

Corporate Board Gender Diversity and Stock Performance:
The Competence Gap or Institutional Investor Bias?

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Women have assumed a growing share of board seats in the United States, reaching 14.8% of Fortune 500 seats by 2007 (Catalyst 2007). Studies of the effects of board diversity on performance initially showed promising effects. Women board members were associated with higher stock prices and greater profitability. Those studies were mostly cross sectional, however, and studies using panel data that explored the effects of adding a woman to the board generally showed no effect, or in a number of cases, negative effects on stock performance (Tobin's q). These studies suggested that the cross sectional positive relationship between board diversity and corporate performance was spurious; a consequence perhaps of the fact that successful firms draw women to their boards. These studies appeared to show that gender diversity did not help board performance, and may have hurt. Some concluded that women board members were less competent than men, and others concluded that diversity increased board conflict.

We ask why board diversity has negative effects on stock price. We explore evidence of investor behavior suggesting that bias on the part of some investor groups may be the mechanism. Attitudes are a likely driver of stock performance because institutional investors have come to control most shares; in our sample of large firms they controlled nearly 80% of shares by 2005. To explore effects of investor attitudes we first replicate previous analyses of stock performance which show that increases in female directors typically lead to no change in profitability but decreases in stock value. Because female directors do not affect stock price, we surmise that they do not inhibit the performance of boards. We then look at the behavior of different groups of institutional investors in response to changes in the number of women on boards. Public pension funds were early and vocal advocates for the appointment of women to corporate boards, bringing most shareholder proposals for board diversity. Companies receiving such proposals were significantly more likely than their peers to add women to their boards.

Large public pension funds in turn responded to increases in gender diversity by buying more shares. But several other groups of non-blockholding institutional investors reacted to the appointment of women by decreasing their holdings, despite the fact that women board members did not hinder profitability. Because public pension funds hold relatively few shares, the negative reaction by other institutional investors appears to have overwhelmed the positive reaction by public pension funds, depressing the value of corporations that appoint female directors.

We look at data from over 400 leading U.S. corporations, between 1997 and 2005. In the models, we control for profitability and other factors thought to affect stock price, and thereby isolate the effects of the appointment of women directors. We thus rule out the possibility that women directors depress stock price by undermining profitability, either through incompetence or by interfering with group processes or by slowing decision-making on the board.

THEORIES OF GROUP COMPOSITION AND EFFICACY

Theories of the relationship between group diversity and performance build on research in psychology suggesting that problem-solving groups with members from diverse educational and experiential backgrounds tend to outperform groups with members from homogenous backgrounds. Put a bunch of corporate attorneys in a room and you'll arrive at inferior solutions, and arrive at them more slowly, than if you mix the attorneys with accountants, MBAs, and engineers (Milliken and Martins 1996).

Most research on diversity and performance is done at the work group level. Dependent variables range from group conflict to ease of group decision-making to sales (for reviews see Jackson, Joshi, and Erhardt 2003; Williams and O'Reilly 1998). Findings for gender, race, and ethnic diversity are mixed. On the one hand sex, and especially racial and ethnic, diversity

increases group conflict and reduces communication and performance. On the other hand, group diversity increases network connections, resources, creativity, and innovation (for a review see DiTomaso, Post, and Parks-Yancy 2007).

Theories Suggesting Advantages of Group Diversity

Research on the diversity of perspectives in decision-making teams suggests that teams with functional (occupational) diversity solve problems faster, and more effectively, than teams of like-minded people (Barsade, Ward, Turner, and Sonnenfeld 2000; Jehn and Bezrukova 2004; Page 2007; Pitcher and Smith 2000). Scholars expect demographic diversity to have similar effects by bringing different perspectives to the table (Hembrick, Cho, and Chen 1996, 2007). In studies of short duration, however, the effects of conflict and poor communication appear to dominate. However one panel study of the effects of corporate workforce diversity (Dezso and Ross 2008) shows that in research-intensive Fortune 1500 companies between 1992 and 2006, adding women to the top management team improves Tobin's q.

Gender diversity may have positive effects not due to diversity of perspectives, but due to gendered relational skills. Dezso and Ross (2008) make this argument about research intensive firms. Adams and Ferriera (2009) find evidence for a kindred argument about corporate board diversity, namely that women behave differently than men and that their behavior improves monitoring. Women board members have better attendance records; their presence improves the attendance of men; and women are more involved in monitoring committees.

Theories Suggesting Disadvantages of Group Diversity

Social identity theory (Ashforth and Mael 1989; Stets and Burke 2000), similarity-attraction theory (Mannix and Neale 2005), and social categorization theory (Tajfel and Turner 1986) suggest that people are drawn to similar others. Mixed gender and racial groups may

segment, and diversity may elicit group conflict that interferes with efficacy. Studies show mixed effects of gender diversity on problem solving efficacy (Jackson and Joshi 2004; Jehn and Bezrukova 2004; Richard 2000). Race and ethnic diversity appear to increase group conflict, reduce communication, and interfere with cooperation (Jackson and Joshi 2004; Jackson, Joshi, and Erhardt 2003; Leonard, Devine, and Joshi 2004; Pelled 1996; Williams and O'Reilly 1998).

Compositional theories of tokenism and stereotype threat suggest that when members of minority groups rise from zero in an occupation, members face expectations that make it difficult to perform to their potential (Reskin, McBrier, and Kmec 1999). Kanter (1977) argues when there are only token numbers of members of a group, they are visible and face pressures that may adversely affect their performance. Stereotype threat research suggests that when the status of a minority group is primed, members may underperform because they feel they are being judged as group members rather than as individuals (Spencer, Steele, and Quinn 1999; Steele and Aronson 1995, 798). Majority members may stigmatize them and underestimate their contributions (Martin 1980).

The psychological research suggests that we may see either positive or negative effects of board diversity on corporate performance. Diverse boards may improve problem-solving by containing a wider range of perspectives. They may undermine problem-solving by undermining cohesion and problem-solving efficacy.

If board diversity is affecting corporate performance by influencing problem-solving capabilities or board monitoring, we should see effects first on corporate profitability, and then on stock returns. That is, if diverse (or homogenous) boards make better decisions, they should translate into changes in the bottom line, which should eventually be reflected in stock price.

INVESTOR BIAS AND THE DIVERSITY-PERFORMANCE CONUNDRUM

Our own theory builds on research on bias from the fields of sociology and psychology. We know from a spate of laboratory studies, field studies, life course analyses, and cohort studies that, on the one hand, gender and racial bias is widespread and that, on the other, they influence careers. We extend this research to suggest that the appointment of women to corporate boards may influence stock performance through investor bias. Institutional investors are the key market makers in stock markets these days, controlling some 80% of the shares of large firms. Moreover, this group tracks changes in corporate strategy and governance closely and are cognizant of shifts in board composition. If institutional investor behavior changes following shifts in board composition, we can be fairly certain that the change isn't happenstance.

While certain institutional investors, namely large public-sector pension funds, have taken an active role in promoting diversity on corporate boards through shareholder proposals and other means, the managers of those funds, and the managers of the typical smaller private investment fund, are likely subject to the same unconscious biases held by the rest of the population. We propose that investors may be reacting to increases in board diversity by devaluing companies. We expect that public pension fund managers, as advocates of board diversity (representing their investor constituency of public sector employees) will be most likely to monitor their own behavior. Accountability theory suggests why this might be so. In laboratory settings, subjects who know that someone may review their decisions are most likely to monitor their own actions for evidence of bias, and correct those actions. By contrast, institutional investors in other segments of the investment community may act on their unconscious biases by devaluing companies.

Bias that is the basis of discriminatory behavior toward out-group members has been widely documented in the literatures in sociology, sociology-based social psychology, and cognitive psychology. Social cognition theory in psychology has shown that individuals categorize others automatically, and tend to feel, think, and behave toward newly encountered members of a group just as they have in the past toward other members of a group (Fiske, Lin, and Neuberg 1999). They use social categorization to process multitudes of environmental cues rapidly, and use sex and race as categories because they are available as “master statuses.”

The literature on ingroup preference suggests that people generally hold more positive views of ingroup members (Perdue, Dovidio, Gurtman, and Tyler 1990). The literature on implicit association goes further, suggesting that associations between group membership and characteristics such as competence pervade even group members themselves (Jost, Banaji, and Nosek 2004; Greenwald and Banaji 1995). Thus if investors are not accustomed to thinking of women as competent board members, or as board members of any sort, they may (consciously or not) feel it inappropriate when a firm appoints a female board member.

Firms undertake all kinds of bureaucratic measures to counteract unconscious bias of this sort in the workplace (Reskin and McBrier 1999; Baron and Pfeffer 1994; Kalev, Dobbin, and Kelly 2006), and they persist despite the fact that many of these measures have proven ineffective. In the stock market, there are no such bureaucratic controls in place to check the biases of investors, but certain investment groups have gone on record favoring greater board diversity; public pension funds. We expect these funds to be more self-conscious about their behavior vis-à-vis firms that appoint female directors, for laboratory studies suggest that individuals will check their own biases when they are primed to do so (Tetlock 1992; Tetlock and Lerner 1999).

Next we turn to previous research on the effects of board diversity on profits and stock performance. Below we conduct our own analysis of the effects of board diversity before exploring how changes in board diversity affect the holdings of different groups of institutional investors.

RESEARCH ON BOARD DIVERSITY AND PERFORMANCE

Analysts have explored the effects of board diversity on both profitability and stock valuation. It is worth noting that board characteristics in general tend to be weakly related to corporate performance, perhaps because board activity remains remote from day to day management. Studies of an array of different board characteristics have found at most small effects on performance. Our analyses support previous studies suggesting that board characteristics long championed by agency theorists (Jensen and Meckling 1976), such as the percent of outside directors, chair independence, and board size, do not affect performance. If these things do not affect performance, should we expect the addition of one woman to a board of twelve men to move the earth? One Canadian study found that female officers have positive effects on performance, but female directors didn't make a difference (Francoeur, Labelle, and Sinclair-Desgagne 2008).

That said, the overall pattern of findings across the several dozen studies that have been published to date tends to support the view that gender diversity inhibits performance. While a number of studies show positive effects, they tend to use cross-sectional data or observations across very short time periods, and thus are prone to problems of endogeneity. Their authors typically cannot rule out the possibility reverse causation; successful firms appoint women directors. The more rigorous time-series studies suggest that board diversity has null or adverse effects on performance.

Perhaps the best publicized study linking board diversity to profitability is Catalyst's 2007 comparison of over 500 leading U.S. firms for between 2001 and 2004. Catalyst concludes that firms with the greatest proportion of women board members showed significantly higher return on investment (ROI), return on equity (ROE), and return on invested capital than those with the smallest proportion of women. Similarly, Erhardt, Werbel, and Shrader (2003) look at 112 leading firms over 5 years and find a positive relationship between gender and race/ethnic diversity on boards and both ROI and return on assets (ROA). Carter et al. (2007) look at the gender and racial diversity of specific board committees among Fortune 500 firms between 1998 and 2002, and find some positive effects of committee membership on Tobin's q, but do not exclude the possibility of reverse causation (see also Campbell and Minguez-Vera 2008). None of these studies, however, tackles the problem of reverse causation.

Studies that do a better job of ruling out reverse causation tend to find no effect of board diversity on profits or stock price, or negative effects. In the first camp are several studies using panel data over a number of years. Zahra and Stanton (1988) find no effect generally, and some evidence of a negative effect, among large American firms in the 1980s. The Scandinavian countries were leaders in promoting board gender diversity, both through norms and through legislation. A recent study (Rose 2007) shows no effect of gender diversity on stock performance (Tobin's q) in a sample of 443 Danish firms.

In the second camp, of studies finding negative effects, Smith, Smith, and Verna (2006) use larger panel data on 2500 Danish data to explore several performance measures. Female outside directors show negative effects, though female inside directors tend to show positive effects. In their 2009 study, Adams and Ferreira use panel data between 1996 and 2003 on 1939 large American firms. Theirs is possibly the most sophisticated, and transparent, analysis

published to date. While they find that boards with more women do better at monitoring firms, they also find negative effects of women board members on both Tobin's q and ROA. In particular, they find positive gender diversity effects in OLS models, but two different techniques for handling endogeneity produce negative and significant effects (for profits and stock value) and a third produces negative but non-significant effects (for both). The first two approaches are to employ fixed effects alone and fixed effects with instrumental variables, and the third is to employ one-step Arellano and Bond models with lagged dependent variables.

These findings are consistent with the notion that corporations that are having good runs are more likely to appoint women board members, but that the actual appointment of women has negative or neutral effects. Adams and Ferreira conclude: "Although a positive relation between gender diversity in the boardroom and firm performance is often cited in the popular press, it is not robust to any of our methods of addressing the endogeneity of gender diversity" (Adams and Ferreira 2009, p. 308).

Several studies address the positive cross-sectional relationship between board diversity and performance by suggesting that diversity is a consequence of performance, modeling the posited reverse causation. Erhardt, Werbel, and Shrader (2003) speculate that this may be going on in their own findings. Farrell and Hirsch (2005) examine a sample of 300, Fortune-500 firms between 1990 and 1999, showing that firms with strong profits (ROA) are more likely to appoint female directors. Adding a female director had no subsequent effect on performance, however. Adams and Ferreira (2004) predict women directors, finding that ROA has no effect, but that stock performance (Tobin's q) has a significant positive effect. These studies suggest that successful firms, measured either by profitability or stock performance, are more likely to

appoint women directors. This pattern may be explained by the fact that there is a scarcity of female director candidates, and they can pick and choose.

DATA AND METHODS

We conduct three types of analysis. First, we suggest that because large public pension funds have led the charge for greater board diversity, firms that receive shareholder proposals advocating board diversity will see increases in diversity. Thus we model the proportion of outside directors who are women to see if shareholder proposals have an effect.

Second, we expect that bias leads some groups of institutional investors to reduce their holdings in companies that add women directors, and that in consequence, stock price declines. We explore whether the share of women directors has an effect on both profits and stock price. If women directors depress stock price without affecting performance, we will conclude that they are not depressing stock price by undermining board competence. Decreases in board competence should depress both profits and stock value.

Third, we look at whether increases in gender diversity of boards leads to changes in institutional investor shareholding, to explore the possibility that bias causes some institutional investors to, perhaps unwittingly, decrease their holdings in firms that increase board diversity. Such decreases in holdings could explain declines in stock price. We do not expect large public pension funds to decrease their holdings, because they led the charge for board diversity, but we do expect other investor groups to dump stock in companies that appoint women.

For each type of outcome, we present pooled cross-sectional time-series models for the period 1996 to 2007, with fixed firm and year effects. A significant coefficient can be read to suggest that a change in, say, board composition leads to a change in the proportion of shares held by institutional investors. We first analyze the causes of change in board composition. We

then analyze the effects of the gender composition of boards on Tobin's q and of return on assets. We then look at the effects of change in gender composition on the holdings of all institutional investors, and then separately on the holdings of banks, insurance companies, mutual funds, investment advisors (which are typically investment banks), and public pension funds. We break down each category into blockholders and others, so for instance, we model the effect of increasing women directors on shares held by blockholding (>5%) institutional investors.

Sample

Whereas most longitudinal datasets are sampled in a single year, we sampled firms evenly across the period 1965-2005 at two year intervals so as to achieve a more representative group of firms, and so as to include firms and industries on the rise and those on the decline. We sampled systematically, within industries, with replacement when a firm already appeared in the sample. The sampling frame is Fortune's list of America's 500 largest firms, supplemented with industry specific Fortune lists and Dun's Million Dollar Directory for certain industries. We stratify the sample by industry, selecting an equal number of firms from aerospace, apparel, building materials, chemicals, communications, computers, electrical machinery, entertainment, food, health care, machinery, metals, oil, paper, pharmaceuticals, publishing, retail, textiles, transportation, transportation equipment, utilities, and wholesale. We treat conglomerates as belonging to the industry that accounts for the lion's share of their business. We sampled fifteen of the 22 industries exclusively from the Fortune 500 lists. Utilities, health care, and entertainment are not included in the list, and some sectors are included only in certain periods. We used specialized Fortune lists of the 50 largest firms in particular service industries. For entertainment and health care, we used Dun & Bradstreet's Million Dollar Directory for years before 1983, when Fortune began to cover these industries. We analyze data on 432 major

American corporations for the period 1997-2005. We analyze between 2882 and 3016 spells, or corporation-years, of data.

Variables

Dependent variables are measured a year after independent variable. In the first analysis we examine factors that influence the appointment of women to boards of directors. In fixed effects models, we analyze the log odds of female outside directors, and then we divide up outside directors into truly independent directors, and those who are not officers of the corporation but are affiliated with it. Affiliated directors are those who provide (or whose employer provides) professional services to the company or is major customer, as well as former employees, recipients of charitable funds, directors with board interlocks, and family members of a director or executive. For each director type, we model the log odds of women, following the convention in studies of workforce composition (Reskin and McBrier 2000). We use log odds (proportion/(1-proportion)) within each director type rather than log proportion because its distribution is closer to normal (Fox 1997:78).¹

In the second set of analyses, we examine the effects of women board members on profits and stock returns. For profits we use return on assets (RoA). For stock performance we use Tobin's q, the ratio of stock market value of a firm to the replacement value of its assets, now widely viewed as the best measure of the firm's value (e.g., Dezsó and Ross 2008, Berger and

¹ Because log-odds (logit) is undefined at values of zero and 1, we substituted 0 with $1/2N_j$, and 1 with $1 - 1/2N_j$, where N_j is the number of managers in establishment j (Hanushek and Jackson 1977; Reskin and McBrier 2000). The results were robust to different substitutions for zero. We chose the one that kept the distribution uni-modal and closest to normal.

Ofek 1995; Durnev, Morck, and Yeung 2004; King and Lennox 2001; Lang and Stulz 1994b; Wernerfelt and Montgomery 1988). Then, to understand how institutional investors respond to the appointment of women to boards, we look at the effects of women board members on stockholding by institutional investors of different sorts; investment companies, investment advisors, banks, insurance companies, and public pension funds. Investment companies include the leading mutual funds, which manage investments for clients, including Fidelity, Vanguard, and Putnam. Investment advisors include the leading investment services, which counsel investors and perform trades on their behalf. Barkley's Bank PLC, Goldman, Sachs & Company; and Morgan Stanley Dean Witter are among the largest (Binay 2005, p. 128). We first analyze all institutional investors together, including those in these five categories and funds in other domains (e.g., university and foundation endowments) that have relatively small aggregate holdings.

We include in the models financial variables that are typically used in analyses of corporate performance. Most data on corporate governance and directors come from the *Standard & Poor's Register*, and the Investor Responsibility Research Center (IRRC), including data on CEOs who hold the title of chair, the number of board directors, outside directors, and female board members. Financial data come from the Compustat database. The entropy index of diversification is calculated using data from the Compustat Industry Segment database.

Method

Our goal is to explore first, how shareholder proposals affect the appointment of women to boards, and second, how women directors affect profits, stock performance, and institutional shareholding. We use a fixed firm effects specification and pooled cross-sectional time series data to investigate how changes, such shareholder proposals and the introduction of women

board members, affect women on boards, profits, stock returns, and institutional shareholding. Our models account, implicitly, for unobserved characteristics that do not vary over time, such as industry and region. The large number of parameters involved in estimating fixed-effects models renders them less efficient than other estimators. However, we prefer this technique because it provides the most stringent tests of our hypotheses. The corporation and year fixed effects also offer an efficient means of dealing with non-constant variance of the errors (heteroskedasticity) stemming from the cross-sectional and temporal aspects of the pooled data.

FINDINGS

We find that institutional investors do promote gender diversity on boards through shareholder proposals on board diversity. Increases in board gender diversity do not affect subsequent profitability, suggesting that firms that add women to boards do not experience losses in board efficacy. But increases in gender diversity on boards are followed by marginally significant decreases in stock value. Because women on boards do not affect profits, we explore whether women on boards lead to declines in stock value by affecting investor behavior. We find that non-blockholding institutional investors significantly decrease their holdings in firms that increase women directors, though blockholding investors significantly increase their holdings. We suggest that because non-blockholding investors hold the lion's share of stock, their behavior dominates in pricing, and results in decreases in stock price.

In Table 1 we investigate the effects of shareholder proposals on female board directorships. We focus on outside directors, looking first at the effects on all outside directors, and then at the effects on independent outsiders and affiliated outsiders. In line with earlier studies, we include a series of financial control variables. Most of these show no effects in the models, but assets show a significant negative effect on the first two outcomes. We interpret this

to suggest that firms that are undergoing growth are less likely to appoint women. Note that the fixed effects models implicitly control for the baseline values of independent variables, meaning that a significant coefficient indicates that a change in A (assets) is followed by a change in B (female directorships).

We control for characteristics of the corporate governance system, including independent directors, affiliated directors, number of directors, CEO/Chair structure. These characteristics allow us to determine whether corporations that follow agency theory (Jensen and Meckling 1976; Fama 1980) prescriptions for corporate governance are more likely to appoint women. Broadly, agency theory calls for board independence. Firms should appoint independent directors, they should appoint board chairmen independent of CEOs, and they should create small boards that will be agile monitors of corporate behavior. We see in the models that firms that increase affiliated directors are less likely to appoint female independent directors, and more likely to appoint female affiliated directors. This suggests that when firms respond to agency theory prescriptions ceremonially, appointing directors who are only nominally independent, they tend to appoint subsequent women directors with the same profile. We also see that firms that decrease board size increase their share of women.

CEO tenure is negatively related to the increase in women directors. This may suggest that newly appointed CEOs are most likely to champion women directors. The average tenure of female directors predicts the log odds of women on boards, which may suggest that as women board members prove their capacity, boards appoint more women. The average tenure of men on boards is negatively associated with increases in women board members, which may suggest that boards with more senior male members are resistant to the appointment of women.

In Table 2, we analyze the effects of female directors on performance and on institutional investor shareholding. For both profits (ROA) and stock performance (Tobin's q), most financial variables have the expected effects. For Tobin's q, change in ROA has a positive effect, change in systematic risk, dividend yield, and firm size have negative effects. For ROA we see the same effects for these last three variables, and we also see a negative effect of unsystematic risk and a positive effect of firm age.

For ROA, institutional ownership also has a positive effect, perhaps reflecting the fact that institutional investors buy shares in firms with good prospects or perhaps reflecting the fact that their activism actually improves performance. Affiliated directors have a negative effect on ROA, which we may take as support for agency theory's dictum that independent directors are superior board members.

Our key findings are that female directors do not affect ROA, and have negative effects on Tobin's q, significant at .1. This provides some weak support for the notion that controlling for ROA, institutional investors do not like to see firms appoint women to their boards of directors.

In the subsequent models in Table 2 we explore the effects of financial performance, board structure, and female board membership on institutional shareholding. We break shareholders down into blockholders, with 5% or more of the company's stock, and non-blockholders. Blockholders tend to be larger funds, particularly blockholders of the large firms we are examining here. Large funds need not necessarily be blockholders, but most blockholders are large funds in the present analysis, simply because the sample is limited to leading firms in each industry and hence the capital requirements of blockholding are substantial.

We expect that blockholders will be more sensitive to the public perception of their behavior vis-à-vis board diversity for two reasons. First, large funds are more visible to the public, and their movements are more likely to be noticed and reported in the financial press. Second, large public pension funds led a shareholder proposal drive for board diversity, and thus they are more likely to be committed to diversity, and even if they are not committed, more likely to be sensitive to how the public perceives their behavior on matters of board diversity.

Managers of smaller funds and managers of non-blockholding large funds, by contrast, likely do not inspect their own motives for buying or selling stock in a certain company with great care. They pay a great deal of attention to reports from securities analysts, and a great deal of attention to financial performance. But if their own buying and selling decisions are affected at the margins by changes in corporate board diversity, they are less likely than large fund managers to scrutinize that link and censor their own inclinations to sell in response to growing board diversity.

The general pattern of effects of corporate strategy and governance on institutional shareholding mirrors that for stock performance and profitability. Financial variables effects mirror those for the first two outcomes. Changes in corporate governance do not much influence institutional shareholding.

But changes in the percentage of female directors do appear to matter to institutional investors. Among all institutional investors, blockholders show significant increases in shareholding in response to increases in women directors, and non-blockholders show significant decreases. When we look at the five largest groups of institutional investors separately, blockholding public pension funds show significant increases in shares following increases in female directors, and blockholding investment companies show increases significant at .1. By

contrast, non-blockholding banks and investment companies experience significant decreases in shares following increases in female board membership.

This pattern is consistent with our thesis that female directors have adverse effects on stock price because small-holding institutional investors sell shares in response to announcements of new female directors. While some groups of blockholders buy more shares in response to increases in the number of women on boards, the effects of small-holding institutional investors appears to swamp the effects of those blockholders, because institutional investors with stakes of less than 5% control half of all shares (see figure 1), whereas blockholders control less than a quarter of all shares.

CONCLUSION

The effects of corporate board diversity on corporate performance are not well understood, but most research begins with the premise that any effects of gender diversity must result from changes in the efficacy, or monitoring capabilities, of boards. These changes are expected to effects profits directly, and stock performance indirectly. Early cross-sectional studies suggested that board gender diversity had positive effects on both profits and stock performance. However studies using panel data and statistical methods designed to rule out endogeneity suggested that women board members tend to have neutral or negative effects. The pattern across countries is variable, but the big picture seems to be that gender board diversity does not help firms, and may hurt them.

We offer another theory of the effect of the gender board diversity on corporate performance. We suggest that gender diversity may be influencing corporate performance not by shaping the efficacy, or monitoring capabilities, of boards themselves, but by activating bias on

the part of the institutional investors who now control 80% of the shares of America's leading companies. We suggest that if institutional fund managers are indeed acting on gender biases, and reducing the value of firms that increase female directorships, we should see negative effects of female directors on stock value. We suggest that if female directors are influencing stock price by altering board efficacy, we should first see effects on both profits and stock value that move in the same direction.

Our findings are consistent with our own theory, that bias is affecting stock price. Female directors exert a marginally significant, negative, effect on stock value in a model with the standard set of financial controls, and no effect on profits. The bias interpretation is also supported by the wider pattern of effects of corporate board characteristics, namely, that they do not influence performance when all else is taken into account. Investors are thought to favor companies that create smaller more agile boards, that appoint more outside directors, and that separate the chair and CEO roles. These companies are expected to see improvements in profits. We find that companies that make these changes do not see generally see improvements in profits or stock value. If these fundamental changes designed to improve board functioning do not shape profits or stock value through improved board efficacy and monitoring, then why would incremental changes in the gender composition of boards affect performance by changing board efficacy?

In further support of our bias thesis, we posited that the public pension funds that promoted board diversity through shareholder proposals should respond to board diversity by buying more shares, but that other groups of institutional investors should not. In the first set of analyses we showed that shareholder proposals to expand board diversity in fact led to increases

in diversity. In subsequent analyses we showed that blockholding public pension funds indeed increased their holdings of firms that increased female directors.

We posited that blockholding institutional investors would be more careful than small holders to avoid the appearance of bias against firms that increased the share of women directors. We drew this insight from accountability theory in psychology, which suggests that when individuals know that their behavior may be scrutinized, they censor behavior that would appear to be counter-normative. In this case, they may avoid selling off shares of firms that appoint women to their boards. We suggested that for non-blockholders, which comprise small funds and large funds that are not prominent as investors in a particular firm, accountability should not be so salient, and so natural biases might be unleashed. Because non-blockholding institutional investors controlled half of the shares in the companies in our sample by 2007, and because blockholders control less than a quarter, the aggregate effect of these two disparate patterns should be to reduce the value of firms that appoint women directors.

Indeed, in the models we saw that among institutional investors generally, blockholders significantly increased holdings and nonblockholders significantly decreased holdings in response to increase in female directorships. Subcategories of institutional investors showed generally consistent patterns.

Students of corporate governance should in future research move beyond the narrow band of theories that has informed research to date. In the scholarly field of finance, a handful of economic theories, such as agency theory and the efficient markets hypothesis, have dominated. These explanatory frameworks assume fully rational actors making decisions based on careful calculations about a firm's current standing and future prospects. But in the stock market as in

other markets, behavior is shaped in important ways by psychological and sociological factors that these theories neglect.

Figure 1
Average Institutional Investor Stake in Sampled Companies, by Size of Holdings

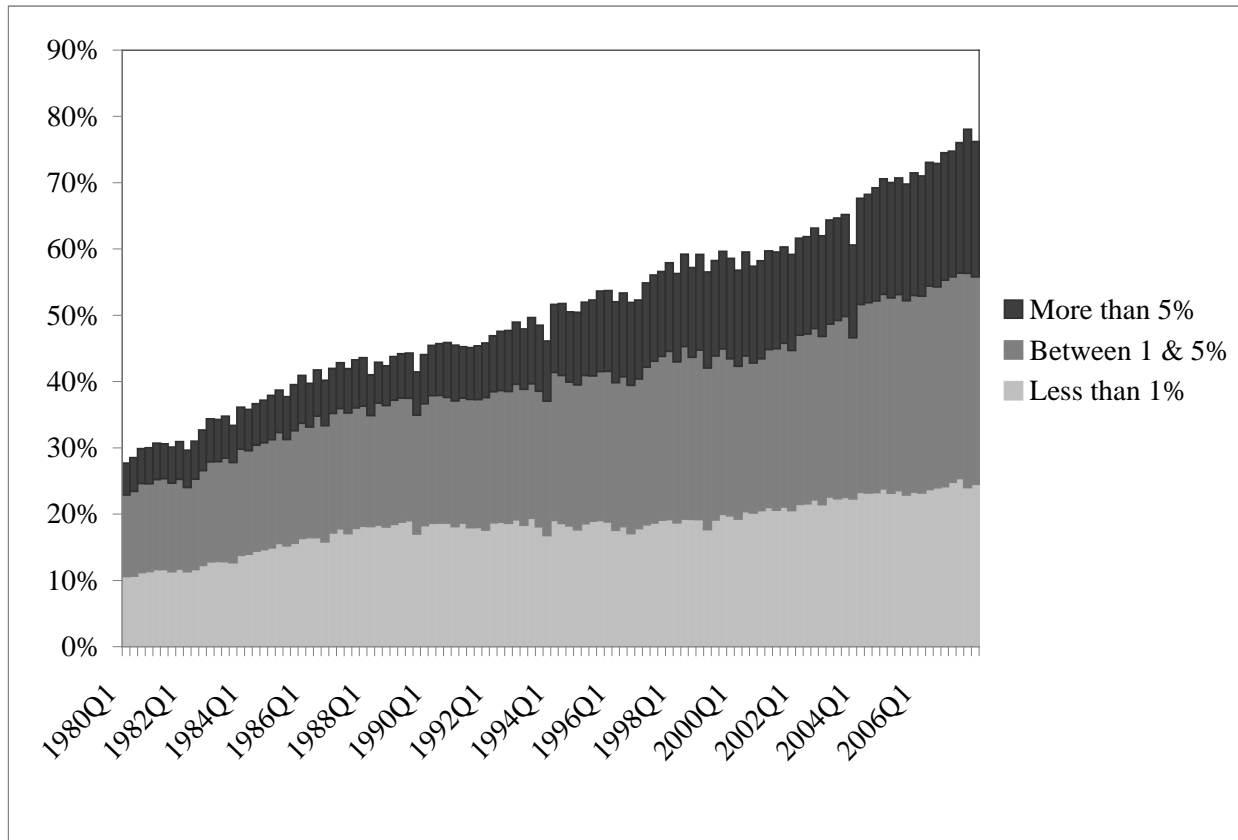


Table 1
Influence of Shareholder Proposals for Board Diversity on Female Directorships, 1997-2005

Log Odds	Female Outside Dirs.		Female Indep. Dirs.		Female Affil. Dirs.	
% Female Managers	0.003	(0.002)	0.002	(0.002)	0.000	(0.001)
% Female Employees	-0.003	(0.002)	0.001	(0.002)	0.001	(0.001)
Average Tenure of Female Directors (log)	.270***	(0.024)	.203***	(0.025)	-0.005	(0.007)
Average Tenure of Male Directors (log)	-.128***	(0.031)	-.090**	(0.032)	-.018*	(0.008)
Female CEO	0.061	(0.128)	0.069	(0.133)	0.067	(0.035)
% Female Top Executives (log)	0.006	(0.006)	0.005	(0.007)	-0.001	(0.002)
% Independent Directors on the Board	0.000	(0.001)	0.000	(0.001)	0.000	(0.000)
% Affiliated Directors on the Board	-0.001	(0.001)	-.003*	(0.001)	.0006*	(0.000)
# Directors on the Board	-0.004	(0.004)	-0.007	(0.004)	-.007***	(0.001)
CEO & Chair	0.022	(0.018)	0.025	(0.018)	-0.007	(0.005)
CEO's Tenure (Logged)	-.031**	(0.010)	-.027**	(0.010)	0.005	(0.003)
Shareholder Proposal for Board Diversity	.124**	(0.047)	.137**	(0.049)	0.003	(0.013)
Other Board-Related Shareholder Proposals	-0.007	(0.019)	-0.018	(0.019)	0.006	(0.005)
% Held by Blockholding Institutions	0.001	(0.001)	0.000	(0.001)	.0005*	(0.000)
Institutional Ownership	0.000	(0.001)	0.001	(0.001)	0.000	(0.000)
ROA	0.001	(0.001)	0.000	(0.001)	0.000	(0.000)
Tobin's Q	0.003	(0.007)	0.000	(0.007)	0.001	(0.002)
Cumulative Stock Returns	0.006	(0.010)	0.004	(0.010)	-0.003	(0.003)
Assets (Logged)	-.048*	(0.020)	-.060**	(0.020)	-0.007	(0.005)
Firm Age (Logged)	-0.014	(0.014)	-0.010	(0.014)	0.001	(0.004)
Binary Variable for Each Year			Included			
Constant	-0.836	(0.548)	-1.108	(0.567)	-2.199***	(0.149)
R2	0.178		0.152		0.037	
No. Firm Years	3069		3069		3069	
No. Firms	415		415		415	

*p<.05 **p<.01 *** p<.001

Table 2: Influence of Female Directors on Stock Value, Profits, and Institutional Investor Shareholding (Blockholders and Others), 1997-2005

	Tobin's Q		All Institutions		Banks		Insurance		Investment Companies		Investment Advisors		Public Pensions	
			≥5%	<5%	≥5%	<5%	≥5%	<5%	≥5%	<5%	≥5%	<5%	≥5%	<5%
% Female Directors	-0.007+	0.007	.109**	-.091*	0.020	-.035***	-0.006	-0.002	.049+	-.036*	0.039	-0.024	.003**	0.005
	(0.004)	(0.021)	(0.038)	(0.041)	(0.013)	(0.010)	(0.012)	(0.007)	(0.025)	(0.017)	(0.026)	(0.026)	(0.001)	(0.004)
Female CEO	0.011	0.172	2.219	1.676	5.354**	-1.984	-0.030	-1.004	-0.098	-2.134	-3.001	7.187*	0.005	-0.515
	(0.532)	(2.754)	(4.965)	(5.335)	(1.671)	(1.360)	(1.636)	(0.934)	(3.352)	(2.230)	(3.410)	(3.407)	(0.147)	(0.478)
% Female Top Mgrs.	.006+	0.005	.063*	-0.004	.034***	0.006	-0.012	0.0005	0.013	-0.013	0.026	0.005	-.002+	-0.002
	(0.003)	(0.016)	(0.029)	(0.032)	(0.010)	(0.008)	(0.010)	(0.006)	(0.020)	(0.013)	(0.020)	(0.020)	(0.001)	(0.003)
% Independent Directors	-0.002	-0.016	-0.023	0.049	0.006	0.005	0.014	-0.007	-0.026	.027*	-0.016	0.027	0.001	-0.003
	(0.003)	(0.016)	(0.029)	(0.031)	(0.010)	(0.008)	(0.010)	(0.005)	(0.020)	(0.013)	(0.020)	(0.020)	(0.001)	(0.003)
% Affiliated Directors	-0.001	-.042*	0.007	-0.006	0.017	-0.005	.029**	-.013*	-0.015	0.011	-0.023	0.009	0.001	-.007*
	(0.003)	(0.017)	(0.031)	(0.033)	(0.010)	(0.008)	(0.010)	(0.006)	(0.021)	(0.014)	(0.021)	(0.021)	(0.001)	(0.003)
Board Size	-0.009	-0.047	-0.066	-0.022	0.015	-.059+	0.037	0.022	-0.099	-0.058	-0.034	0.043	.009*	-0.011
	(0.013)	(0.065)	(0.117)	(0.126)	(0.039)	(0.032)	(0.039)	(0.022)	(0.079)	(0.053)	(0.080)	(0.080)	(0.003)	(0.011)
CEO & Chair	-0.045	-0.235	0.510	-0.316	0.061	0.043	0.055	0.038	-0.010	0.061	0.373	-0.527	0.012	.079+
	(0.053)	(0.269)	(0.486)	(0.522)	(0.164)	(0.133)	(0.160)	(0.091)	(0.328)	(0.218)	(0.334)	(0.333)	(0.014)	(0.047)
Institutional Ownership	0.003	.059***												
	(0.002)	(0.010)												
Diversification (Entropy)	0.023	0.183	0.050	-0.885	.410+	0.046	-0.030	-0.063	0.474	0.415	-.871+	-1.218*	.110***	0.064
	(0.077)	(0.391)	(0.707)	(0.759)	(0.238)	(0.194)	(0.233)	(0.133)	(0.477)	(0.317)	(0.485)	(0.485)	(0.021)	(0.068)
ROA	.032***		-.090*	.301***	0.006	.076***	-0.007	.019**	-0.039	.060***	-0.041	.131***	0.0002	.012**
	(0.005)		(0.038)	(0.041)	(0.013)	(0.010)	(0.013)	(0.007)	(0.026)	(0.017)	(0.026)	(0.026)	(0.001)	(0.004)
Systematic Risk (Beta)	-.193**	-1.604***	2.328***	-0.881	0.315	-0.035	.709***	-0.144	.895*	-1.186***	0.382	0.461	0.027	0.080
	(0.065)	(0.322)	(0.590)	(0.634)	(0.198)	(0.162)	(0.194)	(0.111)	(0.398)	(0.265)	(0.405)	(0.405)	(0.018)	(0.057)
Unsystematic Risk	-0.865	-15.472*	-18.664+	-40.233***	-1.280	-16.447***	-0.838	-9.976***	0.022	-11.360*	-17.425*	0.274	0.447	-3.687***
	(1.188)	(6.008)	(10.823)	(11.630)	(3.643)	(2.965)	(3.565)	(2.035)	(7.308)	(4.861)	(7.435)	(7.426)	(0.321)	(1.043)
Debt-to-Equity Ratio	-0.0003	-0.006	-0.015	-.031*	0.001	-0.005	0.00001	-0.001	-0.008	-0.005	-0.007	-.018*	0.0003	-0.002
	(0.001)	(0.007)	(0.013)	(0.014)	(0.004)	(0.003)	(0.004)	(0.002)	(0.008)	(0.006)	(0.009)	(0.009)	(0.0004)	(0.001)
Dividend Yield (Log)	-.270***	-1.701***	0.429	-4.924***	0.185	-.916***	0.244	-.524***	0.197	-.919***	-0.064	-2.317***	0.002	-.155**
	(0.063)	(0.319)	(0.568)	(0.611)	(0.191)	(0.156)	(0.187)	(0.107)	(0.384)	(0.255)	(0.390)	(0.390)	(0.017)	(0.055)
Firm Size (Log Assets)	-.753***	-2.686***	-1.077+	0.245	0.049	.562**	-0.300	-0.168	0.659	-0.061	-1.577***	-0.259	.032+	0.088
	(0.068)	(0.344)	(0.624)	(0.670)	(0.210)	(0.171)	(0.205)	(0.117)	(0.421)	(0.280)	(0.428)	(0.428)	(0.019)	(0.060)
Firm Age	-0.048	.601*	-0.282	2.165***	-0.033	.340**	0.068	0.125	-0.251	-0.080	-0.076	1.538***	-0.013	.076+
	(0.051)	(0.261)	(0.469)	(0.504)	(0.158)	(0.129)	(0.155)	(0.088)	(0.317)	(0.211)	(0.322)	(0.322)	(0.014)	(0.045)
Binary Variables for Years														
Constant	10.055***	4.742	32.267+	-36.649+	1.135	-6.144	-1.945	2.332	12.282	14.989+	21.922+	-41.136**	-0.022	0.140
	(2.053)	(10.458)	(18.884)	(20.292)	(6.356)	(5.173)	(6.221)	(3.551)	(12.751)	(8.481)	(12.971)	(12.957)	(0.561)	(1.819)
R2	0.155	0.096	0.076	0.170	0.018	0.243	0.038	0.197	0.023	0.085	0.090	0.177	0.031	0.157
No. Firm Years	2882	3016	3016	3016	3016	3016	3016	3016	3016	3016	3016	3016	3016	3016
No. Firms	415	432	432	432	432	432	432	432	432	432	432	432	432	432

+p<.1 *p<.05 **p<.01 *** p<.001

References

To be added.