Gender Diversity and Skill Contribution to Corporate Boards

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ABSTRACT

This study demonstrates how gender diversity in corporate boards could improve firm value. Prior studies examine the valuation impact of gender-diverse boards and document mixed empirical evidence. To solve this conundrum, we must first understand how gender diversity could affect firm value. However, no prior studies examine nor suggest a mechanism that describes how female directors can be beneficial to corporate boards. Based on earlier findings that board heterogeneity of expertise improves firm value, we hypothesize and find evidence consistent with the argument that female directors contribute to boards by offering specific functional expertise, often missing from corporate boards.

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I. A Lack of Gender Diversity in American Corporate Boards

The average proportion of female directors on the boards of S&P 1500 firms has been increasing steadily, nearly doubling from 7% in 1998 to 14% in 2013. Despite these increases, there exists significant under-representation of women on U.S. corporate boards, particularly as compared to the proportion of women in the work force, which has averaged consistently around 46-47% during those 15 years (See Figure 1). Furthermore, as of 2013, about a quarter of S&P 1500 boards still have no women directors; the lack of gender diversity is especially severe in smaller firms. Among firms in the S&P SmallCap 600, S&P MidCap 400, and S&P 500 indices, 37%, 21%, and 7% have no women on their boards, respectively.

Outside the U.S., some legislators and regulators are actively trying to increase corporate board gender diversity. For example, recent regulatory developments in a number of OECD countries have either mandated or established voluntary female director quotas for corporate boards, or alternatively, required disclosure explaining the reason for a lack of gender diversity (with the goal that disclosure encourages greater representation of women on boards).[1] These regulations are often based on arguments claiming that gender-diverse boards positively affect firm valuation.

Nevertheless, whether gender diversity leads to higher firm value has been actively debated, with academic studies presenting mixed empirical evidence.[2] A highly important aspect of the identification of a relation between board gender diversity and firm value is understanding the mechanisms through which gender diversity could affect firm value, which is the goal of our study.

II. How Women Directors Contribute to Firm Performance

Some have argued that women directors can benefit corporate board performance through enhanced monitoring of management (e.g., Adams and Ferreira (2009)). An alternative mechanism through which women directors can contribute to board performance is through enhancing the boards' advisory effectiveness. Arguing that women directors add value to a firm through their advisory role requires that (i) the higher quality advice by the board positively impacts firm value and that (ii) women directors increase the board's advisory effectiveness. Kim and Starks

[1] For details, see Credit Suisse (2014, p. 49).

[2] See, for example, Adams and Ferreira (2009); Ahern and Dittmar (2012); Carter, Simkins, and Simpson (2003); among others, as well as the review in Adams, de Haan, Terjesen, and van Ees (2015).

(2015) show that the first requirement holds in that greater advisory effectiveness, as measured by heterogeneity of board expertise, is associated with higher firm value. This implies that diversifying the skill set of a board increases firm value. The rationale comes from Harrison and Klein (2007) who argue that variety in functional expertise in a group, which comes from differences in team members' relevant knowledge or experience, increases heterogeneity in the information endowment for the group. This diversified informational resource creates positive group outcomes such as higher decision quality, greater creativity, and innovation.[3] Similarly, Anderson, Reeb, Upadhyay, and Zhao (2011) argue (with empirical evidence) that director heterogeneity in experiences and backgrounds improves managerial monitoring and firm performance.

The second requirement would be met if women directors increase the variety of expertise on a board. We hypothesize that women provide specific types of functional expertise missing from the incumbent corporate boards, hence increasing variety in their boards' functional expertise. Functional expertise is a critical factor for nominating directors. Fama and Jensen (1983) argue that (outside) directors are appointed to the board to offer complementary functional expertise that internal managers lack. In a similar sense, Yermack (2006) points out that if CEOs care about the firms' share price, they will want "to surround themselves with strong, active boards filled with business experts, since the evidence indicates that shareholders have consistently rewarded companies for recruiting these directors."

If we find evidence consistent with our hypothesis and link it with the Kim and Starks (2015) results that satisfy the first requirement, the combination then represents a mechanism through which gender diversity in corporate boards increases firm value. To test our hypothesis, we employ data on director expertise made available by the 2009 SEC rule that requires corporate boards to provide disclosure in their proxy statements regarding the "skills, qualifications or particular area of expertise" that the boards consider important for each of their director.[4] Based on these disclosures, we categorize each director's expertise into 16 critical skill sets, as recommended by at least two organizations that advise on corporate board best practices (e.g., The Conference Board): Financial, Mergers & Acquisitions, Accounting, International, Operations, Technology, Marketing, Risk Management, Human Resources, Research & Development, Sustainability, Corporate Gover-

[3]Harrison and Klein (2007) consider these concepts with respect to organizations, in general, and do not specifically discuss boards of directors.

[4]SEC Final Rule No. 33-9089 Proxy Disclosure Enhancements.

nance, Regulatory/Legal/Compliance, Political/Government, Strategy, and Leadership.[5] Because the lack of gender diversity is most pronounced in small firms, we focus our analysis on firms in the S&P SmallCap 600 Index.[6]

We support our hypothesis with two sets of evidence. First, we examine new director appointments. The 594 directors, appointed to the S&P SmallCap 600 boards between 2010 and 2013, add 0.35 new skills missing from the incumbent board prior to their appointments.[7] More importantly, we find this skill addition to be larger when the 83 women directors are appointed to the boards, compared to when the 511 male counterparts are appointed: the newly appointed female directors contribute, on average, 0.53 additional new expertise to their boards, while new male directors bring 0.32 additional expertise, on average. The newly appointed women directors contribute a significantly different 0.21 more distinct types of expertise to incumbent corporate boards.[8]

Next, to further examine the effect of the proposed mechanism—whether the addition of women to corporate boards can have positive firm valuation effects—we need a hypothetical or "counterfactual" case in which a female director is present on an otherwise identical board comprised of only male directors. Obviously, observing corporate performance outcomes of such counterfactual is not possible. Alternatively we can compare the outcomes of two matched firms, where one firm has a female director on the board and the other does not. Unfortunately, even if we were able to find two sets of closely-matched firms, identifying the effect of female directors on corporate outcome is difficult. This is because each of the two matched firms may have a firm-specific attribute, which is unobservable to a researcher, that results in an endogenous choice to add (or not to add) female directors to the board.

In an attempt to overcome these problems, we take a novel approach by constructing a counterfactual board and then comparing the board composition between the actual (i.e., all-male) and the counterfactual (i.e., gender-diverse) boards. Specifically, we compare an attribute of the board that should significantly determine corporate performance, its advisory effectiveness as measured by variety of board expertise, rather than contrast the ex post outcome or juxtapose the ex ante

[5] See Kim and Starks (2015, Appendix B) for details.

[6] We analyze our results using large, mid-sized, and all S&P 1500 firms. Results are robust.

[7] The total new directors during this period is 1,153. However, we restrict attention to appointments where the exact appointment and departure dates are available to correctly capture the incumbent boards' membership and skill composition.

[8] Controlling for other director characteristics in an OLS regression, we find a 0.16 marginally significant coefficient on the female director indicator variable.

non-comparable firm characteristics. To measure the effect of female directors on board expertise variety, we compare the count of unique expertise types represented in the actual board to that of the counterfactual board. The base sample for this analysis is the 920 S&P SmallCap 600 boards with no female directors (6,784 male directors) between 2010 and 2013. In order to construct a counterfactual board, we randomly select one male director from the actual board and replace him with a matched female counterpart, who is serving as a director for another S&P SmallCap 600 board and is similar in ability (or reputation) and experience, two attributes likely to affect director qualification and nomination. We use the number of outside public firm board memberships as a measure of director ability/reputation, based on the evidence in Yermack (2004) and Fich (2005) of a relation between additional board memberships and the firm performance of the director's previous boards or CEO's own firm. We measure experience by director age.[9] Furthermore, to mitigate the possibility that our randomized matching technique systematically generates outliers, we re-iterate this process 1,000 times, by randomly re-selecting male directors and re-matching them with female directors, then compare the variety of expertise between the actual and counterfactual boards. The results show that the board expertise variety is higher for the counterfactual (i.e., gender-diverse) boards than that of the (paired) actual (i.e., all-male) board, on average. In 1,000 resampled iterations, the unique expertise type count of the counterfactual board exceeds that of the actual board in all cases.

These results suggest that adding female directors to corporate boards expands the variety of expertise available to the board (more so than adding male directors). The results of these analyses suggest that through their unique functional expertise, female directors can contribute to corporate boards' quality of advice by offering heterogeneous opinions different from those of male directors.

The next issue we examine is whether this increase in variety of expertise for the counterfactual boards is a result of more skills provided by women directors, an outcome of differences in skills between men and women, or both. To avoid double counting, we restrict attention to the 5,113 directors, listed in the S&P SmallCap 600 firms' 2013 proxy statements, of which 584 are women and 4,529 are men. We conduct two tests regarding expertise differences across the directors. First, we test whether the number of expertise types are equal across genders. We find, with significance,

[9] Given the imbalance in the total number of female and male directors on corporate boards, we match age with a +/− 1-year band.

that female directors possess more expertise, on average, with 4.09 compared to 3.78 for the male directors.[10]

Second, we examine whether there exist systematic differences in the types of skill sets possessed by female and male directors of these boards. We conduct a series of probit regression analyses to examine the (log) odds of individual directors possessing different skills. The dependent variable indicates whether a director possesses a particular expertise and we estimate the odds of a female director possessing that expertise as compared to a male director. We employ a number of control variables for individual director characteristics, including age, tenure, share ownership, membership on other public boards, the director's executive position at her/his own firm, and attendance records (measured as attending 75 percent of the board meetings—Adams and Ferreira (2009) find that female directors have better attendance than male directors). We also control for purported aspects of the director's monitoring effectiveness: independence as classified per the exchange rules and whether the director has a relationship with the company and its management team by being a relative, having other business transactions, providing professional services, being a former employee, being a CEO of a firm with an interlocking relationship with the current firm's CEO, or any other link disclosed for potential conflicts of interest that could inhibit the director's monitoring function. The results for the primary variables of interest are provided in Table I (where we have suppressed the control variables except for age and tenure). The results of these tests show that, based on the proxy statement disclosures, the odds of possessing Financial, M&A, Operations or Technology expertise decrease when a director is a woman. By contrast, a female director is more likely to possess the following six skills: Risk Management, Human Resources, Sustainability, Corporate Governance, Regulatory/Legal/Compliance, or Political/Government.[11]

For women directors to provide additional advisory skills to their boards, the skills that they bring should be missing from the current boards. Examining the frequency of skills mentioned in their proxy statements, we find that the mean and median number of expertise types represented in S&P SmallCap 600 boards is 11 (out of the 16 possible maximum). Figure 2 further shows the proportion of boards reporting to have at least one member possessing each of the expertise types. Certain types of the more male director-dominant expertise are reported to be possessed by most

[10] We assume that the skill sets described by the board are reported correctly and not biased toward either gender.

[11] There are no significant differences in the odds for expertise in Accounting, International, Marketing, R&D, Strategy, or Leadership.

boards: i.e., 100%, 98%, 85%, and 79% of these boards report having Financial, Operations, M&A, and Technology expertise, respectively. Interestingly, the more female director-dominant expertise are less common in corporate boards. Four out of six of these are missing from the majority of the boards: H.R. (29%), Risk Management (33%), Sustainability (33%), and Political/Government (48%).

These results suggest that female directors not only contribute more types of expertise than male counterparts do but also offer particular sets of expertise currently missing in the incumbent corporate boards. Therefore, adding women directors, with their unique skill contribution, to corporate boards would increase heterogeneity of board skills. This skill heterogeneity increase would, in turn, enhance the overall advisory effectiveness of the board and improve firm value (Kim and Starks, 2015).

III. Conclusions

The question of the relationship between gender diverse boards and firm value has generated considerable debate as well as analyses with conflicting findings and conclusions. In this study, we consider a mechanism through which gender diversity improves firm value: female directors contribute additional expertise to corporate boards, which results in enhanced board advisory effectiveness. We show that (a) the women who are appointed as corporate directors diversify the set of boards' expertise more than do their male counterparts and (b) women bring their own unique skills to corporate boards. These findings suggest that female directors can enhance boards' advisory effectiveness by contributing diverse skills. Therefore, combined with the results of Kim and Starks (2015) that greater board heterogeneity of expertise is associated with higher firm value, a gender-diverse board has the potential to increase firm value.

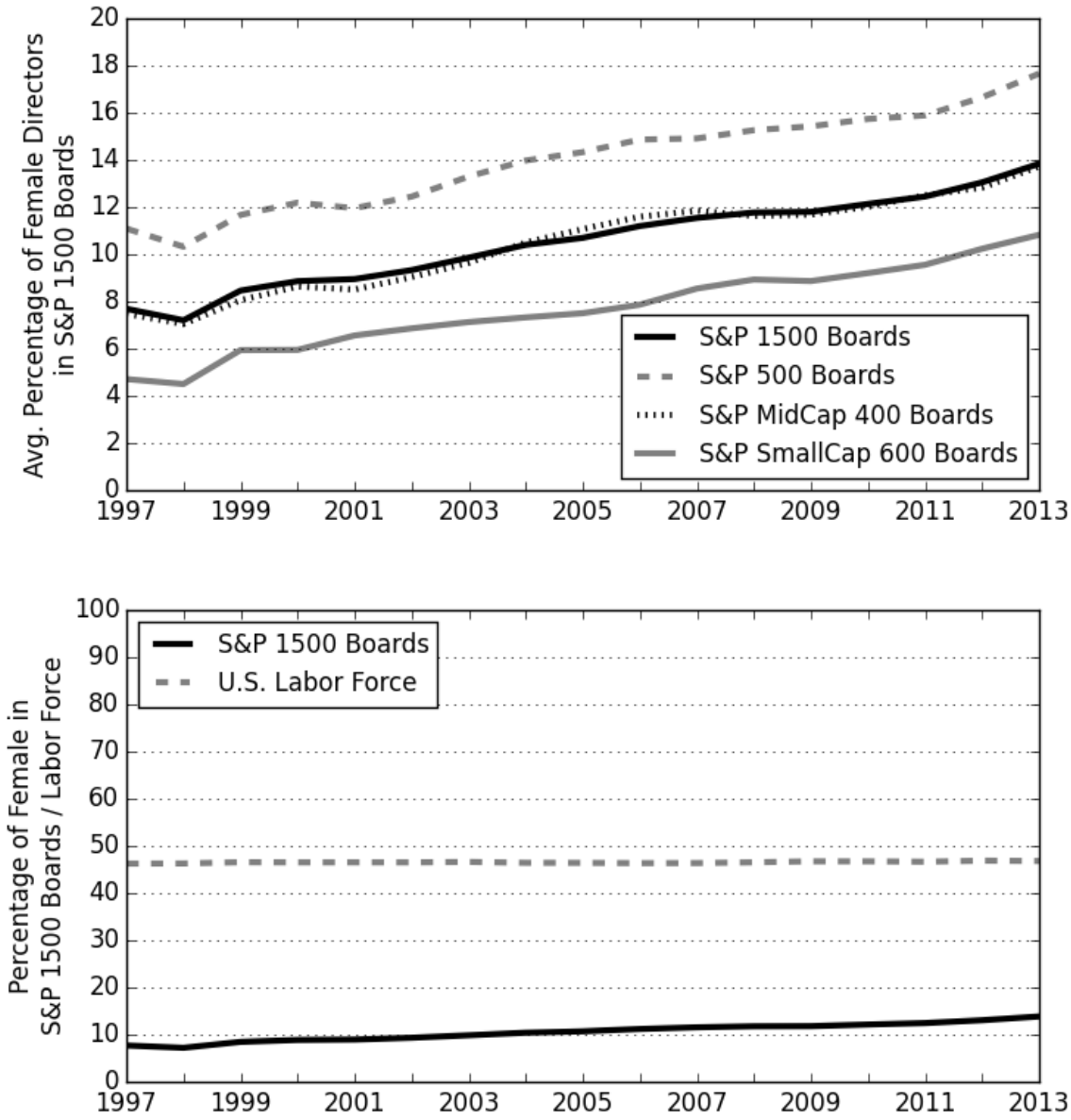

Figure 1. Proportion of Women in Corporate Boards and the Labor Force

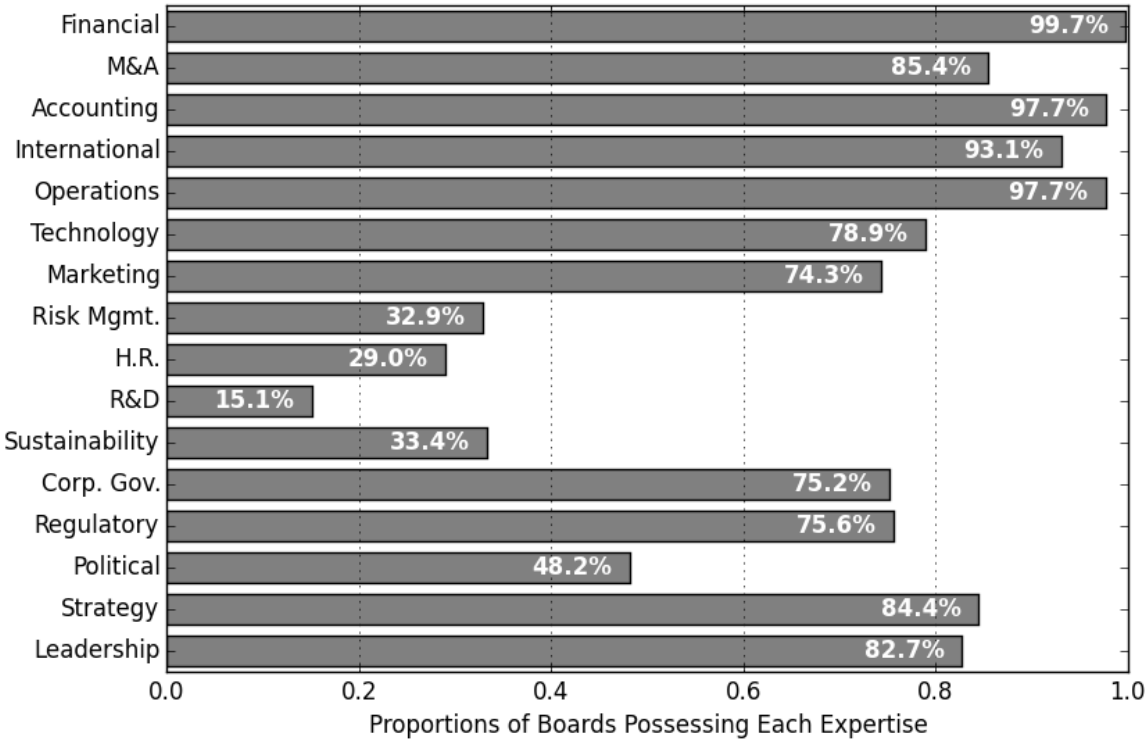

Figure 2. Proportion of S&P SmallCap 600 Boards Possessing Each Expertise

Table I

Log Odds of Female Directors Possessing Each Expertise

Expertise	Fin.	M&A	Acc.	Intl.	Oper.	Tech.	Mktg.	R.M.
Female	-0.142**	-0.354***	0.00286	-0.0253	-0.168***	-0.187***	0.0545	0.225**
	(-2.41)	(-5.30)	(0.05)	(-0.42)	(-2.85)	(-2.86)	(0.81)	(2.56)
Outside	0.0837***	0.0719***	0.157***	0.185***	0.0944***	0.107***	-0.0136	-0.00878
Directorships	(4.00)	(3.38)	(7.58)	(8.94)	(4.59)	(5.04)	(-0.56)	(-0.26)
Age	-0.00842***	-0.0163***	-0.00410*	0.000267	-0.00864***	-0.0128***	-0.0128***	0.00540
	(-3.46)	(-6.29)	(-1.65)	(0.11)	(-3.56)	(-4.88)	(-4.50)	(1.31)
Other Controls	(omitted)							
N	4810	4852	4806	4848	4859	4848	4841	4733

Expertise	H.R.	R&D	Sust.	C.G.	Reg.	Pol.	Strg.	Lead.
Female	0.530***	0.148	0.348***	0.175***	0.163**	0.321***	0.0841	0.0605
	(6.25)	(1.19)	(3.95)	(2.82)	(2.52)	(4.22)	(1.38)	(0.99)
Outside	-0.0330	-0.0665	0.0525	0.177***	-0.0329	0.000159	0.0287	0.0582***
Directorships	(-0.86)	(-1.26)	(1.59)	(8.37)	(-1.38)	(0.01)	(1.33)	(2.77)
Age	0.00323	0.00939	0.00204	0.00885***	0.00725***	0.0135***	-0.0127***	-0.00261
	(0.71)	(1.63)	(0.47)	(3.29)	(2.60)	(3.77)	(-4.93)	(-1.03)
Other Controls	(omitted)							
N	4811	4726	4800	4825	4857	4822	4852	4854

t-statistics in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

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