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CORPORATE BOARD GENDER DIVERSITY AND STOCK PERFORMANCE: THE COMPETENCE GAP OR INSTITUTIONAL INVESTOR BIAS?*

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INTRODUCTION	809
I. THEORIES OF GROUP COMPOSITION AND EFFICACY	813
A. <i>Theories Suggesting Advantages of Group Diversity</i>	814
B. <i>Theories Suggesting Disadvantages of Group Diversity</i> ...	815
II. RESEARCH ON BOARD DIVERSITY AND PERFORMANCE.....	817
III. INSTITUTIONAL INVESTOR ACTIVISM, INSTITUTIONAL INVESTOR BIAS	820
IV. DATA AND METHODS.....	825
A. <i>Sample</i>	825
B. <i>Variables</i>	826
C. <i>Method</i>	827
V. FINDINGS.....	828
CONCLUSION	836

INTRODUCTION

Women have been gaining ground on corporate boards. They held 14.8% of Fortune 500 seats in 2007.¹ Yet the effect of women on corporate performance is a matter of some debate. Studies using data at one or two points in time find that gender diversity on boards is associated with higher stock values and greater profitability.²

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1. 2007 *Census: Board Directors*, CATALYST, 1 (2007), http://www.catalyst.org/file/322/census_board_final.pdf.

2. See David A. Carter et al., *The Gender and Ethnic Diversity of US Boards and Board Committees and Firm Financial Performance*, 18 CORP. GOVERNANCE 396, 410–11 (2010); Niclas L. Erhardt et al., *Board of Director Diversity and Firm Financial*

However, studies using panel data over a number of years, which explore the effects of adding women to boards, generally show no effects³ or negative effects.⁴ This suggests that the association between board diversity and performance identified in cross-sectional studies is spurious—a consequence perhaps of the fact that successful firms appoint women to their boards.⁵

Scholars have assumed that if board diversity affects corporate performance, it is through its influence on group processes in the boardroom. Thus they draw on theories from social psychology about groups.⁶ On the positive side, gender and racial diversity may operate as occupational diversity does in small groups, enabling groups to come to better decisions and to come to them more quickly.⁷ On the negative side, gender and racial diversity have been found to increase

Performance, 11 CORP. GOVERNANCE 102, 107 (2003); *The Bottom Line: Corporate Performance and Women's Representation on Boards*, CATALYST, 1 (2007), <http://www.catalyst.org/file/139/bottom%20line%202.pdf>.

3. Kathleen A. Farrell & Philip L. Hersch, *Additions to Corporate Boards: The Effect of Gender*, 11 J. CORP. FIN. 85, 104 (2005); Caspar Rose, *Does Female Board Representation Influence Firm Performance? The Danish Evidence*, 15 CORP. GOVERNANCE 404, 410–11 (2007); Shaker A. Zahra & Wilbur W. Stanton, *The Implications of Board of Directors' Composition for Corporate Strategy and Performance*, 5 INT'L J. MGMT. 229, 233 (1988).

4. Renee B. Adams & Daniel Ferreira, *Women in the Boardroom and Their Impact on Governance and Performance*, 94 J. FIN. ECON. 291, 292, 305 (2009); Nina Smith et al., *Do Women in Top Management Affect Firm Performance? A Panel Study of 2500 Danish Firms*, 55 INT'L J. PRODUCTIVITY & PERFORMANCE MGMT. 569, 588 (2006) (finding that female board members who are not elected by staff had a negative effect on firm performance); cf. Deborah L. Rhode & Amanda K. Packel, *Diversity on Corporate Boards: How Much Difference Does Difference Make?* 30–32 (Rock Ctr. for Corp. Governance, Working Paper No. 89, 2010), available at <http://ssrn.com/abstract=1685615> (“[T]he relationship between diversity and financial performance has not been convincingly established.”).

5. On the possible spurious relationship between gender diversity and performance, see Farrell & Hersch, *supra* note 3, at 104. One British study found that women were more likely than men to be appointed to the boards of companies experiencing poor performance. Michelle K. Ryan & S. Alexander Haslam, *The Glass Cliff: Evidence That Women Are Over-Represented in Precarious Leadership Positions*, 16 BRIT. J. MGMT. 81, 86–87 (2005). This might lead us to expect positive effects of the appointment of female directors in panel studies that do not account for endogeneity, as those companies regress positively toward average performance.

6. See Erhardt et al., *supra* note 2, at 103–04 (reviewing the existing literature on group performance); Farrell & Hersch, *supra* note 3, at 88.

7. See SCOTT E. PAGE, *THE DIFFERENCE: HOW THE POWER OF DIVERSITY CREATES BETTER GROUPS, FIRMS, SCHOOLS, AND SOCIETIES* 322–28 (2007) (explaining contexts in which diversity generates positive results); Karen A. Jehn & Katerina Bezrukova, *A Field Study of Group Diversity, Workgroup Context, and Performance*, 25 J. ORGANIZATIONAL BEHAV. 703, 713 (2004).

conflict in small groups, and this may inhibit their decision-making capacity.⁸

We explore another mechanism linking board diversity to firm performance. For certain performance outcomes, notably stock price, what goes on in board meetings may be of less importance than what goes on in the equities markets. Boards themselves are attuned to their effects on stock price, and, in the appointment of CEOs, they think long and hard about the signals they want to send to markets.⁹ If stock markets react to the appointment of new CEOs, we argue, they may likewise react to the appointment of board members.¹⁰ A study of directors, managers, shareholders, and regulators revealed a widespread belief that board appointments are used to send signals to shareholders and others.¹¹ A recent study using British data suggested that women on corporate boards have adverse effects on subjectively established measures of corporate performance, such as stock price, which is established through the behavior of stock market participants, but not on objectively established measures, such as profitability, which is established using accounting standards.¹² Our argument builds on that line of thinking. Bias may shape the stock market performance of firms, but it is less likely to shape their profitability.

Our research represents a significant departure, then, from most previous research on board diversity, profitability, and stock performance. We explore how the institutional investor community

8. See Susan E. Jackson et al., *Recent Research on Team and Organizational Diversity: SWOT Analysis and Implications*, 29 J. MGMT. 801, 810 (2003) (citing studies concluding that diversity “typically has negative effects on social integration, communication and conflict”).

9. RAKESH KHURANA, *SEARCHING FOR A CORPORATE SAVIOR: THE IRRATIONAL QUEST FOR CHARISMATIC CEOs* 90–91 (2002) (noting that boards make decisions “based on their reading of those outside actors whose evaluations they most prize,” such as “Wall Street analysts and the business media”).

10. A study of stock market reactions to the appointment of female CEOs supports our prediction, finding that reactions to the appointment of women are more negative than reactions to the appointment of men. Peggy M. Lee & Erika Hayes James, *She'-E-Os: Gender Effects and Investor Reactions to the Announcements of Top Executive Appointments*, 28 STRATEGIC MGMT. J. 227, 234, 237 (2007).

11. Lissa Lamkin Broome & Kimberly D. Krawiec, *Signaling Through Board Diversity: Is Anyone Listening?*, 77 U. CIN. L. REV. 431, 435, 447 (2008).

12. S. Alexander Haslem et al., *Investing with Prejudice: The Relationship Between Women's Presence on Company Boards and Objective and Subjective Measures of Company Performance*, 21 BRIT. J. MGMT. 484, 492 (2010). The study used data for FTSE 100 companies and found a negative correlation between women on boards and stock price, but not profits, though the authors could not rule out endogeneity or reverse causation. *Id.* at 486.

influences board diversity and stock price. First, we posit that boards are attentive to the demands of institutional investors for greater board diversity. Second, we expect that, paradoxically, investor decision making is influenced by gender bias and that the typical investor will reduce holdings in firms that appoint female directors. Third, we suggest that accountability apprehension will mediate this process, such that visible blockholding institutional fund managers (who hold at least five percent of the stock of a company) and public pension fund managers (who as a group pressed for board diversity) will be less likely to act on gender bias. The behavior of major investors, we suggest, is more likely to be scrutinized by other players in the stock market.

We examine whether board appointments are influenced by institutional investors and whether appointments in turn influence investors. We model these processes by observing year-to-year changes in board diversity, on the one hand, and in corporate performance and institutional investor holdings, on the other, building on the rigorous longitudinal studies that explore whether changes in board diversity lead to changes in performance.¹³ We use panel data on more than 400 large U.S. firms for the period 1997 to 2006. To test the hypothesis that institutional investor behavior has promoted board diversity, we examine the effects of shareholder proposals for board diversity spearheaded by institutional investors. Several studies suggest that institutional investors can be effective at shaping corporate social behavior.¹⁴ To test the hypothesis that board diversity activates gender bias on the part of institutional investors, we look at the effects of diversity on stock price and on institutional investor holdings. We rule out the possibility that female directors influence investor holdings by altering board performance and profitability, showing that board diversity has no effect on profits. Finally, to test the hypothesis that accountability apprehension mediates the effect of gender bias on investor behavior, we examine

13. See generally Adams & Ferreira, *supra* note 4 (examining the impact of female directors on board inputs and firm outcomes); Smith et al., *supra* note 4 (providing statistical evidence of the impact of female managers on firm performance).

14. See Willard T. Carleton et al., *The Influence of Institutions on Corporate Governance Through Private Negotiations: Evidence from TIAA-CREF*, 53 J. FIN. 1335, 1343 (1998). See generally ASSET MGMT. WORKING GRP., THE UNITED NATIONS ENV'T PROGRAMME & SUSTAINABLE PENSIONS PROJECT, THE U.K. SOC. INV. FORUM, RESPONSIBLE INVESTMENT IN FOCUS: HOW LEADING PUBLIC PENSION FUNDS ARE MEETING THE CHALLENGE (2007) [hereinafter UNEP REPORT], available at <http://www.unepfi.org/fileadmin/documents/infocus.pdf> (surveying prominent pension fund and asset managers regarding their influence in shaping corporate social behavior).

whether blockholding institutional investors and public pension funds are less likely to reduce their holdings in firms that appoint female directors. Both kinds of investors are susceptible to public accountability: blockholders because of the magnitude of their positions in firms, and public pension funds because they were vocal proponents of board diversity.¹⁵

In this Article, we begin by reviewing social psychological research on group composition and performance that has inspired much of the research on board diversity and performance. In the second section, we discuss previous research findings and detail methodological flaws that may explain the divergence in the results from cross-sectional and panel studies. We then turn to our own theories. We predict that pressure from institutional investors, through shareholder proposals, encourages firms to appoint female board members. But we predict that bias among institutional investors depresses the share prices of firms that appoint female directors without producing a corresponding negative effect on profits. In the data analysis, we follow 432 major U.S. corporations between 1997 and 2006 to examine the effects of shareholder proposals on board diversity and, in turn, the effects of changes in board gender diversity on both share price and profitability. The findings support our central predictions. In the conclusion we discuss further research that could help us to better understand the relationships between boards, profits, and stock price, and we call for institutional investors to scrutinize their own behavior in the face of increasing board diversity.

I. THEORIES OF GROUP COMPOSITION AND EFFICACY

Research in psychology suggests that educational diversity in problem-solving groups improves performance.¹⁶ Put a bunch of MBAs in a room and you'll arrive at inferior solutions, and arrive at them more slowly, than if you mix the MBAs with attorneys, accountants, and engineers. Will these findings about the effects of educational diversity extend to demographic diversity? This is the

15. Carleton et al., *supra* note 14, at 1343 (showing how TIAA-CREF worked behind the scenes to encourage companies to diversify their boards, on the theory that board diversity improves governance, because diverse boards are less likely to be in the pocket of the CEO).

16. See Frances J. Milliken & Luis L. Martins, *Searching for Common Threads: Understanding the Multiple Effects of Diversity in Organizational Groups*, 21 ACAD. MGMT. REV. 402, 410, 412 (1996) (citing studies finding a positive correlation between educational heterogeneity and firm performance).

great promise of workplace diversity: an African American woman and a Latino man on your team will improve its performance.¹⁷ Studies of board diversity build on these insights—positive or negative—and thus they presume that the effects of board diversity on corporate performance result primarily from changes in board efficacy.

A. Theories Suggesting Advantages of Group Diversity

Research on the *diversity of perspectives* in decision-making teams suggests that teams with functional (occupational) heterogeneity are more effective at solving problems and implementing change than are homogenous teams.¹⁸ Management researchers first showed that team diversity, in terms of personality, can improve efficacy by expanding perspectives and cognitive resources.¹⁹ Studies indicate that demographic diversity can increase network connections, resources, creativity, and innovation.²⁰ Workplace researchers have attempted to explain everything from group conflict to decision making to sales figures with demographic diversity.²¹ In most laboratory and field studies, however, the effects of conflict and poor communication appear to dominate.²² One exception is found in a panel study of the effects of corporate workforce diversity showing that in research-intensive Fortune 1500

17. Erin Kelly & Frank Dobbin, *How Affirmative Action Became Diversity Management: Employer Response to Antidiscrimination Law, 1961–1996*, in COLOR LINES: AFFIRMATIVE ACTION, IMMIGRATION, AND CIVIL RIGHTS OPTIONS FOR AMERICA 87, 97–99 (John David Skrentny ed., 2001); Lauren B. Edelman et al., *Diversity Rhetoric and the Managerialization of Law*, 106 AM. J. SOC. 1589, 1628 (2001).

18. Karen A. Bantel & Susan E. Jackson, *Top Management and Innovations in Banking: Does the Composition of the Top Team Make a Difference?*, 10 STRATEGIC MGMT. J. 107, 111, 114, 118 (1989).

19. See Donald C. Hambrick et al., *The Influence of Top Management Team Heterogeneity on Firms' Competitive Moves*, 41 ADMIN. SCI. Q. 659, 659, 680 (1996); L. Richard Hoffman & Norman R.F. Maier, *Quality and Acceptance of Problem Solutions by Members of Homogeneous and Heterogeneous Groups*, 62 J. ABNORMAL & SOC. PSYCHOL. 401, 401, 406 (1961); Robert J. Williams et al., *The Influence of Top Management Team Characteristics on M-Form Implementation Time*, 7 J. MANAGERIAL ISSUES 466, 476 (1995).

20. See generally Nancy DiTomaso et al., *Workforce Diversity and Inequality: Power, Status, and Numbers*, 33 ANN. REV. SOC. 473 (2007) (reviewing the role of inequality and workplace structure in the context of diversity and firm performance).

21. See generally Jackson et al., *supra* note 8 (reviewing sixty-three studies to determine the impact of diversity on a firm); Katherine Y. Williams & Charles A. O'Reilly, III, *Demography and Diversity in Organizations*, 20 RES. ORGANIZATIONAL BEHAV. 77 (1998) (reviewing eighty studies to determine the impact of demographic diversity on organizational performance).

22. See Jackson et al., *supra* note 8, at 809.

companies, adding women to the top management team increased stock price (Tobin's q)²³ in the period 1992 to 2006.²⁴

Gender diversity may have positive effects due not to diversity of perspectives, but to a *female management style*, and this may be the case in particular for research-intensive firms.²⁵ But the overall effects on boards may not necessarily be positive. Adams and Ferreira find evidence for a kindred argument about corporate board diversity, namely that women pay greater attention to monitoring firms, women board members have better attendance records, women board members improve the attendance of men, and women are more involved in monitoring committees.²⁶ Adams and Ferreira suggest that while board monitoring has been championed by corporate governance experts, such monitoring may interfere with the efficient management of the firm.²⁷ They find that increases in the gender diversity of boards lead to decreases in both profits and stock price and suggest that excessive monitoring may be the reason.²⁸

B. Theories Suggesting Disadvantages of Group Diversity

Social identity theory,²⁹ similarity-attraction theory,³⁰ and social categorization theory³¹ suggest that people are drawn to similar others. Mixed gender and racial groups may divide, and diversity may

23. Tobin's q , the ratio of the market value of the firm to the replacement value of the firm's assets, is the most widely accepted measure of corporate share price. Larry H.P. Lang & Rene M. Stulz, *Tobin's q , Corporate Diversification, and Firm Performance*, 102 J. POL. ECON. 1248, 1249 (1994); Birger Wernerfelt & Cynthia A. Montgomery, *Tobin's q and the Importance of Focus in Firm Performance*, 78 AM. ECON. REV. 246, 247 (1988).

24. Christian L. Dezs & David Gaddis Ross, "Girl Power": *Female Participation in Top Management and Firm Performance* 6–12 (Robert H. Smith Sch. of Bus., Research Paper No. RHS 06-104, 2008), available at <http://ssrn.com/abstract=1088182>.

25. *Id.* at 7–8 (suggesting that women may bring particular strengths to research intensive industries, thus the "female participation effect should be particularly significant when collaboration and creativity are especially important"); *id.* at 16.

26. Adams & Ferreira, *supra* note 4, at 292.

27. *Id.* at 307.

28. *Id.* Board gender diversity appears to improve performance of firms with weak governance, but in firms with strong governance, gender diversity may lead to "overmonitoring." *Id.* at 306–07.

29. See Blake E. Ashforth & Fred Mael, *Social Identity Theory and the Organization*, 14 ACAD. MGMT. REV. 20, 21 (1989); Jan E. Stets & Peter J. Burke, *Identity Theory and Social Identity Theory*, 63 SOC. PSYCHOL. Q. 224, 225 (2000).

30. See Elizabeth Mannix & Margaret A. Neale, *What Differences Make a Difference? The Promise and Reality of Diverse Teams in Organizations*, 6 PSYCHOL. SCI. PUB. INT. 31, 39 (2005).

31. See Henri Tajfel & John C. Turner, *The Social Identity Theory of Intergroup Behavior*, in *PSYCHOLOGY OF INTERGROUP RELATIONS* 7, 15–16 (Stephen Worschel & William G. Austin eds., 2d ed. 1986).

elicit group conflict that interferes with efficacy. Diversity in race, ethnicity, and, to a lesser extent, sex, tends to bring about group conflict, hinder communication, and interfere with cooperation, thereby lowering performance.³²

Studies show mixed effects of gender diversity on problem-solving efficacy.³³ Compositional theories of “tokenism” and “stereotype threat” suggest that when members of minority groups rise in an occupation, they face expectations that make it difficult to perform to their potential.³⁴ Kanter argues that when a group has only token representation, members face pressures that may adversely affect their performance.³⁵ Stereotype threat research suggests that when the status of a minority group is made salient through experimental manipulation, members of that group may

32. See generally Williams & O'Reilly, *supra* note 21 (reviewing eighty studies to determine the impact of demographic diversity on organizational performance). One field study found that negative effects of gender, racial, and tenure diversity were greatest when they were found together on the same team. See Susan E. Jackson & Aparna Joshi, *Diversity in Social Context: A Multi-Attribute, Multilevel Analysis of Team Diversity and Sales Performance*, 25 J. ORGANIZATIONAL BEHAV. 675, 695 (2004). For other studies of the relationship between team diversity and performance, see generally Sigal G. Barsade et al., *To Your Heart's Content: A Model of Affective Diversity in Top Management Teams*, 45 ADMIN. SCI. Q. 802 (2000) (examining the influence of diversity on individual attitude and group performance); Jennifer A. Chatman & Francis J. Flynn, *The Influence of Demographic Heterogeneity on the Emergence and Consequences of Cooperative Norms in Work Teams*, 44 ACAD. MGMT. J. 956 (2001) (studying the relationship between the development of cooperative norms and the negative effects of diversity among teams); Jackson et al., *supra* note 8 (surveying sixty-three studies on the topic of workplace diversity); Jonathan S. Leonard et al., *Do Birds of a Feather Shop Together? The Effects on Performance of Employees' Similarity with One Another and with Customers*, 25 J. ORGANIZATIONAL BEHAV. 731 (2004) (studying the relationship between retail business performance and diversity of employees and customers); Lisa Hope Pelled, *Demographic Diversity, Conflict, and Work Group Outcomes: An Intervening Process Theory*, 7 ORG. SCI. 615 (1996) (suggesting that different types of diversity and conflict will result in different rates of job turnover and task performance).

33. Studies often find neutral effects of gender diversity. See Orlando C. Richard, *Racial Diversity, Business Strategy, and Firm Performance: A Resource-Based View*, 43 ACAD. MGMT. J. 164, 172 (2000) (finding nonsignificant effects of gender diversity). Studies exploring multiple outcomes have shown that gender diversity produces different effects across these outcomes. See Jehn & Bezrukova, *supra* note 7, at 713 (finding that gender diversity was positively correlated with average bonus across a work group, yet negatively associated both with individual and group performance); cf. Jackson & Joshi, *supra* note 32, at 683, 692–93 (demonstrating that effects of gender diversity are dependent in part on the presence or absence of other diversity characteristics).

34. Barbara F. Reskin et al., *The Determinants and Consequences of Workplace Sex and Race Composition*, 25 ANN. REV. SOC. 335, 347–49 (1999).

35. See ROSABETH MOSS KANTER, *MEN AND WOMEN OF THE CORPORATION* 210–12 (1977). Tokens often feel that they face extra scrutiny from majority group members, who judge them as representatives of their group (whether gender, race, or ethnic) rather than as individuals. *Id.* at 214–16.

underperform because they feel they are being judged as group members rather than as individuals.³⁶ Majority group members may stigmatize them and underestimate their contributions.³⁷

The psychological research thus suggests that we may see either positive or negative effects of board diversity on corporate performance. Boards with women may solve problems more effectively because they hold a wider range of perspectives,³⁸ but diversity may also thwart problem solving by raising conflict.³⁹ If diversity is affecting corporate performance by influencing board capacities, we should see effects first on corporate profitability and then on stock returns. A number of studies have shown that investors, and particularly full-time professional fund managers, pay significant attention to board behavior, board structure, and board governance regimes.⁴⁰

II. RESEARCH ON BOARD DIVERSITY AND PERFORMANCE

Analysts have explored the effects of board diversity on both profitability and stock valuation.⁴¹ 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.⁴²

36. See Steven J. Spencer et al., *Stereotype Threat and Women's Math Performance*, 35 J. EXPERIMENTAL SOC. PSYCHOL. 4, 5–6 (1999); Claude M. Steele & Joshua Aronson, *Stereotype Threat and the Intellectual Test Performance of African Americans*, 69 J. PERSONALITY & SOC. PSYCHOL. 797, 798–99 (1995).

37. SUSAN EHRLICH MARTIN, *BREAKING AND ENTERING: POLICEWOMEN ON PATROL* 205–06, 216 (1980).

38. PAGE, *supra* note 7, at 131–37.

39. Karen A. Jehn et al., *Why Differences Make a Difference: A Field Study of Diversity, Conflict, and Performance in Workgroups*, 44 ADMIN. SCI. Q. 741, 744–45 (1999); Lisa Hope Pelled et al., *Exploring the Black Box: An Analysis of Work Group Diversity, Conflict, and Performance*, 44 ADMIN. SCI. Q. 1, 2–6 (1999).

40. See MICHAEL USEEM, *INVESTOR CAPITALISM: HOW MONEY MANAGERS ARE CHANGING THE FACE OF CORPORATE AMERICA* 209 (1996); Diane Del Guercio & Jennifer Hawkins, *The Motivation and Impact of Pension Fund Activism*, 52 J. FIN. ECON. 293, 293 (1999); Stuart L. Gillan & Laura T. Sparks, *Corporate Governance Proposals and Shareholder Activism: The Role of Institutional Investors*, 57 J. FIN. ECON. 275, 284 (2000); Sunil Wahal, *Pension Fund Activism and Firm Performance*, 31 J. FIN. & QUANTITATIVE ANALYSIS 1, 9 (1996).

41. See, e.g., *2007 Census: Board Directors*, *supra* note 1, at 1.

42. See, e.g., Adams & Ferreira, *supra* note 4, at 292, 306 (arguing that previous studies showing a positive correlation between performance and gender diversity cannot be “given causal interpretations” because they did not account for endogeneity—the inclusion of which likely would have resulted in a negative effect); R. Øystein Strøm, *Three Essays on Corporate Boards* 25 (Jan. 2008) (unpublished Dr. Oecon. dissertation, BI Norwegian School of Management), [http://web.bi.no/forskning/papers.nsf/0/5cf6b4869a5ac94cc12573b4004128ac/\\$FILE/2008-01-strom.pdf](http://web.bi.no/forskning/papers.nsf/0/5cf6b4869a5ac94cc12573b4004128ac/$FILE/2008-01-strom.pdf) (finding a negative correlation

The studies that show positive effects use cross-sectional data or observations across very short time periods, and thus are prone to problems of endogeneity; these studies, in short, do not rule out reverse causation.⁴³ If we examine board diversity and performance cross-sectionally in 2011, we may well see a positive correlation. But has that correlation come about because firms that appoint women experience improvements in performance, or because firms with strong profits and share prices are more likely to appoint women to their boards?

Perhaps the best-publicized study linking board diversity to profitability is Catalyst's comparison of over 500 leading U.S. firms between 2001 and 2004.⁴⁴ Catalyst concluded 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.⁴⁵ Similarly, Erhardt, Werbel, and Shrader looked at 112 leading firms over five years and found a positive relationship between board diversity (gender, race, ethnicity) and both ROI and return on assets (ROA), but they suggest that performance may be inducing diversity rather than vice versa.⁴⁶ Carter, D'Souza, Simkins, and Simpson looked at the gender and racial composition of Fortune 500 board committees between 1998 and 2002, finding select positive effects of diversity on ROA.⁴⁷ None of these studies, however, tackled the problem of reverse causation.⁴⁸

Studies that attempted to rule out reverse causation tended to find either no effect of board diversity on profits or stock price, or to find negative effects. In the first camp are several studies using panel data over a number of years. Zahra and Stanton found no effect generally and some evidence of a negative effect among large American firms in the 1980s.⁴⁹ The Scandinavian countries were leaders in promoting board gender diversity; however, a recent study

between gender diversity and performance at Norwegian firms once endogeneity is controlled for).

43. See Adams & Ferreira, *supra* note 4, at 292. For a sample of such a study, see 2007 Census: Board Directors, *supra* note 1, at 1.

44. See 2007 Census: Board Directors, *supra* note 1, at 1.

45. *Id.*

46. Erhardt et al., *supra* note 2, at 102–03, 109.

47. Carter et al., *supra* note 2, at 410–11.

48. See Kevin Campbell & Antonio Minguez-Vera, *Gender Diversity in the Boardroom and Firm Financial Performance*, 83 J. BUS. ETHICS 435, 436 (2008).

49. See Zahra & Stanton, *supra* note 3, at 233.

showed no effect of gender diversity on stock performance (Tobin's *q*) in a sample of 443 Danish firms.⁵⁰

In the second camp—studies finding negative effects—Smith, Smith, and Verner used panel data on 2,500 Danish firms to explore several performance measures.⁵¹ Female outside directors showed negative effects, though female inside directors showed positive effects.⁵² In their 2009 study, Adams and Ferreira used panel data between 1996 and 2003 on 1,939 large American firms.⁵³ Theirs is possibly the most sophisticated and transparent analysis published to date. While they found that boards with more women do better at monitoring firms, they also found negative effects of women board members on both Tobin's *q* and ROA.⁵⁴ In particular, in the simplest, ordinary least squares models that are not designed to eliminate reverse causation, they found positive gender diversity effects, but using two different techniques for handling endogeneity (reverse causation), they found statistically significant negative effects on profits and stock value, and using a third technique they found negative but nonsignificant effects.⁵⁵

Taken together, these studies are consistent with the idea that firms that are having good runs are more likely to appoint women, but once appointed, women have neutral or negative effects on performance. Several studies addressed this idea directly. Farrell and Hersch examined 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 but that female directors do not affect subsequent performance.⁵⁶ Adams and Ferreira found that Tobin's *q*, but not ROA, predicts the appointment of female directors,⁵⁷ but, as noted, female directors have subsequent negative

50. Rose, *supra* note 3, at 410–11.

51. Smith et al., *supra* note 4, at 569.

52. *Id.* at 588.

53. Adams & Ferreira, *supra* note 4, at 293.

54. *Id.* at 307.

55. *Id.* at 305–06. The three approaches to dealing with endogeneity, or reverse causation, are fixed effects models, fixed effects models with instrumental variables, and one-step Arellano and Bond models with lagged dependent variables. *Id.* These models use different approaches to handling reverse causation, but note that with any of the strategies for dealing with reverse causation, the positive effects of board diversity on both profits and stock price go away. One may interpret these results as failing to conclusively establish that gender diversity on boards has negative effects, because the negative effects do not persist across all three modeling strategies, but the findings clearly suggest that reverse causation is at work in previous studies finding positive effects of diversity on performance. *Id.* at 292.

56. Farrell & Hersch, *supra* note 3, at 85.

57. Adams & Ferreira, *supra* note 4, at 306.

effects. They concluded: "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."⁵⁸ We concur with these recent studies, which suggest that the cross-sectional positive relationship found between board diversity and corporate performance is likely spurious—a consequence of reverse causation. The negative effects found in certain studies may be real, but we suggest a new mechanism to explain this effect: shareholder bias.

III. INSTITUTIONAL INVESTOR ACTIVISM, INSTITUTIONAL INVESTOR BIAS

We build on the growing body of organizational research showing that environmental factors frequently influence organization-level outcomes.⁵⁹ Several lines of research have suggested that key players in the equities markets influence both the internal decision processes in large corporations and the pricing of firms.⁶⁰ As institutional investors have come to control the lion's share of the stock of large corporations, firms in turn have become more attentive to the desires of institutional investors.⁶¹

Public pension funds and their associations, notably the Council of Institutional Investors, have actively promoted gender and racial diversity on corporate boards.⁶² Figure 1 indicates that they have had some success; in large firms, the proportion of female board members has risen, even as boards on average have become smaller. As firms are increasingly attentive to the desires of institutional investors,⁶³ we predict that firms that receive shareholder proposals in favor of board

58. *Id.* at 308.

59. See W. RICHARD SCOTT, INSTITUTIONS AND ORGANIZATIONS, at xx (2d ed. 2001).

60. See NEIL FLIGSTEIN, THE ARCHITECTURE OF MARKETS: AN ECONOMIC SOCIOLOGY OF TWENTY-FIRST-CENTURY CAPITALIST SOCIETIES 149 (2001); Gerald F. Davis et al., *The Decline and Fall of the Conglomerate Firm in the 1980s: The Deinstitutionalization of an Organizational Form*, 59 AM. SOC. REV. 547, 567 (1994); Ezra W. Zuckerman, *The Categorical Imperative: Securities Analysts and the Illegitimacy Discount*, 104 AM. J. SOC. 1398, 1401 (1999).

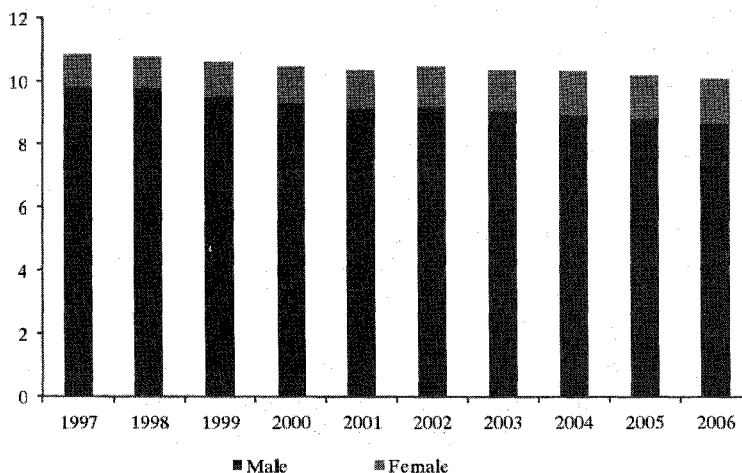
61. See Frank Dobbin & Dirk Zorn, *Corporate Malfeasance and the Myth of Shareholder Value*, 17 POL. POWER & SOC. THEORY 179, 188–90 (2005).

62. See, e.g., UNEP REPORT, *supra* note 14, at 67; USEEM, *supra* note 40, at 221–22; Carleton et al., *supra* note 14, at 1343.

63. USEEM, *supra* note 40, at 2–7 (providing examples of the "catalytic role of institutional investors" in various corporate restructurings); Gerald F. Davis & Tracy A. Thompson, *A Social Movement Perspective on Corporate Control*, 39 ADMIN. SCI. Q. 141, 141 (1994).

diversity will increase the representation of women on their boards. Our first prediction, then, is that shareholder proposals favoring board diversity will be followed by increases in gender diversity.

Figure 1: Mean Male and Female Directors in Sampled Firms



Our theory of the effect of diversity on institutional investor behavior combines elements from bias and accountability theories. First, laboratory and field studies show that gender and racial biases are widespread and that they influence career outcomes.⁶⁴ Bias toward members of other racial, ethnic, and gender groups has been widely documented.⁶⁵ Social cognition theory in psychology has shown that individuals categorize others automatically and “tend to feel, think, and behave toward that individual in the same way they tend to feel, think, and behave toward members of that social

64. For background and related statistical results, see the reviews in William T. Bielby, *Minimizing Workplace Gender and Racial Bias*, 29 CONTEMP. SOC. 120, 120 (2000); Barbara F. Reskin, *The Proximate Causes of Employment Discrimination*, 29 CONTEMP. SOC. 319, 320 (2000).

65. See John F. Dovidio et al., *On the Nature of Prejudice: Automatic and Controlled Processes*, 33 J. EXPERIMENTAL SOC. PSYCHOL. 510, 512 (1997); Susan T. Fiske, *Controlling Other People: The Impact of Power on Stereotyping*, 48 AM. PSYCHOLOGIST 621, 621 (1993); Anthony G. Greenwald & Mahzarin R. Banaji, *Implicit Social Cognition: Attitudes, Self-Esteem, and Stereotypes*, 102 PSYCHOL. REV. 4, 14-16 (1995); Cecilia L. Ridgeway, *Interaction and the Conservation of Gender Inequality: Considering Employment*, 62 AM. SOC. REV. 218, 218 (1997).

category more generally.”⁶⁶ They use social categorization to process multitudes of environmental cues rapidly, and they use sex and race as “master statuses.”⁶⁷ The literature on in-group preference suggests that people generally hold more positive views of people from their own race, ethnic, and gender group.⁶⁸ The literature on implicit association goes further, suggesting that even members of a demographic group hold the dominant biases about members of that group; even women associate men with leadership and competence.⁶⁹

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 equities markets, controlling some eighty percent of the shares of the large firms in our sample (see Figure 2). Moreover, because this group tracks changes in corporate strategy and governance, it is cognizant of shifts in board composition.⁷⁰ Fund managers can be expected to hold the same implicit associations that the rest of the population holds.⁷¹ Because investors are not accustomed to thinking of women as board members and tend to believe that women lack the human capital and business experience to be board members, we posit that institutional investors may react negatively to firms that appoint women board members.⁷² They may be less likely to favor such firms when making buy and sell decisions.

66. Susan T. Fiske et al., *The Continuum Model: Ten Years Later*, in DUAL-PROCESS THEORIES IN SOCIAL PSYCHOLOGY 231, 234 (Shelly Chaiken & Yaacov Trope eds., 1999).

67. Master statuses refer to the statuses that dominate others in a culture. HOWARD S. BECKER, *OUTSIDERS: STUDIES IN THE SOCIOLOGY OF DEVIANCE* 32–33 (1963). Gender is frequently a master status, whereas race and ethnicity vary in their salience across societies. *See id.* at 32.

68. *See* Charles W. Perdue et al., *Us and Them: Social Categorization and the Process of Intergroup Bias*, 59 J. PERSONALITY & SOC. PSYCHOL. 475, 475 (1990).

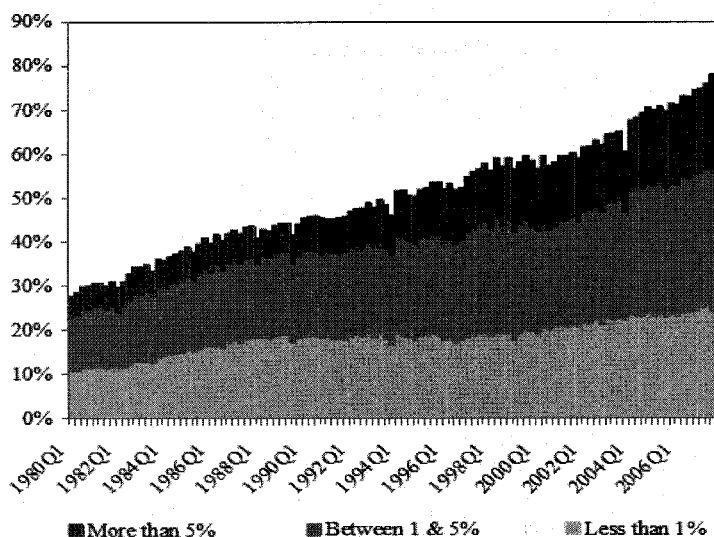
69. *Cf.* Greenwald & Banaji, *supra* note 65, at 15 (“[E]ssays were judged more favorably when attributed to authors with male rather than female names.”); John T. Jost et al., *A Decade of System Justification Theory: Accumulated Evidence of Conscious and Unconscious Bolstering of the Status Quo*, 25 POL. PSYCHOL. 881, 911 (2004) (“[R]eminders of benevolent and complementary gender stereotypes increase both gender-specific and diffuse support for the system among women respondents . . .”).

70. *See* sources cited *supra* note 40.

71. *Cf.* Greenwald & Banaji, *supra* note 65, at 15 (“Numerous findings have established automatic operation of stereotypes.”).

72. Surveys show that those responsible for director selection believe that women lack adequate human capital for board positions. *See* Ronald J. Burke, *Women on Corporate Boards of Directors: Understanding the Context*, in WOMEN ON CORPORATE BOARDS OF DIRECTORS: INTERNATIONAL CHALLENGES AND OPPORTUNITIES 179, 186 (Ronald J. Burke & Mary C. Mattis eds., 2000). Moreover, women directors are in fact more likely to come from nonbusiness backgrounds, and in business they more often hold “soft”

Figure 2: Average Institutional Investor Stake in Sampled Companies, by Size of Holdings



One reason to believe that the gender composition of boards will not alter stock performance by influencing board efficacy is that other board characteristics show little effect. Even the governance norms championed by agency theorists as the key to strong financial performance—outside directors, small board size, and independent chairmen—have shown mixed effects on performance.⁷³ One

management positions in human resources, corporate social responsibility, or advertising. Amy J. Hillman et al., *Women and Racial Minorities in the Boardroom: How Do Directors Differ?*, 28 J. MGMT. 747, 754 (2002); Idalene F. Kesner, *Directors' Characteristics and Committee Membership: An Investigation of Type, Occupation, Tenure, and Gender*, 31 ACAD. MGMT. J. 66, 71 (1988); Winfried Ruigrok et al., *Nationality and Gender Diversity on Swiss Corporate Boards*, 15 CORP. GOVERNANCE 546, 551 (2007); Deborah Dahlen Zelechowski & Diana Bilimoria, *Characteristics of Women and Men Corporate Inside Directors in the US*, 12 CORP. GOVERNANCE 337, 337–42 (2004).

73. Sanjai Bhagat & Bernard Black, *The Uncertain Relationship Between Board Composition and Firm Performance*, 54 BUS. LAW. 921, 922 (1999) (“[S]tudies of overall firm performance have found no convincing evidence that firms with majority-independent boards perform better than firms without such boards.”); Theodore Eisenberg et al., *Larger Board Size and Decreasing Firm Value in Small Firms*, 48 J. FIN. ECON. 35, 35 (showing that large boards are associated with poor share performance in large and small firms, respectively); Jeffrey N. Gordon, *The Rise of Independent Directors in the United States, 1950–2005: Of Shareholder Value and Stock Market Prices*, 59 STAN. L. REV. 1465, 1499–1500 (2007) (showing that independent directors become increasingly popular); Michael C. Jensen, *The Modern Industrial Revolution, Exit and the Failure of Internal Control Systems*, 48 J. FIN. 831, 865 (1993) (arguing that small, agile boards

Canadian study found that while female officers have positive effects on performance, female directors show no effects.⁷⁴ If board “best practices” do not typically influence profits or stock price by improving board efficacy, should we expect the appointment of one woman to a board of ten men to do so? Our second prediction is that institutional investors will reduce their holdings of firms that appoint women to their boards, thereby reducing the value of those firms.

While we expect the average institutional investor to react to the appointment of female board members by lowering, albeit unconsciously, his opinion of the firm, we expect that accountability may attenuate this process. Accountability theory suggests that people who expect others to scrutinize their behavior will self-censor and be less likely to act on their biases.⁷⁵ 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 self-correct.⁷⁶ This should apply to two groups of institutional investors: blockholders and public pension funds. First, an institutional investor with a large stake attracts attention when she reduces her position in a company. Since 1975, most investors with more than \$100 million under management have been required to report the companies they hold and the value of their holdings to the Securities and Exchange Commission (SEC) every quarter.⁷⁷ A number of services compile these data,⁷⁸ which are available directly from the SEC website.⁷⁹ Second, leading *public-sector* pension funds have actively promoted diversity on corporate boards through shareholder proposals,⁸⁰ and

dominated by outsiders will improve corporate performance); David Yermack, *Higher Market Valuation of Companies with a Small Board of Directors*, 40 J. FIN. ECON. 185, 185 (1996).

74. Claude Francoeur et al., *Gender Diversity in Corporate Governance and Top Management*, 81 J. BUS. ETHICS 83, 93 (2008).

75. See Philip E. Tetlock, *The Impact of Accountability on Judgment and Choice: Toward a Social Contingency Model*, 25 ADVANCES EXPERIMENTAL SOC. PSYCHOL. 331, 352 (1992).

76. See Philip E. Tetlock & Jennifer S. Lerner, *The Social Contingency Model: Identifying Empirical and Normative Boundary Conditions on the Error-and-Bias Portrait of Human Nature*, in DUAL-PROCESS THEORIES IN SOCIAL PSYCHOLOGY, *supra* note 66, at 571, 575.

77. Thomas P. Lemke & Gerald T. Lins, *Disclosure of Equity Holdings by Institutional Investment Managers: An Analysis of Section 13(f) of the Securities Exchange Act of 1934*, 43 BUS. LAW. 93, 93 (1987).

78. See, e.g., IMONEYNET, <http://imoney.net> (last visited Feb. 22, 2011); WHALE WISDOM, <http://whalewisdom.com> (last visited Feb. 22, 2011).

79. U.S. SEC. & EXCH. COMM’N, <http://www.sec.gov> (last visited Feb. 22, 2011).

80. See, e.g., UNEP REPORT, *supra* note 14, at 67; USEEM, *supra* note 40, at 221–22; Carleton et al., *supra* note 14, at 1343.

we expect that they will be more careful to behave in accordance with this activism by supporting firms that appoint women to boards. Our third prediction is that blockholding institutional investors and public pension funds will not reduce their holdings in companies that increase the share of women on their boards.

IV. 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 log odds of female directors to see if shareholder proposals have an effect.⁸¹

Second, we expect that bias leads institutional investors to disfavor companies that appoint women directors, and thus we expect that gender diversity will depress stock price. If the presence of women directors depresses stock price without affecting profitability, we will conclude that institutional investor bias is a more likely mechanism than poor board performance. Decreases in board competence should first depress profits, then stock price.

Third, we look at whether increases in board diversity shape institutional investor holdings, to explore the possibility that bias causes investors to decrease their holdings in firms that increase board diversity. We do not expect blockholders or public pension funds to decrease their holdings. Both groups, we suggest, will monitor their own behavior for signs of bias in anticipation of public scrutiny.

A. Sample

The sample is drawn from large U.S. firms that operate in a representative group of industries. The sampling frame is *Fortune's* list of America's 500 largest companies,⁸² supplemented with industry-specific *Fortune* lists and the *Million Dollar Directory*⁸³ for certain industries. The sample is stratified by industry, with nearly equal numbers of firms from aerospace, apparel, building materials,

81. We log the dependent variable because absolute changes in women on boards are typically quite small. JOHN FOX, *APPLIED REGRESSION ANALYSIS, LINEAR MODELS, AND RELATED METHODS* 78 (1997). We use the odds (proportion/(1-proportion)) rather than the proportion because its distribution is closer to normal. *Id.*

82. *The Fortune 500 and Breaking Business News*, CNNMONEY.COM, <http://money.cnn.com/magazines/fortune/fortune500> (last visited Feb. 22, 2011).

83. See generally DUN & BRADSTREET, *MILLION DOLLAR DIRECTORY* (1965–2005, odd years only) (listing information about top companies).

chemicals, communications, computers, electrical machinery, entertainment, food, health care, machinery, metals, oil, paper, pharmaceuticals, publishing, retail, textiles, transportation, transportation equipment, utilities, and wholesale. Conglomerates are classed with the industry that accounts for the lion's share of their business. Fifteen of the twenty-two industries are sampled exclusively from the Fortune 500 lists. Utilities, health care, and entertainment are not included in the Fortune 500 list, which was originally limited to industrial firms, and some sectors are included only in certain periods. We use specialized Fortune lists of the fifty largest firms in particular service industries. The sample is drawn from all firms on the relevant lists between 1965 and 2005, and so the sample captures both declining and rising industries. We analyze data on 432 major American corporations for the period 1997 to 2006. We analyze between 2,882 and 3,016 spells, or corporation-years, of data.

B. Variables

Dependent variables are measured a year after independent variables. In the first analysis, we examine factors that influence the appointment of women to boards of directors. We model the log odds (proportion/(1-proportion)) of women, following the convention in studies of workforce composition.⁸⁴ We use log odds rather than log proportion because its distribution is closer to normal.⁸⁵

In the second set of analyses, we examine the effects of women board members on profits and stock returns. The key independent variable is a simple count of women board members (log odds and log percent produced substantively similar findings). For profits we use ROA rather than ROE. These are the two conventional measures of profitability, and we use the former because it is conceptually distinct from stock performance. The two measures performed similarly in the analysis.⁸⁶ For stock performance we use Tobin's q , the ratio of

84. See, e.g., Barbara F. Reskin & Debra Branch McBrier, *Why Not Ascription? Organizations' Employment of Male and Female Managers*, 65 AM. SOC. REV. 210, 217 (2000).

85. FOX, *supra* note 81, at 78; ERIC A. HANUSHEK & JOHN E. JACKSON, STATISTICAL METHODS FOR SOCIAL SCIENTISTS 188 (1977); Reskin & McBrier, *supra* note 84, at 217. Because log-odds (logit) is undefined at values of 0 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 . The results were robust to different substitutions for zero. We chose the one that kept the distribution uni-modal and closest to normal.

86. In particular, female directors showed nonsignificant effects on both outcomes; both of the conventional measures of profitability were unaffected by board gender diversity.

the stock market value of a firm to the replacement value of its assets, which is widely viewed as the best measure of a firm's market value.⁸⁷ 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. Investors are broken down by both the size of their investments in the company ($\geq 5\%$ and $< 5\%$) and the segment of the industry they are in (banks, insurance companies, investment companies, investment advisors, and public pension funds). Investment companies include the leading mutual funds, such as Fidelity, Vanguard, and Putnam.⁸⁸ Investment advisors include the leading investment services, which counsel investors and perform trades on their behalf.⁸⁹ Barclays PLC, Goldman Sachs Group, and Morgan Stanley are among the largest. 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 Standard and Poor's *Register of Corporations, Directors, and Executives*⁹⁰ and the Investor Responsibility Research Center (IRRC),⁹¹ 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.⁹² The entropy index of diversification is calculated using data from the Compustat Industry Segment database.⁹³

C. Method

For each type of outcome, we present pooled, cross-sectional time-series models for the period 1996 to 2007, with fixed firm and

87. Philip G. Berger & Eli Ofek, *Diversification's Effect on Firm Value*, 37 J. FIN. ECON. 39, 47 (1995); Dezs & Ross, *supra* note 24, at 6 n.4; Art Durnev et al., *Value-Enhancing Capital Budgeting and Firm-Specific Stock Return Variation*, 59 J. FIN. 65, 66 (2004); Andrew King & Michael Lenox, *Exploring the Locus of Profitable Pollution Reduction*, 48 MGMT. SCI. 289, 291 (2001); Lang & Stulz, *supra* note 23, at 1249; Wernerfelt & Montgomery, *supra* note 23, at 247.

88. Murat Binay, *Performance Attribution of US Institutional Investors*, FIN. MGMT., Summer 2005, at 127, 150.

89. *Id.*

90. See generally STANDARD & POOR'S CORP., STANDARD & POOR'S REGISTER OF CORPORATIONS, DIRECTORS AND EXECUTIVES (1973–2005, odd years only) (providing quantitative data on corporate directors and boards).

91. Among other initiatives, the IRRC Institute provides funding for research on corporate governance, and in exchange for the grants, the Institute requires that the final research be made freely available. *IRRC Grant Funding*, IRRC INST., <http://www.irrc.institute.org/about.php?page=grants&nav=3> (last visited Feb. 22, 2011).

92. COMPUSTAT, <http://www.compustat.com> (last visited Feb. 22, 2011).

93. See *id.*

year effects. The dependent variables in all models are measured a year after the independent variables. 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. The first analysis explores the causes of change in board composition. The second analysis explores the effects of the gender composition of boards on Tobin's q and ROA. The third analysis explores the effects of change in gender composition on the equity positions of blockholding and non-blockholding institutional investors, and then separately on the positions of banks, insurance companies, mutual funds, investment advisors, and public pension funds.

We use pooled cross-sectional time series data to investigate these relationships. We use fixed firm effects to account for unobserved characteristics that do not vary over time, such as industry and region. We use fixed year effects to account for shifts in the environment that affect all firms similarly. Corporation and year fixed effects offer an efficient means of dealing with nonconstant variance of the errors (heteroskedasticity) stemming from the cross-sectional and temporal aspects of the pooled data.⁹⁴

V. FINDINGS

We find that institutional investors do promote gender diversity on boards through shareholder proposals favoring 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, or perhaps confirming what previous studies have implied: boards don't much matter. But an increase in gender diversity on boards is followed by a significant decrease in stock value. The fact that board diversity has no effect on profits, but a negative effect on stock price, lends support to our thesis that institutional investors may sell the stock of firms that appoint women to their boards—not because profits suffer, but because they are biased against women.

Board gender diversity shows a clear pattern of effects on institutional investor holdings that supports our bias and accountability apprehension theses. Non-blockholding institutional investors significantly decrease their positions in firms that increase

94. The fixed effects provide an efficient solution to the problem of heteroskedasticity—the nonconstant variance of the errors—which results from the fact that there are multiple observations of each firm. CHENG HSIAO, *ANALYSIS OF PANEL DATA* 31 (1986).

women directors. This supports our thesis about investor bias. Blockholding investors significantly increase their positions in response to increased gender diversity. When we break down institutional investors into categories, there is a significant positive effect for blockholding public pension funds but no effect for non-blockholding public pensions, whereas the average non-blockholding investor responds negatively to an increase in board diversity. This pattern supports the accountability hypothesis, which suggests that blockholders and public pension funds are most likely to censor their own tendencies to exercise bias.

In Table 1 we investigate the effects of shareholder proposals on female board directorships. The fixed effects models with lagged dependent variables 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). Our first hypothesis is supported: firms that face shareholder proposals for board diversity do increase gender diversity among directors. Yet shareholder proposals on other issues do not show effects. We find a number of other interesting effects. Financial conditions little affect the appointment of women; profits (ROA), stock value (Tobin's *q*), and cumulative stock returns show no effects. A reduction in assets increases the likelihood that a firm will see increases in female directorships, which suggests that growing firms are less likely to appoint women. We control for corporate governance characteristics, including independent directors, affiliated directors, number of directors, and CEO/Chair structure. These factors are unrelated to the appointment of female directors. CEO tenure is negatively related to female directorships, likely because recently appointed CEOs champion women directors. As the average tenure of female directors increases, the number of female directors increases. As the average tenure of male directors increases, the number of female directors decreases. Increases in women in management lead to increases in women on the board, but the opposite is true for increases in the total number of female employees.

Table 1: Fixed Effects Model Predicting Log Odds of Female Directors, 1997–2006

Female Managers (%)	0.005*	(0.002)
Female Employees (%)	-0.005*	(0.002)
Average Tenure of Female Directors (log)	0.289***	(0.025)
Average Tenure of Male Directors (log)	-0.148***	(0.032)
Female CEO	0.437***	(0.133)
Female Executives on Top Mgmt. Teams (log %)	0.014*	(0.006)
Independent Directors (%)	-0.001	(0.001)
Affiliated Directors (%)	-0.002	(0.001)
Board Size	-0.004	(0.004)
CEO & Chair	0.023	(0.018)
CEO's Tenure (Logged)	-0.029**	(0.010)
Shareholder Proposal for Board Diversity	0.131**	(0.049)
Shareholder Proposal for Other Board Issues	0.003	(0.019)
Shares Held by Blockholders (%)	0.001	(0.001)
Institutional Ownership	0.0003	(0.001)
ROA	0.001	(0.001)
Tobin's q	0.004	(0.007)
Cumulative Stock Returns	0.006	(0.010)
Assets (Logged)	-0.048*	(0.020)
Firm Age (Logged)	-0.006	(0.014)
Year Fixed Effects	Included	
Constant	-1.065	(0.566)
R^2		0.193
No. Firm Years		3,069
No. Firms		415

* $p < .05$; ** $p < .01$; *** $p < .001$

In Table 2, we analyze the effects of female directors on firm performance and on institutional investor shareholding. When it comes to performance, we find that female directors do not affect ROA but have significant negative effects on Tobin's q . This provides some support for the notion that institutional investors do not like to see firms appoint women directors. 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, while changes 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. Institutional ownership also has a positive effect, likely because institutional investors buy firms with good prospects or because their activism improves performance. Affiliated directors (those with family or previous employment ties to the firm) have negative effects on ROA, which we may take as support for agency theory's dictum that independent directors are superior board members.

Table 2: Influence of Female Directors on Stock Value, Profits, and Institutional Investor Shareholding, 1997–2006

	Tobin's Q	ROA	All Institutions	Banks	Insurance Companies	Investment Companies	Investment Advisors	Public Pension Funds
	≥5%	<5%	≥5%	<5%	≥5%	<5%	≥5%	<5%
Female Directors	-0.076** (0.038)	-0.168 (0.194)	-0.839* (0.349)	0.138 (0.118)	-0.060 (0.115)	-0.496* (0.236)	0.194 (0.240)	0.030** (0.010)
Female CEO	0.089 (0.532)	0.045 (2.757)	3.774 (4.968)	-0.086 (1.672)	-0.056 (1.638)	0.457 (3.351)	-0.826 (3.412)	-0.011 (0.479)
Female Top Managers (log %)	0.006 (0.003)	0.003 (0.016)	-0.007 (0.029)	0.034*** (0.010)	-0.011 (0.010)	0.014 (0.020)	0.025 (0.020)	-0.002 (0.001)
Outside Directors (%)	-0.001 (0.003)	-0.026 (0.016)	-0.011 (0.028)	0.010 (0.030)	0.019* (0.009)	-0.021 (0.019)	-0.018 (0.019)	0.001 (0.001)
Board Size	0.0002 (0.003)	-0.077 (0.068)	-0.149 (0.123)	0.004 (0.041)	0.050 (0.043)	-0.151 (0.083)	-0.059 (0.084)	0.005 (0.012)
CEO & Chair	-0.047 (0.053)	-0.202 (0.269)	0.508 (0.485)	0.054 (0.163)	0.045 (0.091)	-0.013 (0.327)	0.403 (0.333)	0.013 (0.014)
Institutional Ownership	0.003 (0.002)	0.059*** (0.010)	0.485 (0.002)	0.163 (0.010)	0.160 (0.010)	0.327 (0.010)	0.333 (0.010)	0.047 (0.010)
Shareholder Prop. Bd. Diversity	-0.087 (0.161)	-0.235 (0.795)	-0.667 (1.433)	-0.109 (0.482)	-0.124 (0.472)	-1.346 (0.966)	0.257 (0.984)	-0.006 (0.043)
Diversification (Entropy Index)	0.021 (0.077)	0.210 (0.391)	0.049 (0.706)	0.404 (0.238)	-0.056 (0.233)	0.457 (0.476)	-1.190* (0.485)	0.072 (0.068)
ROA	0.02*** (0.004)	0.03*** (0.013)	-0.092* (0.038)	0.005 (0.041)	-0.008 (0.013)	-0.040 (0.026)	0.133*** (0.026)	0.0003 (0.001)
Systematic Risk (Beta)	-0.195*** (0.064)	-1.555*** (0.322)	2.273*** (0.589)	0.296 (0.633)	-0.018 (0.194)	-1.167*** (0.397)	0.376 (0.405)	0.027 (0.017)
Unsystematic Risk	-0.864 (1.187)	-15.868*** (6.013)	-18.465 (10.829)	-0.167 (3.645)	-0.610 (3.569)	-0.024 (7.303)	-17.551* (7.436)	0.085 (0.322)
Debt-to-Equity Ratio	-0.0004 (0.001)	-0.006 (0.007)	-0.032 (0.013)	0.001 (0.014)	-0.001 (0.004)	-0.007 (0.008)	-0.007 (0.009)	-0.002 (0.001)
Dividend Yield (Logged)	-0.270*** (0.063)	-1.655*** (0.319)	0.361 (0.568)	0.163 (0.191)	-0.395*** (0.155)	0.174 (0.383)	-2.286*** (0.390)	-0.149*** (0.017)
Firm Size (Log Assets)	-0.752*** (0.068)	-2.715*** (0.344)	-1.039 (0.624)	0.063 (0.210)	-0.274 (0.206)	0.697 (0.421)	-1.613*** (0.288)	0.082 (0.019)
Firm Age	-0.049 (0.051)	0.618* (0.261)	-0.302 (0.469)	-0.042 (0.158)	0.051 (0.155)	-0.266 (0.317)	1.554*** (0.322)	-0.013 (0.014)
Year Fixed Effects	Included	Included	Included	Included	Included	Included	Included	Included
Constant	9.995*** (2.052)	4.678 (10.470)	33.495 (18.897)	1.442 (6.360)	-1.708 (6.228)	13.014 (12.745)	21.859 (12.976)	-0.005 (0.561)
R ²	0.155	0.094	0.075	0.017	0.036	0.024	0.089	0.155
No. Firm Years	2,882	3,016	3,016	3,016	3,016	3,016	3,016	3,016
No. Firms	415	432	432	432	432	432	432	432

*p<0.05; **p<0.01; ***p<0.001

In the subsequent models in Table 2, we explore the effects of female board membership on institutional shareholding. We break shareholders down into blockholders (with five percent or more of the company's stock) and non-blockholders (everyone else). Large funds need not necessarily be blockholders, but most blockholders are large funds in the present analysis because we are looking at investments in leading firms in each industry, and hence the capital requirements of blockholding are substantial.

We predicted that institutional investors would shy away from firms that appoint women to their boards, perhaps unwittingly acting on widespread gender biases. We expected this pattern to be moderated, or reversed, among investors who could expect their behavior to be scrutinized by the media and by investors. In particular, we expected anticipation of accountability to cause blockholders and public pension funds to censor their own inclinations to act on biases. Public pension funds spearheaded the call for board diversity, so perhaps they were sensitized by apprehension of accusations of hypocrisy.

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. Reports about financial performance and prospects surely drive their core buying strategies (for nonindexed funds at least), but if their buying and selling decisions are affected at the margins by changes in corporate board diversity, they are less likely than blockholders and public pension funds to self-censor.

While these findings are consistent with our models, we cannot be certain of why institutional investors show this pattern. The positive or neutral reactions of blockholders and public pension funds, contrasted with the negative reactions of other institutional investors, are consistent with our theory. But we cannot entirely rule out other mechanisms. One study found that TIAA-CREF fund managers believe that diverse boards are "less likely to be beholden to management" and thus more likely to behave in the interest of shareholders.⁹⁵ If that view were widely held, however, board diversity should lead to increases in institutional investor holdings across the board, as well as stock price, and that was not the pattern we observed. Broome and Krawiec find that firms appoint women and minorities to signal to workers, unions, and investors that they are committed to equality; perhaps institutional investors take this as

95. Carleton et al., *supra* note 14, at 1343.

a signal that firms are no longer focused on maximizing share value.⁹⁶ If that were the sole mechanism at work, we would expect blockholders and public pension fund managers to reduce holdings in firms that appoint women, and that is not the pattern we observe. Finally, it could be that fund managers take the appointment of a woman to be a sign that the board recognizes weaknesses in the firm and is making an effort to bring in new points of view.⁹⁷ Again, if that were the sole mechanism, we might expect to see a consistent pattern across different types of investors. Moreover, appointment of a member to broaden the board's perspective might be expected to bolster confidence among fund managers rather than to dampen it.

In our models predicting institutional investor holdings, the financial variables generally have consistent effects across the investor groups. ROA shows a negative effect on blockholding investment, perhaps because blockholders find it more difficult than non-blockholders to exit when a firm is not doing well. But small-holders generally favor firms with strong profits. Systematic risk generally has positive effects, and unsystematic risk shows a pattern of negative effects. Dividend yield shows a pattern of negative effects.

Agency theorists expect that corporate governance will affect profits and will thereby attract investment and drive up stock price. In particular, they advocate for independent directors, small boards, and a split between the CEO and chairman positions.⁹⁸ We expect institutional investors to favor companies that follow these prescriptions, and thus expect independent directors to increase institutional shareholding, and affiliated directors (those with work and family ties to the firm), board size, and CEO/Chair combination to reduce institutional shareholding. However, we do not see that pattern.

While firms that follow agency theory's corporate governance prescriptions do not attract significantly more shareholding by institutional investors, changes in the number of female directors do affect holdings. Among all institutional investors, female board members have significant positive effects on holdings by blockholders and significant negative effects on holdings by non-blockholders. When we look at the effects among different types of investors, there

96. Broome & Krawiec, *supra* note 11, at 448. We thank Kim Krawiec, James Cox, and Donald Langevoort for suggesting this interpretation to us.

97. We thank the editors of the *North Carolina Law Review* for suggesting this mechanism to us.

98. See, e.g., Eugene F. Fama, *Agency Problems and the Theory of the Firm*, 88 J. POL. ECON. 288, 293-94 (1980).

are significant positive effects of gender diversity for blockholding public pension funds and investment companies. By contrast, non-blockholding banks and investment companies significantly reduce their shares following increases in female board membership.

This pattern is consistent with our thesis that female directors show adverse effects on stock price in our study and in others, because non-blockholding institutional investors sell shares of companies that appoint women to their boards. While some groups of blockholders buy more shares in response to increases in the number of women on boards, non-blockholders control half of all shares and blockholders control less than a quarter of all shares (see Figure 2). The pattern of effects is consistent with bias on the part of non-blockholders, who control most shares.

Our proposition that unconscious bias is at work is reinforced by three other patterns. The first two involve our predictions about accountability apprehension. If bias is the mechanism leading to negative effects on institutional shareholding, we predicted, then accountability apprehension should moderate or reverse the effect for two groups. First, blockholders of shares in the large companies in our sample can be expected to be scrutinized by the market if they sell off shares. On average, blockholders actually increase their holdings in the wake of the appointment of female directors. We interpret this pattern to support the accountability apprehension thesis, and indeed it is consistent with findings from laboratory research showing that subjects favor women in a simulated pay allocation exercise to counter the known tendency to favor men.⁹⁹ It could be that blockholders favor women over men as board members, although the preponderance of psychological research suggests that women and men alike expect men to be superior at business activities.¹⁰⁰ Second, public pension funds can expect their behavior to be scrutinized after the appointment of women because those funds spearheaded board diversity shareholder proposals. Blockholding public pension funds increase their shareholdings in firms that add women directors, and non-blockholding public pensions do not significantly change their holdings.

99. Emilio J. Castilla & Steve Benard, *The Paradox of Meritocracy in Organizations*, 55 ADMIN. SCI. Q. 543, 563–65 (2010) (“One unpredicted finding . . . was that women received greater average bonuses in the non-meritocratic condition. . . . If the participants believed that managerial bias in the evaluation system disadvantaged women, they may have felt they needed to compensate or correct for this bias by favoring women.”).

100. See Fiske, *supra* note 65, at 622; Greenwald & Banaji, *supra* note 65, at 14–16; Ridgeway, *supra* note 65, at 218.

We are grateful to three early readers of the piece who suggested we explore a third pattern in the data that reinforces the proposition that board gender diversity elicits bias on the part of institutional investors. Those three readers independently suggested that investors may not be responding to the appointment of women *per se*, but to the signal that corporate management has moved from a value orientation to a political orientation. If investors respond negatively to firms that adopt a political orientation, we should find that when shareholder proposals for board diversity—which are thought to be motivated by gender politics—are followed by increases in board diversity, institutional investors will be particularly likely to reduce their holdings. In Table 2 we show that shareholder proposals for board diversity by themselves do not affect investors.¹⁰¹ In models not reported here, we interacted shareholder proposals for board diversity with female directors.¹⁰² If investors reduce their positions in firms that capitulate to political demands, we should see that when shareholder proposals for board diversity are followed by increases in female directors, investors flee. That is, the interaction of shareholder proposals and female directors should be significant and negative. Instead, the interactions are nonsignificant. This was true for every subgroup of institutional investors reported in Table 2 and for institutional investors as a whole. The failure of the interaction effect suggests two things: institutional investors do not favor firms that refuse to respond to shareholder proposals, and they do not disfavor firms that respond to shareholder proposals. They disfavor firms that appoint women regardless of whether those firms did so in the face of shareholder pressure. This gives us more confidence that the negative effects of board feminization seen in Table 2 are the result of institutional investor bias.

CONCLUSION

The effects of 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 affect profits directly and stock performance indirectly. Early cross-sectional studies suggested that board gender diversity has positive

101. There is only a single significant effect—on non-blockholding banks.

102. We experimented with two different specifications to represent immediate corporate reaction to shareholder proposals and delayed reaction (with shareholder proposals lagged an extra year and measured in the same year as female directors), and we found the same pattern.

effects on both profits and stock performance. However, studies using panel data and statistical methods designed to rule out endogeneity suggested that female directors tend to have neutral or negative effects. The big picture seems to be that gender board diversity does not help firms—and it may hurt them.

We offer another theory of the effect of board gender 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 eighty percent 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 see effects on both profits and stock value.

Our findings are consistent with the proposition that bias is affecting stock price. Female directors have negative effects on stock value and no effects on profits. The bias proposition 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.¹⁰³ These companies are expected to see improvements in profits, increases in stock price, and increases in holdings by professional fund managers. We find that companies that make these changes do not see increases in profits, stock value, or institutional holdings. 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 changes in the gender composition of boards affect performance via board efficacy?

As a further test of the bias thesis, we examined the accountability apprehension thesis that investors who could expect their behavior to be scrutinized by outsiders would censor their own bias. We posited that blockholding institutional investors would be more careful than non-blockholders to avoid the appearance of bias against firms that increased the share of women directors. We

103. Frank Dobbin & Jiwook Jung, *The Misapplication of Mr. Michael Jensen: How Agency Theory Brought Down the Economy and Why It Might Again*, 30B RES. SOC. ORGANIZATIONS 29, 30–31 (2010).

expected that public pension funds, which as a group led the charge for board diversity, would also take care not to respond negatively to the appointment of women to boards. These patterns were supported by the findings. Blockholders reacted positively to board diversity, and non-blockholding public pension funds did not react negatively.

We suggested that for non-blockholders, 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 of the shares, the aggregate effect of these two disparate patterns was to reduce the value of firms that appoint women directors.

Students of corporate governance should in future research move beyond the narrow band of theories that has informed research to date. In academic studies 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.¹⁰⁴ Insights from psychology and from economic sociology promise to enrich our understanding of financial markets.

104. See generally THE NEW ECONOMIC SOCIOLOGY: A READER (Frank Dobbin ed., 2004) (compiling the essential essays in the field of economic sociology); Roland Bénabou & Jean Tirole, *Intrinsic and Extrinsic Motivation*, 70 REV. ECON. STUD. 489 (2003) (reconciling competing economic and sociologic theories about the value of incentives).



