resources, we expect size and cash balance to be positively associated with SSDPB adoption. We also include ROA in the prior three years to control for firms' performance and resources. In our empirical tests later, we examine the performance differences between SSDPB firms and control firms in the three years before and after the adoption. Therefore, including three years' worth of ROA in the determinants model, which is used to find the matching control firms, makes sure that the two groups have similar performance prior to the adoption year.

An SSDPB policy could also be used as an employee recruiting and retention tool. To the extent that high-technology firms face more pressure to attract and retain talented employees, we expect a positive association between R&D intensity and SSDPB adoption. The growth in wages is another proxy for the employee-retention pressure and is expected to associate positively with SSDPB adoption. In addition, we include firm age as a possible determinant of SSDPB adoption for two reasons. First, young firms are more likely to face higher pressure to attract and retain key employees. Second, old firms tend to be more conservative and therefore are less likely to adopt an SSDPB policy.

The adoption of an SSDPB policy is also likely to be a function of a firm's geographic location because of the cultural differences across areas. For instance, the South tends to be more conservative, and firms located there are probably less likely to adopt the SSDPB policy; on the other hand, firms in the Pacific West are presumably more liberal in culture and therefore more likely to adopt the policy.

We are interested in adoption choice, not adoption status, i.e., we are interested in investigating what causes a nonadopter to switch status in a given year, not what causes an adopter to continue its current status. Therefore, in the panel logistic regression, we permanently drop the treatment firms from the panel in the year after the adoption year. In addition, we employ the rare event logistic regression because SSDPB adoption is a relatively small probability event. When the modeled event probability is small, traditional logit regressions produce biased coefficients estimates (King and Zeng 1999, 2001; Tomz et al. 1999). We implement the rare event logistic regression models to correct for the bias. We run this regression in a sample pooled across firms and years. We therefore cluster standard errors by firm (the results are almost the same when we employ alternative clustering, e.g., by year).

Table 2 presents the coefficients and z-statistics. As expected and consistent with the results in panel B of Table 1, larger firms are more likely to adopt an SSDPB policy (the coefficient on log(assets) is 0.805 and statistically significant). Firm performance is also significantly associated with SSDPB adoption tendency, because both ROA in year t and that in year $t-2$ are positively associated with SSDPBs. The more cash a firm has, the more likely it is to adopt an SSDPB policy. In addition, R&D intensive firms are more likely to adopt an SSDPB policy, as predicted.

Finally, the coefficients on the region dummies are consistent with geographical cultural demographics. Compared with firms in the conservative "East South Central" regions (Alabama, Kentucky, Mississippi, and Tennessee), firms in all other regions are more likely to adopt an SSDPB policy. In particular, firms in the more liberal "Pacific" region (Alaska, California, Hawaii, Oregon, and Washington) and the "West North Central" region (Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota) are significantly more likely to adopt the policy.

In sum, although our regression likely omits some determinants, the adoption of SSDPB policies squares well with predicted economic, technological, social, and cultural factors. In addition, as we explain shortly, this logistic regression will confer further advantages in our returns tests.

4.2. Stock Returns Tests

To analyze stock returns following the managerial decision to adopt an SSDPB policy, we first use the calendar portfolio approach, a common method of studying the long-run stock returns following managerial decisions such as payouts, seasoned equity

offerings, and dividends (Fama 1998, Mitchell and Stafford 2000).[17]

In Mitchell and Stafford (2000), stocks enter the calendar portfolio in the month the managerial decision was implemented. However, because our data set provides yearly SSDPB adoption data, stocks enter our portfolio in the January of the *next* calendar year.[18] Because the earliest SSDPB initiation happens in 1990, and since the first few years had very few initiations, we start our analysis of stock returns from January 1995.[19]

To compute the monthly portfolio return, all the stocks in the portfolio in a given month can either be equally weighted (EW), or weighted proportionally to their market value (VW). Of these two approaches, EW appears to be more appropriate for our utilitarian goal of assessing the effects of tolerance in the cross-section: we are not interested in overweighing the impact of tolerance for larger organizations.

One concern with using EW is that few small firms can dominate the results. However, Fama (1998, p. 296) notes that this is primarily a problem in a sample that mixes small and large stocks within the universe of public firms. Because 94% of our sample are firms in the largest two quartiles of the universe of public firms (Table 1, panel B), this concern does not apply to our study.

Results (reported in the electronic companion, available at http://www.umich.edu/~venky/ec/electronic-companion.pdf) show that the mean EW is positive for one-, three-, and five-year holding periods. Columns (1) and (2) of Table 3 show that this positivity holds even after controlling for four risk factors (market returns, Smb, Hml, and momentum). For a horizon of one year, the annualized excess return is about 14% (1.2% × 12). That is, a portfolio manager who holds the stocks for one year after SSDPB initiation earns an average *excess* annual return of 14% over the entire sample period 1995–2007. Note that the portfolio manager churns the stocks in the EW1 portfolio every year. Thus, the average result reflects the combination of different stocks held for a year over different years.[20]

To address whether our results reflect a temporary spike in the stock price, we next look for results for longer horizons, namely, EW5. The five-year returns to an SSDPB policy are $0.9\% \times 60 = 54\%$. On an annualized basis, these returns translate to 11% (0.9% × 12). Therefore, we see that a portfolio manager who churns stocks slowly also makes significant returns, a result that would have been infeasible had the stock prices just shown a temporary increase.[21]

4.3. Results Controlling for Matching Firms

Although the four-factor model is a common standard, it is possible that an additional factor could be contributing to our results.[22] If this factor exists and is systemic, it likely is a determinant of the contemporaneous returns of similar firms. We therefore first match each treatment SSDPB firm with a control firm in the same three-digit SIC industry that is in the same census region and is closest in market value to the treatment firm in the SSDPB initiation year.[23] We then compute the calendar portfolios for these control firms.

Columns (3) and (4) of Table 3 report the excess returns to the control firms that are matched on region, three-digit SIC industry, and the market value. The alphas are positive and statistically significant (0.5% and 0.6% for EW1 and EW5, respectively). Columns (5) and (6) of Table 3 report the alphas of the (treatment − control) portfolios. The alpha is 0.6% and

[17] The calendar approach changes the unit of observation from a firm to a calendar month. To compute, say, a three-year return to a managerial decision (in our case SSDPB initiation), the calendar portfolio approach envisions a hypothetical portfolio manager who buys a stock after event (the SSDPB initiation) and sells it three years later. In any given month, this hypothetical portfolio manager will own stocks that have had their SSDPB initiation in the past three years. This hypothetical manager's portfolio return, computed monthly, forms the basis of all subsequent analysis. The calendar method gives equal observational weight to each month, with all concurrent SSDPB adoptions collapsing into the same unit of observation. This approach of granting equal observational value to all months mitigates statistical significance problems arising from endogenous clustering of policy adoptions.

[18] Thirty firms enter CRSP after their adoption years. These firms enter the calendar portfolio formation process when their returns data become available. Some firms leave CRSP because of acquisitions or other event. These firms exit the calendar portfolio formation process at that time.

[19] The results do not change if the start date is pushed earlier.

[20] Because firms enter and exit the portfolio every year, heteroskedasticity could be a problem. Following Mitchell and Stafford (2000, p. 316), we delete all portfolio months with fewer than five stocks. Our results continue to hold with the new sample. The Lagrange multiplier test also indicates no evidence for heteroskedasticity.

[21] The corresponding value-weighted regressions (available in the electronic companion) yield similar coefficients. The VW1-Rf and VW5-Rf coefficients (t-stats) are 1.1% (3.83) and 1.0% (4.70), respectively.

[22] Panel C in Table 1 indicates that the SIC code 7300 is the largest category in our sample. The relevant industry factor in Fama–French's 12-industry factor portfolio is industry factor six. Inclusion of this factor in our analysis makes no difference to the findings.

[23] Some treatment firms have no such control firm available in their geographical area. These firms therefore have no control counterparts. Thirty treatment firms in the sample do not have CRSP data in their adoption year but enter subsequently. If a treatment firm was not listed on Compustat in its SSDPB initiation year, we do not attempt to find its geographical region; this firm therefore also has no control counterpart.

Table 3 Monthly Calendar Portfolio Returns (in Percentages) from 1995–2010 for SSDPB Treatment Firms and 1:1 Control Firms Matched on SSDPB-Year Market Value, Region, and Three-Digit SIC

	SSPDB treatment firms		Control firms		(SSPDB − control)	
Dependent variable	*EW*1-*Rf*	*EW*5-*Rf*	*EW*1-*Rf*	*EW*5-*Rf*	Δ*EW*1	Δ*EW*5
Model	(1)	(2)	(3)	(4)	(5)	(6)
Regressor	Coefficient (*t*-stat.)	Coefficient (*t*-stat.)	Coefficient (*t*-stat.)	Coefficient (*t*-stat.)	Coefficient (*t*-stat.)	Coefficient (*t*-stat.)
Intercept	1.155*** (4.88)	0.886*** (5.23)	0.528* (1.82)	0.583*** (2.72)	0.628** (2.07)	0.303* (1.71)
Rm-Rf	1.058*** (16.21)	1.117*** (27.54)	1.092*** (13.66)	0.995*** (19.37)	−0.035 (−0.42)	0.122*** (2.87)
Smb	0.128* (1.91)	0.149*** (3.01)	0.235*** (2.85)	0.295*** (4.73)	−0.107 (−1.24)	−0.147*** (−2.84)
Hml	−0.006 (−0.07)	0.129** (2.35)	0.076 (0.74)	−0.013 (−0.19)	−0.082 (−0.76)	0.142** (2.47)
Mom	−0.168*** (−3.55)	−0.209*** (−6.04)	−0.129** (−2.22)	−0.219*** (−4.99)	−0.039 (−0.64)	0.009 (0.26)
Adjusted R^2	0.73	0.86	0.64	0.77	−0.01	0.10
Number of observations	168	182	168	182	168	182
Number of firms included	332	332	332	332	332	332

Notes. Firms enter the calendar portfolios in the beginning of the year following their SSDPB adoption. *EWn* for each month is the equally weighted returns (market values computed using CRSP monthly files) of the firms in the calendar portfolio (*n* is the duration of a firm's stay in the calendar portfolio in years). Note that EW1 portfolios stop at the end of 2007. The dependent variable is *EWn-Rf* in columns (1)–(4). The sample in columns (1) and (2) includes the SSDPB treatment firms. The sample in columns (3) and (4) includes the 1:1 control firms that (1) are from the same geographic region based on the U.S. census, (2) are from the same three-digit SIC industry, and (3) have the most similar market value. The dependent variable in columns (5) and (6) is the difference in *EWn* between the SSPDB treatment firms and the control firms. *Rm* is the market return for that calendar month; *Rf* is risk-free rate (one month T-bill return). *Smb* is the difference between the monthly returns of small firms and the monthly returns of large firms. *Hml* is the difference between the monthly returns of high book to market firms and low book to market firms. *Mom* is the average monthly return on the two high prior return portfolios minus the average monthly return on the two low prior return portfolios. All factors are collected from Ken French's online data site at Dartmouth College (http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html).

*, **, and *** indicate significance at the 0.1, 0.05, and 0.01 two-tailed levels, respectively.

0.3% for EW1 and EW5, respectively, and both are statistically significant. These results suggest that SSDPB firms experience significantly more positive returns post-adoption compared to firms in the same industry/region with similar market value.

In Table 4, we employ an alternative matching procedure, namely, based on the propensity score (Dehejia and Wahba 2002). The propensity score is computed from the rare event logistic regression in Table 2. Columns (1) and (2) of Table 4 report the alphas of the SSDPB firms. Because the propensity score matching procedure requires all firms to have complete data to estimate the logistic regressions, the sample size is smaller and hence the results in columns (1) and (2) are slightly different from those in Table 3. However, the results in columns (5) and (6) of Table 4 indicate that the SSDPB firms experience significantly higher stock returns in the post-adoption period compared with the propensity-score matching firms.

In sum, the stock returns show significant positive effects to SSDPB adoptions, even after controlling for firms that had high propensity to adopt but did not. So the results appear to be driven by the SSDPB adoption itself, and not by a firm's innate propensity to adopt.

4.4. Interpretation of the Results

The positive relations between SSDPB adoptions and future stock returns are economically significant in the context of prior literature. The alpha statistics in Kosowski et al. (2006, Table III) put our portfolio at the 95th percentile of all professionally managed mutual funds in the United States. Our results are also significant in the context of the human resources literature. Short-window studies such as Arthur (2003) finds that the announcement day returns to family-friendly employment policies are 0.35%. Wright et al. (1995) find about 1% announcement day returns to diversity-friendly human resources policies, but stocks in their study settle to their original price within two days of the diversity announcement (i.e., cumulative returns past two days are insignificant). More similar to our long-window study is Edmans (2011), who finds that a value-weighted portfolio of the "100 Best Companies to Work For in America" earned an annual four-factor alpha of 3.5% from 1984 to 2009, and 2.1% above industry benchmarks.

We caution that our results could be specific to a sample period where the idea of SSDPBs and gay rights began to gain social acceptance. Had there been

Table 4 Monthly Calendar Portfolio Returns (in Percentages) from 1995–2010 for SSDPB Treatment Firms and 1:1 Control Firms Matched on SSDPB Propensity Scores

	SSPDB treatment firms		Control firms		(SSPDB − control)	
Dependent variable	*EW*1-*Rf*	*EW*5-*Rf*	*EW*1-*Rf*	*EW*5-*Rf*	Δ*EW*1	Δ*EW*5
Model	(1)	(2)	(3)	(4)	(5)	(6)
Regressor	Coefficient (*t*-stat.)	Coefficient (*t*-stat.)	Coefficient (*t*-stat.)	Coefficient (*t*-stat.)	Coefficient (*t*-stat.)	Coefficient (*t*-stat.)
Intercept	1.284*** (5.16)	1.107*** (5.96)	0.389* (1.83)	0.685*** (5.23)	0.895** (2.54)	0.422* (1.86)
Rm-Rf	1.030*** (15.03)	1.104*** (24.85)	0.999*** (17.12)	0.936*** (29.83)	0.031 (0.32)	0.168*** (3.10)
Smb	0.146** (2.06)	0.101* (1.88)	0.281*** (4.67)	0.174*** (4.56)	−0.135 (−1.35)	−0.072 (−1.10)
Hml	0.058 (0.65)	0.140** (2.33)	0.267*** (3.53)	0.271*** (6.40)	−0.209* (−1.66)	−0.131* (−1.79)
Mom	−0.104** (−2.10)	−0.159*** (−4.18)	−0.135*** (−3.19)	−0.218*** (−8.14)	0.031 (0.43)	0.059 (1.28)
Adjusted R^2	0.68	0.82	0.72	0.87	0.00	0.08
Number of observations	168	182	168	182	168	182
Number of firms included	304	304	304	304	304	304

Notes. Firms enter the calendar portfolios in the beginning of the year following their SSDPB adoption. *EWn* for each month is the equally weighted returns (market values computed using CRSP monthly files) of the firms in the calendar portfolio (*n* is the duration of a firm's stay in the calendar portfolio in years). Note that EW1 portfolio stops at the end of 2007. The dependent variable is *EWn-Rf* in columns (1)–(4). The sample in columns (1) and (2) includes the SSDPB treatment firms. The sample in columns (3) and (4) includes the 1:1 control firms that have the closest propensity score to adopt an SSDPB policy based on the logistic model in Table 2. The dependent variable in columns (5) and (6) is the difference in *EWn* between the SSPDB treatment firms and the control firms. *Rm* is the market return for that calendar month; *Rf* is risk-free rate (one month T-bill return). *Smb* is the difference between the monthly returns of small firms and the monthly returns of large firms. *Hml* is the difference between the monthly returns of high book to market firms and low book to market firms. *Mom* is the average return on the two high prior return portfolios minus the average return on the two low prior return portfolios. All factors are collected from Ken French's online data site at Dartmouth College (http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html).

*, **, and *** indicate significance at the 0.1, 0.05, and 0.01 two-tailed levels, respectively.

hardening of attitudes, it is very likely that our treatment firms could have underperformed. Taking the evolution of social acceptance as granted, the following question still remains: if the regression in Table 2 is well specified, i.e., the control firms faced similar cost-benefit trade-offs as the treatment firms, why did the control firms not adopt? To reprise our discussion of §2.1, one reason could be that the economy is not in perfect equilibrium, potentially resulting in the presence of firms who are not implementing best practices.

Of course, we cannot conclusively implicate any of the above theoretical reasons for our results; we suggest them only as plausible explanations. However, one possibility we check is as follows: if managers of control firms do not adopt value-increasing policies because of their personal preferences, an efficient labor and corporate control market will remove those managers and install new managers who will adopt value increasing policies. We therefore investigate CEO turnovers prior to SSDPB adoptions. Unfortunately, both CEO turnover and SSDPB adoption are "rare events," and the intersection of these two events leads to very sparse data (fewer than 10 firms in our SSDPB sample had CEO change in the one to two years prior to the adoption). Therefore, it is empirically challenging for us to proceed with turnover tests.

4.5. Operational Effects

Our strong returns results suggest that SSDPB adoption has positive productivity effects. We next examine the productivity effects directly. The productive improvement can come about in several ways: employees may collaborate to increase overall efficiency by cleverly reworking machines (capital efficiency) or by sharing each other's operational skills (labor efficiency). In addition, different firms may configure their efficiency improvement activities differently: some firms may increase sales, and others may decrease costs. As a result, an aggregate performance measure that responds to a wide range of productivity improvements is better suited for the cross-section than measures that identify specific productivity improvements.[24]

We use the aggregate measure operating return on assets (ROA), which captures any improvements in

[24] Bertrand et al. (2002) make a similar argument about the advantages of aggregate performance measures in the converse setting of efficiency decreases.

Table 5 Operating Profits and Real Investment and Financing Activities

Panel A: Event-year differences in operating performance between SSDPB firms and matched control firms for adoption years 1994–2006

	Industry, region, and market value matching			Propensity score matching		
Year − SSDPB adoption year	Mean(ΔROA)	*t*-stat.	*N*	Mean(ΔROA)	*t*-stat.	*N*
−2	0.006	0.51	143	0.009	0.99	160
−1	0.012	0.88	128	−0.000	−0.04	134
0	0.011	0.69	100	0.015	1.25	109
+1	0.034**	2.51	84	0.039***	3.29	96
+2	0.035**	2.45	56	0.042***	2.95	70
+3	0.057***	2.65	41	0.027*	1.74	51
	Industry, region, and market value matching			Propensity score matching		
Year − SSDPB adoption year	Mean(ΔROA_{adj})	*t*-stat.	*N*	Mean(ΔROA_{adj})	*t*-stat.	*N*
−2	0.015	1.50	298	0.010	1.38	268
−1	0.009	0.89	302	0.004	0.54	265
0	0.017	1.65	300	0.017**	2.47	265
+1	0.018*	1.74	286	0.029***	3.67	250
+2	0.025**	2.06	268	0.017**	2.24	241
+3	0.023*	1.83	245	0.013	1.60	230

Panel B: Event-year differences in one year growth rates of real activities of SSDPB firms relative to matched control firms for adoption years 1994–2006

Year − SSDPB Year	−1			0			+1		
	Value	*t*-stat.	*N*	Value	*t*-stat.	*N*	Value	*t*-stat.	*N*
				Industry, region, and market value matching					
Mean(%Δ*asset*)	−0.032	−1.58	326	−0.032*	−1.74	326	0.017	1.08	326
Mean(%Δ*R&D*)	−0.007	−0.67	326	−0.007	−0.74	326	0.004	0.43	326
Mean(%Δ*capital exp.*)	−0.013	−0.48	326	−0.028	−1.13	326	0.017	0.74	326
Mean(%Δ*common dividend*)	0.004	0.21	326	0.002	0.09	326	−0.012	−0.78	326
Mean(%Δ*interest expense*)	0.018	0.78	326	−0.031	−1.52	326	0.010	0.54	326
Mean(%Δ*wages*)	0.000	0.00	141	−0.029	−1.00	135	−0.020	−0.80	139
				Propensity score matching					
Mean(%Δ*asset*)	0.011	0.53	304	0.018	0.90	304	−0.002	−0.12	304
Mean(%Δ*R&D*)	−0.007	−1.13	304	−0.005	−1.03	304	0.005	1.51	304
Mean(%Δ*capital exp.*)	−0.011	−0.46	304	−0.013	−0.56	304	−0.008	−0.42	304
Mean(%Δ*common dividend*)	0.009	0.53	304	−0.027	−1.62	304	−0.006	−0.41	304
Mean(%Δ*interest expense*)	−0.015	−0.68	304	−0.029	−1.58	304	0.010	0.54	304
Mean(%Δ*wages*)	−0.002	−0.06	106	0.039	1.07	97	−0.044	−1.51	94

Notes. ROA = (operating income after depreciation/end of year assets). $\Delta ROA = ROA_{sample,\,year} - ROA_{control,\,year}$. ROA is winsorized at 1st and 99th percentiles. We drop all missing observations. ROA_{adj} adjusts ROA by using net income in the numerator if operating income after depreciation is missing. ROA_{adj} is winsorized at 1st and 99th percentile. We drop all missing observations. $\%\Delta X = [(X_{s,y} - X_{s,y-1})/\frac{1}{2}(X_{s,y} + X_{s,y-1})] - [(X_{c,y} - X_{c,y-1})/\frac{1}{2}(X_{c,t} + X_{c,y-1})]$ are computed for each of the variables; the subscript *s* is the sample SSDPB firm; *y* is the year; 0 is the year of the SSDPB initiation; *c* is the 1:1 control firm. When a firm has missing observations for assets, R&D, capital expenditure, common dividends, and interest expense, the corresponding growth measure is set to zero. We drop all missing observations for wages.

*, **, and *** indicate significance at the 0.1, 0.05, and 0.01 two-tailed levels, respectively.

operating income (after depreciation) relative to the existing asset base. In addition, ROA is also a fundamental accounting metric driving investor valuation, a feature that enables comparisons between efficiency and stock returns tests. To measure improvements in ROA, we require a baseline expectation value: we use the matched firm's contemporaneous ROA. The matched firms are the ones discussed in §4.3 and used in Tables 3 and 4.

Panel A in Table 5 shows the ROA results. There is no significant difference in ROA across the treatment and the control firms in the SSDPB adoption year or the years before. Thus, there appear to be no pretreatment trend differences between the treatment and the control samples. This feature attests to the appropriateness of the control sample as an expectation baseline and suggests that post-treatment ROAs can be directly compared (Meyer 1995).

In contrast to the pretreatment years, we find a significant ROA improvement in the post-treatment years. Event year +1 has the treatment firm ROA exceeding the control firm ROA by 0.034 (0.039) for the industry/region/size matching firms (propensity score matching firms). This is an economically

significant figure, given that the average treatment ROA in this event year is 0.12. This result triangulates nicely with the results in Tables 3 and 4 that show significant stock returns in the year following the SSDPB adoption.

The number of observations is much smaller than the sample size because operating income after depreciation is not widely populated in Compustat. Panel A in Table 5 therefore also reports the result by imputing missing observations with net income. The significance patterns hold as before; the magnitudes are smaller but still economically meaningful.[25]

In addition to culture, Bertrand and Schoar (2003) document a comprehensive list of tangible investment and financing activities that management appears to significantly influence in the cross-section. These activities affect ROA in two ways: through their impact on the productivity of the firm, and through their accounting treatment (the accounting effect of R&D cuts, for example, is to reduce reported R&D expense and increase reported income). We next test if a representative set of these activities systematically changed in the year that the treatment firms adopted SSDPB policies, relative to their control counterparts.

Panel B in Table 5 presents the results.[26] The first point to note is that items such as dividends and R&D are not available for all firms. We take missing observations to imply no material activity; so we set the corresponding growth rate to zero (this imputation is why there are more observations in this panel). The only exception is wages: we cannot assume that firms with missing wage data in Compustat had zero growth in wages.

The results indicate no significant pretreatment differences across the treatment and the sample firms, yet again attesting to the appropriateness of the control sample. Post-treatment, the results show little change in asset growth (our proxy for acquisitions), capital expenditures, or financing activities (dividend payouts and interest expense). In results using the propensity score matching (Table 5, panel B), we observe no significant differences in growth in assets, R&D, capital expenditure, and financing activities either. Although the power of the tests is always a concern, panel B in Table 5 gives some pause in systematically attributing our results to a ramp up in tangible investment choices or significant shifts in concurrent financing choices.

4.6. Endogeneity and Alternative Explanations

The results thus far in this section suggest that diversity policies are strongly associated with firm performance. This section tests the alternative hypothesis that firms with anticipated better future performance adopt an SSDPB policy.

As stated in §2, the definition of "anticipated better performance" in our setting is tantamount to management believing that the firm is currently undervalued. As noted in §2.1.4, larger firms are less likely to have this problem. In the results (reported in the electronic companion), we eliminate all treatment firms with market capitalization less than \$300 million in the year of their SSDPB adoption and the results are similar.

Section 2.1.4 also argues that management has strong incentives to disclose its bullish information about the future to prevent such undervaluation. In Table 6, we test whether managers' forecasts of future earnings are systematically higher for SSDPB firms compared to the matched firms. The results indicate that there is no systematic difference in the earnings forecasts, suggesting that management of SSDPB firms does not have a systematically more optimistic future outlook. However, a caveat is that the number of observations in this table is small because not all management issue earnings forecasts, and we need both the treatment and the control firms to have issued the forecast in the adoption year. The insignificance in Table 6 could also reflect the test's lack of power.

Finally, another alternative explanation for our results is that they reflect superior firms in general, i.e., it could be the firm fixed effect and not the SSDPB adoption year that is the key driver of our results. We address this potential concern by shifting the SSDPB adoption years from -5 years to $+5$ years and rerunning the analyses. We present the one year-ahead calendar portfolio results in Table 7.

Table 7 indicates that the treatment firms do not experience better stock performance in the past (from year -5 to year -1). This is consistent with the idea that the propensity score matching procedure controls for past performance well. The alpha in the year after the actual SSDPB adoption is significantly positive, suggesting significant returns post-adoption. Moreover, there appears to be no significant reversal of the alpha two years or more after the SSDPB adoption (the alphas are all insignificant); the post-SSDPB gains

[25] Note that the number of observations is still less than 379 because as noted in §3, not all the 379 treatment firms have CRSP data (and Compustat data) in their SSDPB adoption year. That is, the treatment sample includes firms that went public subsequent to SSDPB adoption. In addition, as noted in footnote 23, not all treatment firms yield control firms when selecting by geography. The sample size is also smaller for the propensity score tests because the propensity score matching procedure requires all firms to have complete data to estimate the logistic regressions.

[26] Although ROA can be compared across a treatment firm and its control analog, it is more problematic to compare investment and financing activities similarly. Given the substitutability of input factors such as labor versus capital investments, the factor mix of treatment firm and the control firm could be different despite similar levels of profits (i.e., the input factors could display pretreatment differences). We therefore test differences in factor growth.

Table 6 Mean Values of Management Earnings Forecasts from 1994 to 2006

	Managers' forecast of future earnings by SSDPB firms	Managers' forecast of future earnings by control firms	*t*-statistic of the difference	*N*
Matching by industry, region, and market value	0.0765	0.0659	−0.68	51
Propensity score matching	0.0713	0.0632	−0.97	52

Note. This table shows the mean management earnings forecasts of the next fiscal year's earnings (scaled by the market value of assets) issued in the SSDPB adoption year for SSDPB firms and control firms, respectively.

Table 7 Monthly Calendar Portfolio Four-Factor Alphas (in Percentages) Surrounding the SSDPB Adoption Years 1994–2006

SSDPB adoption year shifted by	Calendar portfolio formation year	(SSDPB − propensity score matching control) intercept from four-factor regression	*t*-stat.	*N* (months)
−5 years	Actual SSDPB year − 4	0.083	0.18	146
−4 years	Actual SSDPB year − 3	0.122	0.23	158
−3 years	Actual SSDPB year − 2	0.148	0.28	170
−2 years	Actual SSDPB year − 1	0.286	0.82	170
−1 years	Actual SSDPB year + 0	−0.470	−1.20	180
0 years	Actual SSDPB year + 1	0.895**	2.54	168
+1 years	Actual SSDPB year + 2	0.392	1.31	156
+2 years	Actual SSDPB year + 3	−0.100	−0.33	144
+3 years	Actual SSDPB year + 4	−0.251	−0.90	132
+4 years	Actual SSDPB year + 5	0.210	0.78	120
+5 years	Actual SSDPB year + 6	0.389	1.00	108

Notes. This table shows the monthly returns for a one-year calendar portfolio when the SSDPB adoption year is shifted by −5 to +5 years. Firms enter the calendar portfolios in the beginning of the year following the (simulated) SSDPB adoption year, and stay for one year. The intercepts are the four-factor (Fama-French three factors and the momentum factor) return alphas in percentages.

**Indicates significance at the 0.05 two-tailed level.

thus appear to be long-run in nature. The insignificant alphas in the post-event years in Table 7 also suggest that our treatment firms are not just "superior" firms that constantly yield excess returns. Consequently, we conclude that our results reflect an SSDPB adoption effect as opposed to a firm fixed effect. The adoption of diversity policies does appear to have a significant impact on firm value.

5. Conclusion

This study documents that the adoption of diversity policies is followed by improved operating performance and stock price. Although several alternative explanations are plausibly rejected, the crucial question still remains: why does performance go up? In this section, we posit that most studies of governance and incentives in complex modern corporations and communities face this challenge (see, e.g., Banerjee 2008), and we offer some closing thoughts.

Our question has an important historical perspective. A major philosophical debate during the Enlightenment Era was the social value of diversity and tolerance (Israel 2011). The radical Enlightenment philosophers (e.g., d'Holbach, Spinoza, etc.) believed that diversity and tolerance promoted the development of social norms (or "morals") conducive to well-functioning societies. The more conservative Enlightenment philosophers (e.g., Rousseau) believed otherwise.[27] Of course, the debate was never conclusively resolved, given the extreme complexity of the workings of communities and societies.

This complexity is also evident in a modern organization: top management of such an organization has to create and steer various teams, divisions, and groups of the organization to operate synchronously, conceive and produce successful products, and deliver superior performance overall. To execute this task successfully, top management needs to cultivate internal processes that channel appropriate information to appropriate decision makers. The mechanisms, enforcements, and inducements that top management employs in this process are so multivaried and situation specific that instead of delineating these processes directly, most finance studies take the outcome-based approach of linking the specific incentives and governance policies of interest to performance, and then conclude, after extensive comparative statics tests, that these policies failed or succeeded.[28]

[27] It was in this context that the Scottish philosopher and economist Adam Smith wrote his treatise on moral sentiments.

[28] Recent such studies are Perez-Gonzalez (2006) and Edmans (2011). Those studies' complex settings contrast nicely with Stiglitz's (1974) seminal study of incentives in sharecropping, a technology whose relative simplicity lends itself to a precise delineation of the underlying mechanism.

We follow a similar research approach because the operating mechanism is particularly elusive in our SSDPB setting. An organization's policies toward its employees, whether an inclusive healthcare policy (e.g., Bryant 2009) or a discriminatory promotion and hiring policy (e.g., *Price Waterhouse v. Hopkins*, 490 U.S. 228, 1989, and Goldin and Rouse 2000), send latent signals to the entire organization regarding permissible biological and behavioral attributes. Such signals may then impact *all* employees, affecting their comfort, their unconscious projections of identity and gender in critical interpersonal meetings. These meetings are an important channel for management to elicit and consolidate valuable information about firm operations (e.g., Simons 2000), and social dynamics of these interactions can significantly affect their productivity (Fiske 2004, Chaps. 11 and 12; Cuddy et al. 2007). Measuring these social dynamics can be challenging because they have significant subconscious elements that elude traditional measurement technologies (see http://implicit.harvard.edu). Recent studies have therefore employed complementary measurement techniques such as eliciting qualitative information from vocalized interviews (Dutton et al. 2006) and conducting social experiments to measure trust (e.g., Alexander and Christia 2011), or directly measuring the effect of the social milieu on neural circuits (e.g., Sallet et al. 2011).

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