

Women Don't Mean Business? Gender Penalty in Board Appointments

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This paper examines the relationship between board diversity and firm performance. Using 14 years of panel data on U.S. firms, we show that increasing gender diversity has no impact on objective measures of firm performance, but does result in a systematic decrease in the firm's market value. We explain this finding by suggesting that the decision to appoint female directors will alter the market's perception of the appointing firm. In a second panel study, we show that firms perceived to be committed to diversity similarly suffer a decrease in firm value. Finally, we show through an experiment that female board appointments are taken as a signal that the firm is motivated by social performance goals, to the detriment of pure profit maximization. Collectively, these three studies suggest that female board appointments are viewed as diversity measures, and as a signal of a broader commitment of the firm to social welfare goals, as opposed to strict shareholder value maximization. This mechanism, we argue, operates irrespective of the actual or perceived competence of the female nominee. We discuss the implications of our findings for future research on board diversity and firm performance.

Keywords: Gender; Board of Directors; Diversity; Corporate Social Performance; Firm Value; Shareholder Value; Signaling

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For decades, policy-makers, social commentators, and academics have grappled with the issue of underrepresentation of women in top management. Traditionally, the dominant discourse highlighted a desire to rectify past injustices and promote equal opportunities for women in the workplace. Lately, however, the focus has shifted to the potential economic gains resulting from gender diversity. This has been particularly evident in the discussion around corporate board memberships. A recent Credit Suisse report claims that “the question should be whether diversity is to the benefit of not just women themselves, but also to the benefit of other stakeholders, corporates, investors and the wider economic environment” (Credit Suisse Research Institute, 2014: 4; see also Catalyst, 2011; Credit Suisse Research Institute, 2012). Appointing female directors, it is argued, increases the diversity of perspectives represented on the board, which will in turn increase both bottom-line profitability and the market value of the firm.

Recent research in finance and economics, however, suggests that economic rationales for board diversity may be unfounded. Whereas cross-sectional studies have found a positive correlation between gender diversity and firm value (Carter, Simkins and Simpson, 2003), longitudinal studies and those studies exploiting exogenous shocks such as the introduction of mandatory quotas reveal that increasing the number of women on the board has either no effect or a negative effect on performance (Farrell and Hersch, 2005; Adams and Ferreira, 2009; Carter, et al, 2010; Dobbin and Jung, 2011; Ahern and Dittmar, 2012; Matsa and Miller, 2013).

In this paper, we further examine the performance effects of board-level gender diversity, and provide evidence for an underlying explanatory mechanism to account for these effects. Past research has sought to explain the negative impact of female

appointments on performance by pointing to demographic or behavioral differences, such as inferior experience and skill (Ahern and Dittmar, 2012), reluctance to approve layoffs (Matsa and Miller, 2013), or a tendency to over-monitor the CEO (Adams and Ferreira, 2009). Others have argued that the gender penalty in board appointments is due to perceived, rather than actual gender differences. Building on findings that females are stereotyped as lacking leadership skills (Eagly, Makhijani and Klonsky, 1992; Eagly and Karau, 2002), some scholars have speculated that investors may hold biased views regarding the leadership ability of female directors, leading them to lower their estimated value of the firm (Dobbin and Jung, 2011).

We argue that the negative effect of female appointments on firm value results not from differences in actual or perceived director quality, but from inferences made about the appointing firm's commitment to shareholder value maximization. The appointment of female directors is still seen as largely motivated by diversity goals (Farrell and Hersch, 2005; Broome, Conley and Krawiec, 2011). Despite attempts to couch gender diversity initiatives in performance terms, we suggest that investors are likely to interpret the appointment of women as signaling an underlying preference for social values, to the detriment of profit maximization. Inasmuch as revealed preferences for social initiatives are perceived as shifting focus and resources away from shareholders, the appointment of a female director sends a negative cue to the market concerning the firm's long-term prospects, prompting a decrease in market value.

Our theory leads to the prediction that female board appointments affect firm value, but not profitability. In the absence of factors constraining director selection, such as legal mandates, there is no reason to assume that female candidates for board

membership differ, on average, from their male counterparts. It is therefore unlikely that adding women to the board would result in any substantial decrease in profitability. It is equally unlikely, we suggest, that investors would anticipate such an effect following the appointment of a female director, as the bias explanation implies (Dobbin and Jung, 2011). The corporate governance literature offers little evidence to suggest that board structure has an effect on firm performance (e.g., Westphal, 1998; Dalton, et al, 1998; Bhagat and Bolton, 2008). Therefore, even if investors did hold deep-seated biases against female directors, their valuation of the firm would presumably not be affected.

We tested our prediction that signaling a preference for diversity will lead to a decrease in firm value across two panel studies. The first of these examined the effect of female board appointments on profitability and market value, while our second study considered the impact of diversity signals more broadly, as well as other indications of firm preferences for social welfare. We also conducted an experiment to investigate the causal effect of female board appointments on the perception of the firm's underlying goals.

Our paper contributes to research on gender diversity and performance by providing evidence of a previously unexplored mechanism to account for the negative effect of appointing women to senior positions. We show that the gender penalty in board appointments may result from the market's assumption that women are selected primarily to satisfy a social desire for diversity, rather than entrenched discrimination against female executives. One key implication of our findings is that firms that may have been willing to consider qualified women, but that are otherwise indifferent to diversity as a social goal, may balk at such an appointment because of the associated penalty. More

broadly, the paper contributes to the literature on gender and organizations, providing a novel perspective on the unintended consequences of discourse around social policy. The signaling mechanism we uncover here suggests that the main obstacle to female board appointments may not always be discrimination itself, but the salience of the diversity discourse around such appointments.

Board diversity and firm performance

Research in finance and economics has found that board diversity can lead to a decrease in firm performance. Adams and Ferreira (2009) examined seven years of panel data on corporations in the United States and showed that an increase in the fraction of female directors on the board led to a decrease in firm value. They suggested that gender-diverse boards may be more prone to over-monitor CEOs, and that this effect could account for the decline in value. The tendency to over-monitor was inferred from female directors' attendance records and service on monitoring committees. Dobbin and Jung (2011) similarly drew from data on American firms from 1997 to 2006 to show that appointing female directors had a negative effect on market value. They speculated that this effect could be due to negative stereotypes about the competence of female board directors.

The negative association between gender diversity on corporate boards and firm performance has also been explored using data on companies outside the U.S. Ahern and Dittmar (2012) studied the consequences of the Norwegian board quota, which became compulsory in 2006 and required all publicly listed firms to fill 40 percent of board seats with women within a two-year transition period. The authors found that the mandated increase in the share of female directors led to a substantial drop in firm value. The quota

forced Norwegian firms to select women from a limited pool of candidates, leading to the appointment of directors who were, on average, younger and less experienced than the men who might otherwise have been chosen to fill those positions. In another study based on the Norwegian quota, Matsa and Miller (2013) found that the increase in female representation on the board affected firm policies on layoffs, resulting in higher wage costs and lower short-term profitability.

The literature on board diversity has generally assumed that female directors differ systematically from their male counterparts, in a manner that impacts board and firm-level outcomes. In other words, the assumption is that gender serves as a useful proxy for diversity of traits or experiences that can explain variation in performance. However, while cognitive diversity has been advanced as an argument in favor of increasing female board representation, research shows that team demographic diversity does not always translate into diversity of cognitive processes, attitudes, or beliefs (Kilduff, Angelmar and Mehra, 2000; Phillips and Loyd, 2006). Moreover, women who succeed in obtaining board appointments often resemble their male colleagues in many key respects, such as educational and functional background (Zhu, Shen and Hillman, 2014); their ability to exert influence depends more on social network ties than on any demographic variable (Westphal and Milton, 2000). Consequently, there is little reason to believe that, on average, female directors diverge significantly from males in terms of ability or behavior.

The Norwegian quota studies offer evidence consistent with this view. Ahern and Dittmar (2012) attribute their results to the “demand shock” for female directors caused by the difficulty of meeting the gender quota given the small supply of female candidates.

In order to comply with the law, firms were forced to recruit younger and less experienced women who lacked the skills necessary to perform effectively on the board, resulting in a decrease in firm value. While the natural shock of the quota provides a helpful means to address endogeneity concerns, it is important to keep in mind that these findings cannot be usefully generalized beyond the specific context of a legally mandated quota.

For countries in which female appointments are made voluntarily, there is no need to venture beyond the pool of candidates qualified to hold directorship positions. This was also the case in pre-quota Norway, where female directors appointed prior to the law's introduction did not differ substantially from their male colleagues in terms of skill or attitude. In contexts where firms are free to appoint the best candidates, there is no reason to believe that gender-diverse boards would perform differently. In other words, gender diversity on the board should have no impact on the firm's profitability.

Despite the absence of any effect on the bottom line, however, female appointments may nonetheless impact firm value – an outcome that is grounded in market perceptions rather than board behavior. Dobbin and Jung (2011) claim that the market reacts negatively to the appointment of a female director because investors “tend to believe that women lack the human capital and business experience to be board members” (822). As a result of this bias, the authors argue, investors anticipate that the presence of a less-competent female on the board will ultimately harm profitability, and they therefore adjust their valuation of the firm downward. Support for this proposed mechanism is drawn from the fact that the effect is attenuated for investors under higher public scrutiny, such as public pension funds. While we are not denying the existence of

bias against female business leaders (Park and Westphal, 2013), we suggest that this variance among investors could just as easily point to certain market participants favoring socially responsible investments. Moreover, the investor bias explanation does not account for extant literature on corporate boards showing that board membership and structure are unlikely to affect firm profits (Westphal, 1998; Dalton, et al, 1998; Bhagat and Bolton, 2008). Below, we explain why we find it more plausible that investors rely on director gender as a signal of the firm's level of commitment to profit maximization, rather than a signal of individual competence.

Female board appointments as a signal of commitment to social goals

While female board appointments may not affect profitability, they can lead to a shift in the market's perception of a firm's priorities and goals and, in turn, affect the firm's stock performance. Investors must work with imperfect information when evaluating firm value (Healy and Palepu, 2001; Rau and Vermaelen, 2002; Louis and White, 2007). Firm goals and priorities are unobservable, and investors may thus rely on outward manifestations of underlying preferences as heuristics to assess long-term value. In particular, investors will search for cues indicating whether the firm is committed to maximizing shareholder value, or whether it also pursues social welfare goals that are not directly profit-maximizing. We suggest that a firm's diversity initiatives serve as such a cue, and that female board appointments, far from being gender-neutral, are perceived as diversity measures (Farrell and Hersch, 2005). Thus, we argue that investors are likely to interpret the appointment of a female director as a signal of an otherwise unobservable commitment to social goals, to the detriment of a singular focus on shareholder value, leading to a decline in stock performance.

Previous research has highlighted numerous ways in which a firm's strategic decisions can alter investor perception of firm value. For example, firms may signal their quality through the composition of the top management team (Cohen and Dean, 2005; Higgins and Gulati, 2006) or the board of directors (Certo, 2003; Westphal and Graebner, 2010), or through connections to prominent partners (Stuart, Hoang and Hybels, 1999; Reuer, Tong and Wu, 2012). Moreover, firm payout policies such as the announcement of dividends or share repurchases serve as credible indications of the firm's otherwise unobservable commitment to its shareholders, and typically lead to increases in market value (Miller and Rock, 1985; Dittmar, 2000; Rau and Vermaelen, 2002; Louis and White, 2007). This is the case even when share repurchase announcements constitute little more than symbolic gestures intended to reassure investors that managers are not mismanaging shareholder resources (Westphal and Zajac, 1998).

Conversely, other policies can signal to investors that the firm is expending firm resources on social initiatives, rather than providing maximum returns to shareholders. The appointment of a female director, we suggest, is one such signal, precisely because these appointments are seen largely as fulfilling a diversity function. Investors are therefore likely to infer that, when a firm chooses to appoint a woman to its board, it does so because it values social performance.

There are several reasons why appointing a female director is seen as a credible signal of commitment to social goals. First, gender continues to be both salient and available as a distinguishing feature when women are promoted to senior leadership positions. The relative rarity of such promotion events means that women, as tokens, "capture a larger awareness share" (Kanter, 1977: 971) and tend to be perceived more as

symbols than as individuals. The symbolic value of female appointments is reflected in the results of a recent survey, according to which 32 percent of female board directors indicated that their gender had been a “significant factor” in their appointment, compared to two percent of men (Heidrick & Struggles, 2012). Research has also found that investors react negatively to the appointment of female CEOs, and that news articles about those appointments systematically highlight gender, while gender is rarely mentioned in the announcement of male CEO appointments (Lee and James, 2007). This is in line with research suggesting that female board appointments are usually motivated by internal or external calls for diversity (Farrell and Hersch, 2005).

Second, diversity is intimately associated with a broader class of social goals. Since the late 1980s, certain activist shareholders, such as public pension funds, have pushed for greater gender diversity on boards and in higher management as an integral part of their social reform agenda, which includes priorities such as improving community relations and protecting the environment (Johnson and Greening, 1999). This is consistent with the inclusion of diversity as a dimension of corporate social responsibility (CSR) in most ratings systems, including KLD-STATS, the oldest and most widely used of these (Waddock and Graves, 1997). Moreover, research has suggested that corporate social practices, including diversity, can signal to current employees that the firm is a “good firm,” with strong social values (Turban and Greening, 1997; Broome and Krawiec, 2008). Researchers have also found a correlation between diversity and social performance, showing that those firms that choose to appoint women to their board of directors are the same firms that tend to engage in more CSR activities (Harjoto, Laksmana and Lee, 2014), including charitable giving (Wang and Coffey,

1992) and environmental initiatives (Post, Rahman and Rubow, 2011). Firms that are committed to diversity appear to be generally motivated by social values, suggesting that diversity is one way in which a for-profit organization can demonstrate that it “attend(s) to factors other than shareholder wealth maximization” (Margolis and Walsh, 2003: 270).

Commitment to social goals and firm performance

The normative case for CSR rests on a corporate duty to contribute to human welfare (Margolis and Walsh, 2003). Such fairness-based arguments, however, hold little sway with advocates of the economic contractarian view of the firm that dominates the American investment landscape. The most forceful proponent of this view, Milton Friedman, argued in his 1970 essay in *The New York Times Magazine* that “the only social responsibility of business is to increase its profits” (Friedman, [1970] 2007). Jensen (2002) likewise claimed that a firm holding any other view “will be handicapped in the competition for survival” (237) by allowing its managers to politicize the firm and dissipate shareholder resources in the exercise of personal preferences.

The diktat of shareholder value so dominates Wall Street that most analysts consider that “(c)reating or reclaiming shareholder value (is) morally and economically the right thing to do; it (is) the yardstick to measure individual as well as corporate practices, values, and achievements” (Ho, 2009: 125). A senior banker interviewed by Ho commented that “the goal of the firm itself ... should be to create shareholder value, ... there’s no illusion that they’re looking to enhance the community in any way” (Ho, 2009: 126).

In response, social activists and scholars have sought to build an instrumental case for CSR by linking social performance to shareholder wealth creation. Empirical results

are inconclusive: while some studies have suggested a positive correlation between CSR initiatives and profitability, others have found that social performance may have little or no effect on either profitability or firm value (for meta-analytic reviews, cf. Margolis and Walsh, 2003; Margolis, Elfenbein and Walsh, 2009). There may be several reasons for this. First, until recently, researchers have not accounted sufficiently for contextual moderators. Yet a recent study found that the impact on market value may depend on factors such as advertising intensity and public awareness levels, and may be negative in certain conditions. Servaes and Tamayo (2013) argue that a firm's CSR program may be rewarded by investors if it influences consumers in such a way as to impact profitability and therefore create value for shareholders. This implies, *a contrario*, that initiatives perceived by investors as unrelated to maximizing shareholder value – because their cost outweighs potential benefits – could result in a decrease in firm value. This suggests a second reason for the mixed findings on the performance impact of CSR – namely, the tendency to treat it empirically as a one-dimensional construct (see Berman, et al, 1999 for an exception). However, if CSR is multi-dimensional (Waddock and Graves, 1997), then it follows that certain types of initiatives may be perceived by the market as supporting shareholder wealth creation, while others are viewed as signaling a commitment to social goals. Rather than searching for a general, direct link between CSR and financial performance, it may be more fruitful to examine the impact of each dimension separately.

We argue that investors view diversity initiatives generally, and the decision to appoint a woman to the board of directors in particular, as falling into the category of initiatives unrelated to shareholder value maximization. As the following quote from the

chairman of a large mutual fund illustrates, most investors have a less-than-favorable opinion of attempts to increase diversity, precisely because these are seen as irrelevant to the primary goal of the firm, which is to maximize profits and generate returns for its shareholders:

“I remember going to a meeting of one of our large stocks – it was Avon. ... Three of the holders were state and local pension funds, and all they talked about was, How many minorities are you going to have? How many women are going to be on the board? Purely political questions... A few of us finally said, ‘Let’s get some questions here that are relevant.’” (Fortune, 1993)

A firm’s commitment to diversity, therefore, can send a negative signal to investors, affecting its stock performance. If this is indeed the case, then because we expect the appointment of a female director to be interpreted as a diversity measure – and, as such, to create a perception that the firm is more committed to social goals and less committed to profit maximization – we should see a decrease in market value for that firm, despite the absence of any corresponding effect on objective performance measures. Following this, we predict:

H1: Firms that appoint female directors will suffer a decrease in market value, even in the absence of any effect on profitability.

H2: Firms perceived as more committed to diversity will suffer a decrease in market value, even in the absence of any effect on profitability.

H3: Compared to firms that appoint a male director, firms that appoint a female director are perceived to be a) more committed to social goals and b) less committed to profit maximization goals.

Overview of the studies

We tested our hypotheses in three studies. We first conducted an analysis of 14 years of panel data on publicly listed firms in the United States to measure the effect of female board appointments on firm value. We then used panel data from KLD-STATS to directly investigate the relationship between a firm's commitment to diversity and other social goals, and its market value. In both panel studies, we distinguished between accounting measures and market-based measures of firm performance. Finally, using an experimental design, we tested whether the appointment of a female director caused firms to be perceived as more focused on social goals, and concurrently less focused on profit maximization, than firms that appointed male candidates.

STUDY 1: BOARD APPOINTMENTS AND FIRM PERFORMANCE

We first examined the effect of adding women to the board of directors on both profitability and firm value in order to uncover the existence of a gender penalty attributable to board appointments.

Sample and Data Sources

We investigated the relationship between board diversity and firm performance using panel data for publicly traded firms in the U.S. between fiscal years 1998 and 2011. We obtained board-level data from RiskMetrics for the period 2007-2011, and from the Investor Responsibility Research Center, Inc. (IRRC) for the period 1998-2006, including the name and gender of all sitting directors at the date of the annual meeting. We then merged this data with financial information from Compustat for the same period. This yielded a final sample of 13,508 firm-year observations for 1,971 firms.

We found that, over the entire period covered in our sample, women held approximately ten percent of director positions per firm on average, or one seat per board. In Figure 1, we break down these numbers to reveal the evolution of gender diversity on corporate boards in the U.S. over the 14 years covered by our data. From an average diversity ratio (defined as the average percentage of board seats held by women per firm) in 1998 of slightly less than seven percent, in 2011 U.S. corporations filled over 12 percent of directorships with women. The average size of corporate boards in our sample has remained constant over this period between nine and ten seats, confirming that corporations are in fact appointing a greater number of female directors.

Insert Figure 1 about here

This change is driven both by a decrease in the percentage of firms that have no female directors, and an increase in the percentage of firms moving beyond the token female director (Kanter, 1977) to appoint more than one woman to their board. As illustrated in Figure 2, while only around 15 percent of the firms in our sample had more than one female director in 1998, by 2011 that figure had increased to 36 percent. However, even in 2011 only a handful of firms had more than two women serving on their boards, confirming that female appointments are still very much the exception.

Insert Figure 2 about here

Measures

Firm performance: In line with extant literature on the effects of board diversity (Adams and Ferreira, 2009; Dobbin and Jung, 2011), we used two measures of firm performance in our analysis, allowing us to distinguish between firm performance based on objective accounting measures, and firm performance based on long-term market value. We used Return on Assets (ROA) and a proxy of Tobin's q to measure accounting performance and market-based performance, respectively.

ROA is the ratio of net income to book value of assets, and was measured using Compustat variables "Income Before Extraordinary Items Available for Common" (IBCOM) and "Total Assets" (AT). Tobin's q is defined as the ratio of market value to book value of assets, and is a broad-based reflection of the market's valuation of the firm incorporating current performance as well as future growth opportunities (Anderson and Reeb, 2004). A Tobin's q value above 1, for example, indicates that the market values the firm above the replacement cost of its assets. Proxy measures of Tobin's q are commonly used in studies investigating the relationship between board-level variables and firm performance (e.g., Westphal, 1999; Anderson and Reeb, 2004; Bhagat and Bolton, 2008). The reason long-term measures of market value like Tobin's q are preferred to short-term measures such as 3-day cumulative abnormal returns (CAR), is that director appointments typically take place during annual meetings, making it impossible to attribute immediate changes in stock price to the appointment, independent of market reactions to other company information disclosed at the same time (Adams, Gray and Nowland, 2011). We approximated Tobin's q using the sum of market capitalization and total debt over total assets, all annual measures for the fiscal year (Sandner and Block,

2011).¹ We used the natural log of Tobin’s q in our analysis, because its distribution is closer to normal.

Gender diversity: We operationalized board-level gender diversity as the number of sitting female directors at the time of the annual meeting in that calendar year (“Female number”). To verify the robustness of our results, we also ran models using the percentage of female directors on the board (“Diversity ratio”) as the measure of diversity. The direction and magnitude of the effects hypothesized were substantively similar when Diversity ratio was used. To ensure that we measured our independent variable before our dependent variables, we lagged the gender diversity measure by one year in all our models.

Controls: In line with extant research, we controlled for the size of the board as well as the size of the firm, factors that may have an effect on both gender diversity and firm performance. We captured firm size using the natural log of total assets, ROA (in the market value models), and the natural log of market valuation (in the profitability models).² We further controlled for corporate governance indicators, namely the fraction of independent directors on the board, and the firm’s dividend yield (the ratio of the dividends per share to the company’s share price at the close of the fiscal year). Summary statistics and correlation coefficients for the principal variables used in our analysis are shown in Table 1.

Insert Table 1 about here

¹ The relevant Compustat variables are “Total Market Value” (MKVAL), “Long Term Debt – Total” (DLTT), “Debt in Current Liabilities – Total” (DLC), and “Total Assets” (AT).

² Replacing Log(Assets) with Log(Sales) yields similar results.

Model specifications

We tested Hypothesis 1 by estimating a series of OLS regressions on panel data, and then including firm fixed effects to account for unobserved, time-invariant firm-level variables, such as industry and region, that may impact both board diversity and performance. A Hausman test allowed us to reject the null hypothesis that random effects estimators would be preferred to fixed effects estimators, indicating that the unique errors in our model are correlated with the covariates, and that only a fixed effects model would yield unbiased and consistent coefficients (Sargan-Hansen statistic = 94.46, $p < 0.001$). We also included year dummies to account for market-wide temporal effects. This was particularly relevant as our data covers the period of the financial crisis, during which we expected to see significant variation in the profitability and stock performance of the firms in our sample. The use of year and firm fixed effects in our models allowed us to efficiently deal with heteroskedasticity inherent to all pooled cross-sectional time series designs (Angrist and Pischke, 2008). Our design does not, however, eliminate endogeneity resulting from the fact that firms choose whom to appoint to their board directors and when to do so. For example, it has been argued that firms may be more likely to promote female executives when they anticipate a dip in performance (Ryan and Haslam, 2007). Any unobserved variable bias of this type should, however, affect both of our dependent variables in the same manner. If the effect of female board appointments on ROA and Tobin's q differs, therefore, our hypothesis will be supported.

Results

The results of our analysis of the relationship between corporate board diversity and firm performance are outlined in Table 2. Model 1 presents an OLS regression using

ROA as the dependent variable. Model 2 adds year and firm fixed effects. We show that although diversity and ROA may be positively correlated (as shown in previous studies, e.g., Farrell and Hersch, 2005; Catalyst, 2011; Credit Suisse Research Institute, 2014), the appointment of additional women to the firm's board of directors has no statistically significant effect on objective, accounting measures of performance.

Insert Table 2 about here

Model 3 is an OLS model with the natural log of Tobin's q as the dependent variable. In this model, an increase in gender diversity on the board has a significant positive effect on a firm's market value. This is consistent with reported findings of a positive effect of board diversity on firm value (Catalyst, 2011; Credit Suisse Research Institute, 2012), but does not account for unobserved confounding factors that might have a positive effect on both the firm's value and the diversity of its board (Angrist and Pischke, 2008). Once we incorporated year and firm fixed effects to control for unobserved confounders, as we did in Model 4, we found that the effect of appointing a female director remains significant ($p < 0.05$) but becomes negative, providing support for Hypothesis 1.

A post-estimation margins analysis showed that the relationship between gender diversity and stock performance is both statistically and substantively significant (Figure 3). Holding all other variables constant at their means, we find that the predicted value of Tobin's q decreases with each additional female member appointed to the board.

However, as previously suggested by the results of Model 2, increasing board diversity does not impact predicted values of ROA.

Insert Figure 3 about here

We tested for possible reverse causation using a fixed effects Poisson model in which we lagged performance measures and all controls. There was no statistically significant relationship between the lagged financial performance measures and subsequent female appointments. We therefore found no evidence suggesting that firms choosing to appoint female directors were performing poorly beforehand. We also ran the ROA model (Model 2) with an additional lag on the diversity measure as well as all controls, in order to determine whether the drop in market value reflects an anticipated drop in the firm's profitability. Instead, we found a positive but not statistically significant relationship between the appointment of a female director and ROA after one year, and no effect after two and three years.

We ran additional analyses, not reported here, in which we tested for a possible non-linear relationship between the number of women on the board and firm value. While we are unable to come to a definitive conclusion given the small number of instances of adding a second or third woman to the board, we found no evidence supporting a non-linear relationship. Our results suggest that firms continue to experience a decrease in market value as they appoint female directors, which may indicate that subsequent appointments reinforce the signal to the market regarding the firm's underlying preferences. Finally, we tested the effect of female appointments over time by lagging

our diversity measure in Model 4 by an additional one and two years, and found that the negative effect of adding a female board member remains significant for an additional year, but is no longer significant in the third year. This suggests that as the market gathers more information about the firm's goals, the signaling effect of the female appointment wears off.

The results of this study are in line with previous work suggesting that gender diversity at board level leads to a negative performance outcome for the firm. Our study shows, however, that the effect cannot be attributed to a difference in competence or experience between male and female board members, as we see no decrease in the firm's profitability either concomitant with, or subsequent to, the appointment. Instead, the market is responding to some other information being provided by the firm when it chooses to appoint a female director.

STUDY 2: COMMITMENT TO DIVERSITY AND PERFORMANCE

We claim that female board appointments are penalized by the market because they serve as a signal that the firm is committed to social goals, to the detriment of shareholder value maximization. We further claim that this is the case because these appointments are interpreted primarily as diversity measures. If we are correct, then we should see a similar market penalty for firms generally perceived to be committed to diversity as a social goal, as predicted by Hypothesis 2. This is what we investigated in our second study.

Sample and Data Sources

To examine the effect of social goal commitment on firm performance, we constructed a panel data set of publicly listed firms in the U.S. from 1998 to 2009.³ Social goal commitment was measured using social performance ratings from KLD-STATS, now MSCI ESG STATS.⁴ These environmental and social performance ratings have been widely used in academic research on corporate commitment to social goals (e.g., Chatterji, Levine and Toffel, 2009; Sharkey and Bromley, 2015). From 1991 to 2000, KLD-STATS ratings covered approximately 650 companies including the S&P 500. Coverage was expanded to around 1000 companies in 2001, and to the 3000 largest U.S. companies by market capitalization in 2003. We merged this data set with financial information from Compustat for the same period. Our final sample includes 14,650 firm-year observations for a total of 3,096 unique firms.

Measures

Social goal commitment: We measured a firm's level of commitment to social goals, including diversity, using the KLD-STATS social performance ratings. The ratings cover seven distinct dimensions of social and environmental performance, namely Community, Corporate Governance, Diversity, Employee Relations, Environment, Human Rights, and Product. For each dimension, the ratings identify specific items that constitute either a strength or a concern. Ratings are binary, with each firm receiving a score of 1 or 0 for any item for which a specific strength or concern was identified. For example, the presence of a female or minority group-member CEO and outstanding employee benefits addressing work/life balance are both measured as strengths under the

³ We do not include 2010-2011 in our data set due to significant methodological changes introduced at that time into the KLD-STATS rating system.

⁴ KLD Research & Analytics, Inc. became part of the RiskMetrics Group in 2009, which was then acquired by MSCI Inc. in 2010.

Diversity dimension; possible concerns include a record of fines paid to settle affirmative action complaints. A list of all the strength and concern items is provided in Appendix A.

KLD-STATS ratings cover both objective and subjective measures of a firm's performance on all seven dimensions, and therefore can only be taken as an approximate reflection of the firm's commitment to social goals. However, previous research has found that the KLD-STATS ratings – the most established ratings in this area, and those most relied on by academics – constitute a reliable proxy for corporate social performance (Chatterji, Levine and Toffel, 2009; Sharkey and Bromley, 2015). They should therefore provide a reasonable measure of the market's perception of a firm's commitment to social goals.

In our model, we focused exclusively on strength scores, which some scholars have found to be conceptually different from the concern ratings (Mattingly and Berman, 2006) and which are more relevant to a firm's level of commitment to a particular dimension of social performance. Each dimension-level strength score represents the total score for all strength items in that dimension – with the exception of the “Diversity strengths” variable, from which we excluded the score for board diversity to avoid confounding the effect of general commitment to diversity with the effect of appointing female directors, which we investigated in Study 1.⁵ Given the multi-dimensional nature of social performance (Waddock and Graves, 1997), we included each dimension separately in our model, to allow for differences in performance effects depending on the nature of the social initiatives covered by the ratings. As the literature suggests, certain

⁵ We also ran the analysis with a Diversity strengths score from which we excluded both the board diversity and minority CEO scores. Our results were unaffected.

dimensions of CSR may be more readily associated with shareholder value creation, while others are perceived as indicative of a preference for social goals.

Firm performance: As in the previous study, we distinguished between profitability and firm value, using ROA and the log of Tobin's q as our dependent variables.

Controls: We controlled for firm size in our model, by including logged measures of net sales and net income, as well as the log of total assets. We also controlled for ROA (in the Tobin's q model) and the log of market value (in the ROA model). Table 3 shows summary statistics and correlations for our key variables.

Insert Table 3 about here

Model specifications

We estimated a number of OLS regressions using firm and year fixed effects in order to test the prediction that an increased commitment to the social goal of diversity will have a negative effect on firm value, without a corresponding effect on firm profitability. We did not lag our primary independent variables as KLD-STATS ratings are mostly retrospective and reflect the history of a firm's performance over preceding years (Chatterji, Levine and Toffel, 2009).

Results

Table 4 summarizes the results obtained. Models 1 and 2 use ROA as the dependent variable, while Models 3 and 4 examine the relationship between social performance and the log of Tobin's q . Model 1 is a simple OLS regression model,

without year or firm fixed effects. Once we added fixed effects in Model 2, none of the dimensions of social performance, including diversity, had a statistically significant impact on ROA.

Insert Table 4 about here

In Model 3 we estimated the effect of social goal performance on Tobin's q . We found that high Diversity strength scores have a statistically significant positive impact on market value. However, after introducing year and firm fixed effects in Model 4, the effect of Diversity strength on market value remained statistically significant but became negative ($p < 0.001$). We also ran a Poisson fixed effects analysis in order to check for possible reverse causation, and found no significant relationship between the prior year's firm value and the KLD-STATS Diversity strength ratings. Our results provide support for Hypothesis 2, and suggest that a firm's strong diversity record signals to investors that the firm is committed to social goals, which will result in lower valuations.

As can be seen in Figure 4, where we graph a firm's predicted stock performance at different levels of Diversity strength, firms that have made multiple commitments to foster diversity are heavily penalized by the market. For example, holding all other variables constant at their mean, a firm that has a minority CEO, has invested in childcare programs, has a strong record on minority subcontracting, and progressive policies regarding domestic partner benefits, will see its (logged) Tobin's q ratio drop to 0.14, well below our sample mean of 0.24. By comparison, firms with a Diversity strength

score of 0 maintain a predicted (logged) Tobin's q ratio of 0.26, slightly above the sample mean.

We also found that Community strength has a negative and marginally significant effect on market value ($p < 0.10$), while a high strength rating for Employee relations has a positive impact on the firm's market value in Model 4 ($p < 0.10$). We posit that the distinct effects of the KLD-STATS social performance dimensions on firm value are due to the multi-dimensionality of CSR. Our results suggest that investors may only be penalizing firms for pursuing initiatives considered least relevant to the maximization of shareholder wealth (Servaes and Tamayo, 2013). Maintaining positive relations with employees may be perceived as more closely related to profit maximization, while initiatives such as promoting women or charitable giving are seen as reflecting a stronger commitment to social goals per se. We tested this perception of diversity measures as revealing an underlying preference for social goals, to the detriment of profit maximization goals, in the specific context of female board appointments in our final study.

STUDY 3: BOARD APPOINTMENTS AND PERCEPTION OF COMMITMENT TO SOCIAL AND PROFIT GOALS

In our first two studies, we showed that a firm's commitment to diversity, whether exhibited through the appointment of female directors or the adoption of progressive employment policies, results in a decrease in firm value. We suggest that this is driven by investors' interpretation of diversity measures as a signal that the firm is pursuing social goals and is no longer purely profit maximizing. We employed an experimental design to test our proposed mechanism directly. In an online experiment with adults residing in the United States, we investigated whether firms were perceived as caring more about social

values if they appointed a female board director rather than a male, as predicted by Hypothesis 3. We further tested whether such firms were also perceived as caring less about profit maximization goals. The study called on participants to evaluate a firm's goals after learning that the firm had appointed a new director. All participants reviewed two firms sequentially, one that announced the appointment of a male director, and one that announced the appointment of a female director. This design allowed us to determine whether the same observer would evaluate a firm differently depending on whether the firm selected a man or a woman to serve on its board.

Method

Participants and design: The study was conducted online, through Amazon's Mechanical Turk platform, with 124 adults residing in the United States (66 percent male; $\text{mean}_{\text{age}} = 31.8$, $\text{s.d.} = 11.2$) who participated in exchange for \$0.40. Forty-five percent of participants had at least one year's experience investing on the stock market ($\text{mean} = 2.58$, $\text{s.d.} = 4.68$). We employed a within-subject design, in which all participants viewed and responded to press releases from two hypothetical firms, one of which announced the appointment of a female director and the other the appointment of a male director.

Procedure: Participants were told that the purpose of the study was to investigate their perceptions of firms on the basis of limited information. Each participant received two press releases for two fictional firms, "Dillard, Inc." and "Emerson Corp.," announcing the appointment of a new board member, either "Jack Smith" or "Marilyn Clark." We randomized the order in which the participants viewed the press releases. Each press release contained information regarding the fictional company, a brief

biography of the new director and the director's photograph.⁶ One company was described as “a successful technology firm, specialized in the design and manufacture of components for GPS systems,” while the other was referred to as “one of the largest domestic producers of digital signal processors and analog semiconductors.” Participants were told that the newly appointed director was either Chief Information Officer of a mobile applications firm and a graduate of Duke and Columbia Business School, or President of a technology consulting firm and former Chief Financial Officer of a telecommunications company, with degrees from Northwestern and the Wharton School. The company and biographical information was counter-balanced across director gender conditions: each company name (Dillard/Emerson), profile (GPS/semiconductors), and director biography (CIO/CFO) was randomly associated with the male or female director. This ensured that any differences in company profiles or director biographies did not bias our results.

Competence pre-test: We tested the materials with a separate sample of participants (N = 98; 58 percent male; mean_{age} = 35.1, s.d. = 11.8), who were asked to rate the competence of the new board member on a four-item scale (Fiske, et al, 2002; Fiske, Cuddy and Glick, 2007). Participants indicated how competent, confident, capable, and skillful they perceived the new board member to be (from 1 = not at all, to 5 = extremely). We averaged the four items to create a single competence score ($\alpha = 0.91$). There was no significant difference in the perceived competence of the new board member, based on gender. Participants rated the female director as equally

⁶ Materials available upon request. We pre-tested the photographs for similarity in perceptions of age, attractiveness, and professionalism.

competent (mean = 4.29, s.d. = 0.66) as the male director (mean = 4.28, s.d. = 0.64), $F(1, 97) = 0.04, p = 0.838$.

Perception of firm goals: After reviewing each press release, participants were instructed to use the information they had just read to make inferences about the firm's priorities and goals. Participants were given six statements, in the form "This company cares about...", and asked to indicate on a seven-point scale the extent to which they agreed with the statement (1 = strongly disagree, 7 = strongly agree). We included three items reflecting profit goals ("achieving the highest possible profit margin on its products"; "maximizing returns on shareholders' investments when deciding on personnel cuts"; "being able to pay dividends to shareholders every year") and three items reflecting social goals ("donating to non-profit organizations in the developing world"; "reducing its carbon footprint"; "diversity when hiring employees"). We averaged the three profit items ($\alpha = 0.74$) and the three social items ($\alpha = 0.75$) to obtain profit orientation and social orientation scores for the male appointments and for the female appointments.⁷

Attention and manipulation checks: Finally, we administered an attention check by asking participants to identify, from a list, the name of a company they had not read about. We also checked the effectiveness of the manipulation by asking participants to recall the gender of the board member appointed in the second press release they viewed.

Results

Attention and manipulation checks: Ten participants failed the attention check, and three participants could not recall the gender of the new board member discussed in

⁷ To ensure that our results on social-orientation were not driven by the diversity item ("diversity when hiring employees") we ran the analysis excluding that item and obtained similar results.

the second press release. We excluded these participants from the final analysis, leaving a total of 114 participants (66 percent male; $\text{mean}_{\text{age}} = 32.1$, $\text{s.d.} = 11.4$). Excluding these participants did not affect our results.

Hypothesis test: A within-subject, repeated-measures ANOVA revealed a significant effect of director gender on perceived social orientation, $F(1, 112) = 35.16$, $p < 0.001$). As predicted, participants rated the firm appointing a female director as much more likely to care about social goals ($\text{mean} = 4.31$, $\text{s.d.} = 0.95$) than the firm appointing a male director ($\text{mean} = 3.73$, $\text{s.d.} = 0.89$). Moreover, we found a significant effect of director gender on perceived profit orientation, $F(1, 112) = 9.21$, $p < 0.01$). Participants viewed the firm that appointed a female director as caring less about profit maximizing goals ($\text{mean} = 4.93$, $\text{s.d.} = 0.99$) than the firm that appointed the male director ($\text{mean} = 5.16$, $\text{s.d.} = 0.89$). The results of the study are represented graphically in Figure 5.

Insert Figure 5 about here

To assess the sensitivity of our findings to the experimental design, we also ran a slightly modified version of the study with 87 adults in the U.S. (67 percent male; $\text{mean}_{\text{age}} = 30.6$, $\text{s.d.} = 9.6$), where participants viewed both press releases side by side, and chose which of the two firms they perceived as caring more about each of the value items. Firms that appointed a female director were consistently rated as more socially oriented ($\text{mean} = 3.50$, $\text{s.d.} = 0.12$)⁸ than firms that appointed a male director

⁸ A score of 3 would indicate that participants viewed both firms as equally socially oriented, or equally profit oriented.

(mean = 2.62, s.d. = 0.10), $t(85) = -5.86$, $p < 0.001$, as well as less profit oriented (mean_{female} = 2.73, s.d. = 0.11; mean_{male} = 3.13, s.d. = 0.08), $t(85) = 2.93$, $p < 0.01$, thus replicating our earlier results.

These findings provide support for Hypothesis 3, which predicted that the appointment of a female director will lead observers to believe the firm is more focused on social goals, and less on profit maximization, compared to firms that appoint male directors. This is the case even when there is no difference in the perceived competence of female and male directors, as suggested by the results of our pretest on perception of competence. Although participants in an online experiment may not have the same qualifications or information as investors do in the market, data obtained through Amazon's Mechanical Turk has been shown to be as reliable as data obtained under more traditional experimental conditions (Buhrmester, Kwang and Gosling, 2011). Moreover, the findings from Study 3 are consistent with the qualitative data reviewed above associating female board appointments with diversity as a social goal, as well as with the negative market reaction to signals of commitment to diversity demonstrated in Studies 1 and 2.

Cumulatively, the results of the three studies support our explanation for the gender penalty resulting from female board appointments. As we predicted, the appointment of a female director causes the firm's market value to drop, but has no effect on firm profitability, suggesting that the effect cannot be explained by differences in board-member attributes (Study 1). Instead, we see that signals of a firm's commitment to diversity as a social goal affect the market's valuation of the firm (Study 2). The decision to appoint a woman to the board of directors constitutes such a signal, as it is

perceived to reflect the firm's higher preference for social welfare goals, and correspondingly lower preference for profit maximization goals (Study 3). This supports our claim that the gender penalty associated with board appointments is driven not by individual differences or by biased evaluations of women, but by changes in the market's perception of the firm.

DISCUSSION AND CONCLUSION

Using an experimental study and two panel data studies, we showed that investors respond negatively to firms that appoint female directors, in a manner not justified by objective firm performance, and that this outcome can be explained by the perception that these firms are less committed to profit maximization. First, based on 14 years' worth of panel data on U.S. firms, we found that the addition of a female board member has no statistically significant impact on objective measures of firm performance, but does result in a systematic decrease in the firm's market value. We then showed more broadly that a firm's commitment to diversity and other social welfare initiatives has a negative effect on firm value. Finally, using a within-subject experimental design, we found that firms that appoint female directors are perceived as both more committed to social values and less profit oriented than firms that appoint male directors. This perception remains even when male and female directors are rated as equally competent.

Taken together, our findings reveal the existence of a signaling effect of female board appointments, such that firms voluntarily selecting a female director are perceived to be committed to social goals, to the detriment of profit maximization. This conclusion diverges subtly yet significantly from the explanation suggested by Dobbin and Jung (2011), namely, that the market exhibits a bias based on stereotype. It is not implausible

that stereotype bias could affect investment decisions in this way, and our design does not allow us to rule out this explanation. However, the stereotype bias hypothesis assumes that investors expect a single director to affect the firm's bottom line, which seems unlikely. Moreover, our findings suggest that firms may still suffer a gender penalty when investors recognize the competence of female board appointees. Even when women are perceived as equally competent candidates, the market will assume that they were selected for the sake of diversity, a social goal that investors do not consider fully compatible with shareholder value maximization. It is this signaling effect of female board appointments, we argue, that results in lower firm valuations.

Our findings also differ from the Norwegian quota studies in two important respects. First, those studies found that the restrictions corporations faced when choosing nominees and the limited pool of female candidates available within Norway led to a decrease in age, experience, and ability of appointed board members (Ahern and Dittmar, 2012). Our study is focused on the United States, where female appointments are made voluntarily, demand is relatively stable, and the candidate pool is sufficient to meet demand. Thus, there is no reason for U.S. female appointees to be any less qualified than their male counterparts. Second, in the Norwegian studies the data suggested that the sudden change in board member characteristics led to a decrease in firm profitability (Ahern and Dittmar, 2012; Matsa and Miller, 2013), which in turn was reflected in lower market values. Our findings show that firm value may fall without any underlying drop in objective performance, leading us to conclude that the market penalty observed in our data as a result of female board appointments is unrelated to board performance. Instead,

the explanation is to be found in how investors perceive firms that choose to appoint a woman to their board.

An alternative explanation for our findings is that the market believes firms are yielding to pressure from public pension funds when they appoint female directors, and are not sincerely motivated by social goals. Given the importance of signaling a commitment to shareholder value, however, and the limited threat of exit from public pension funds, it is likely that firms that do cave in to external demands for diversity are precisely those firms that attach more value to social goals. Therefore, whether a firm appoints a female director of its own accord or in response to an external request, the market will infer the firm's preferences from that appointment.

A question for future research is the effect of complementary or contradictory signals of firm preferences on market reactions. A separate signal of commitment to social goals – through broader diversity initiatives or other socially oriented measures – could either absorb the negative effect of the female board appointment, or amplify it further. Conversely, a contradictory signal could eliminate the gender penalty altogether. Thus, a firm may be able to appoint a woman to the board without suffering a decrease in market value by simultaneously indicating to investors that it is committed to shareholder value maximization. The relative signaling strength of board appointments compared to other, possibly less visible firm decisions, is a matter for empirical investigation. A careful framing of female appointment announcements may also protect firms from negative market reactions. In a study of shareholder value orientation among German corporations, Fiss and Zajac (2006) found that firms that qualified strategic decisions using language that balanced the interests of various stakeholders benefited from higher

stock performance. Future research could usefully investigate whether such sensegiving tactics would be equally effective in the context of board diversity.

Another promising area for future research is whether increasing female board representation has positive effect consequences for women within the organization and in the wider labor market. A study by Bertrand and colleagues (2014) on the repercussions of the quota in Norway found no trickle-down effect on the advancement of women in the workplace, or the gender wage gap. Whether this would also be true in non-quota countries remains an open question.

Our paper contributes to the literature on gender and organizations by offering a novel perspective on the advancement of women to leadership positions and the barriers women continue to face. First, we showed that regardless of the market's perception of firms selecting female directors, appointing women to the board does not negatively affect firm profitability. We also showed that concerns over systemic discrimination against women may be overplayed, and may not be driving the gender penalty we observe following the appointment of female directors. Yet the fact remains that a gender penalty exists, and that these appointments continue to be viewed primarily as a gesture designed to satisfy a commitment to diversity.

We also contribute to the literature on shareholder and stakeholder theory. We confirmed the multi-dimensional nature of CSR, and showed that any empirical investigation of the link between social performance and financial performance must distinguish between different types of social initiatives. Moreover, our findings suggest that pursuing initiatives perceived as indicative of an underlying preference for social welfare, such as diversity measures, signals to investors that the firm is less committed to

maximizing shareholder value and results in a drop in market value – despite the fact that CSR activities, and the appointment of female board members, appear to have no negative impact on objective measures of performance. This decoupling of market reaction from operational activity is in line with recent findings on the market inefficiencies resulting from social dynamics (Zajac and Westphal, 2004), media narratives (Pfarrer, Pollock and Rindova, 2010), or cognitive bias (Naumovska, Zajac and Lee, 2013).

That being said, the true cause for concern may not be the market's distaste for social performance, but the automatic evocation of the concept of diversity whenever a woman is appointed to a senior leadership position. This may be an instance of well-meaning attempts to encourage the promotion of women proving to be ultimately unhelpful (Merton, 1936). Repeated calls for firms to demonstrate their commitment to diversity by increasing female representation leads to female appointments being perceived primarily as diversity measures. As a result, firms that may otherwise have considered female candidates may continue to appoint male directors in order to avoid signaling to the market that they are less focused on maximizing shareholder value. By highlighting an unintended signaling effect of efforts to promote female leadership, we hope to contribute to a broader discussion of the role of public discourse around social justice issues generally, and gender in particular.

At first blush, our findings are not encouraging for the proponents of fairer outcomes for women in business. We did not find evidence supporting the suggestion that adding women to the board of directors is beneficial to a firm's operational performance. Instead, we found that firms choosing to appoint female directors suffer a market penalty

as a result. Inciting firms to appoint more women using economic arguments therefore appears unhelpful, and the increased focus on boardroom diversity may itself be contributing to the view that female appointments must be motivated by social goals. Nevertheless, the first step in addressing and eliminating damaging assumptions is to foster awareness, and we believe that our paper contributes to that effort. A clearer understanding of how gender affects perception, and the consequences for firm outcomes, is key to defining, implementing, and shaping the discourse around effective policies to promote diversity (Skrentny, 1996). One implication of our findings is that reassuring shareholders on corporate goals and values may enable firms to counteract the signaling effect of female appointments and avoid negative market reactions (Fiss and Zajac, 2006). Over time, just as greater exposure to female leaders has been shown to reduce stereotype bias (Dasgupta and Asgari, 2004; Beaman, et al, 2009), the increase in female board appointments should likewise decrease the perception that firms select directors for any reason other than their qualifications.

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Figure 1: The evolution of board diversity

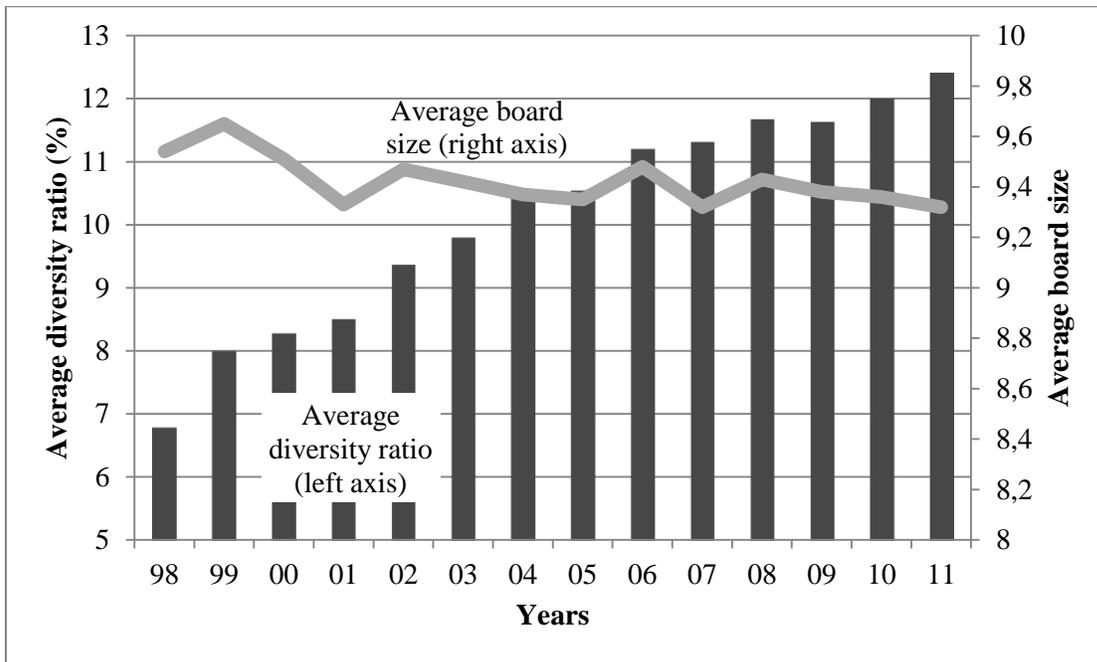


Figure 2: The evolution of tokenism on corporate boards

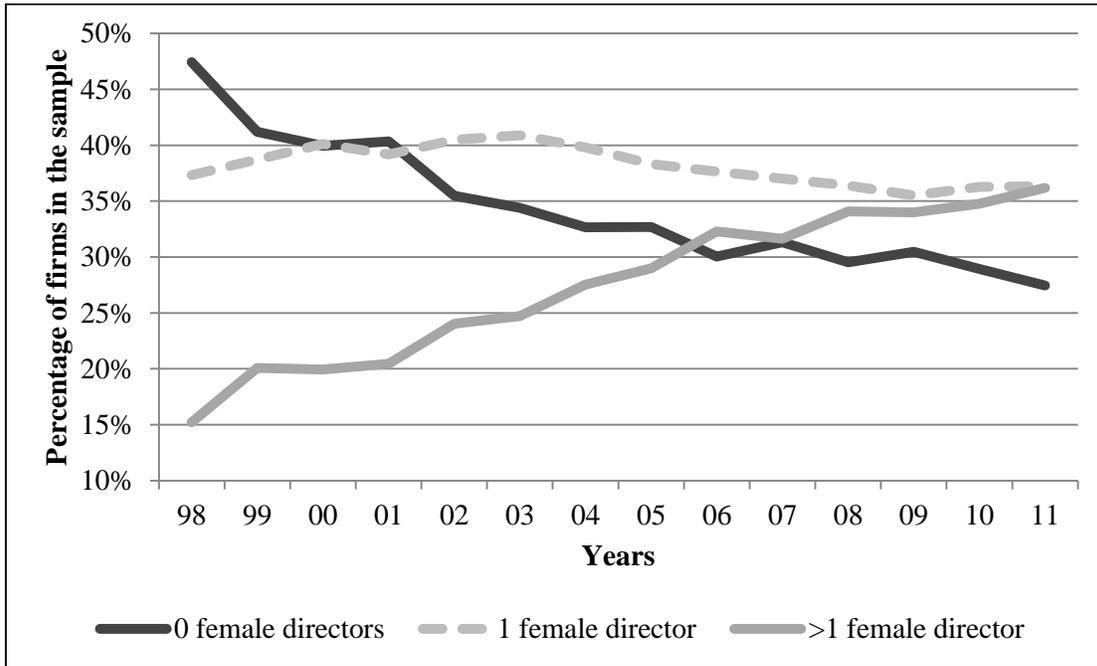


Figure 3: Predicted values for ln(Tobin's q) and ROA, by number of female board directors

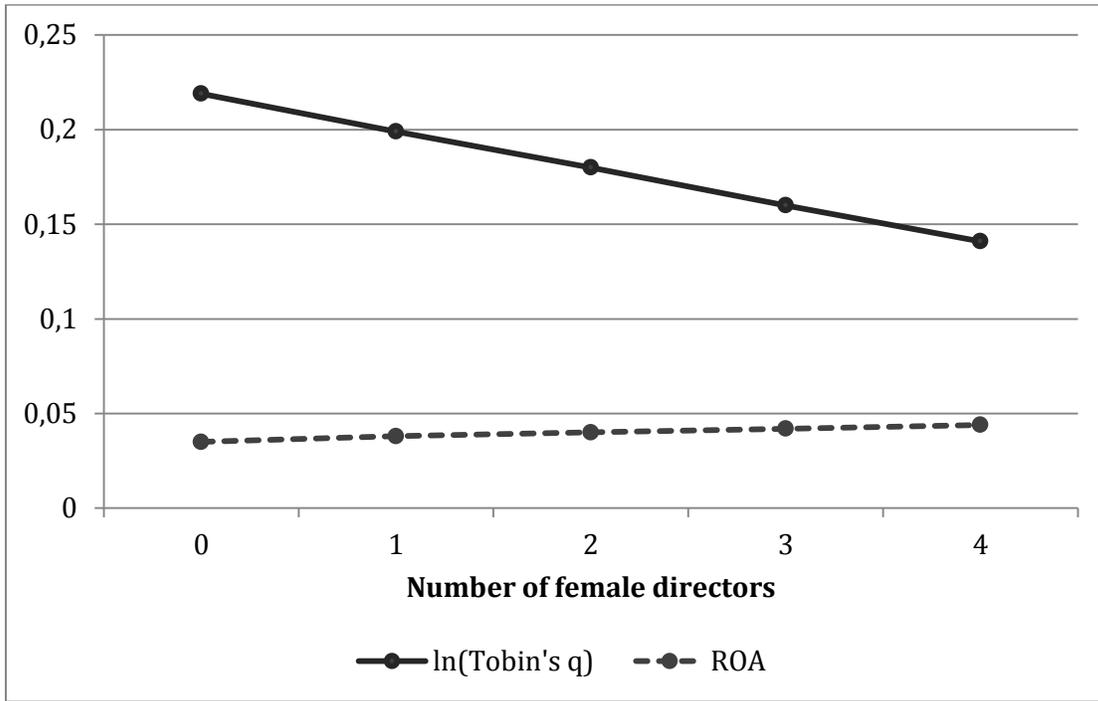


Figure 4: Predicted values for ln(Tobin's q) and ROA, by KLD Diversity strength score

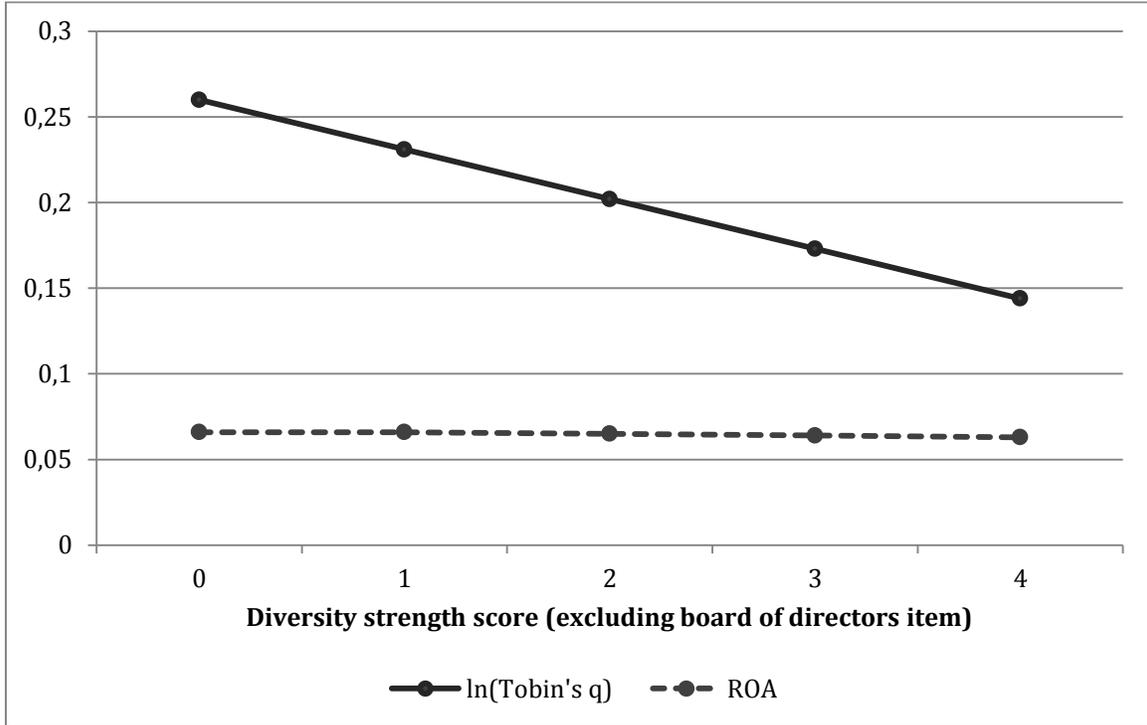
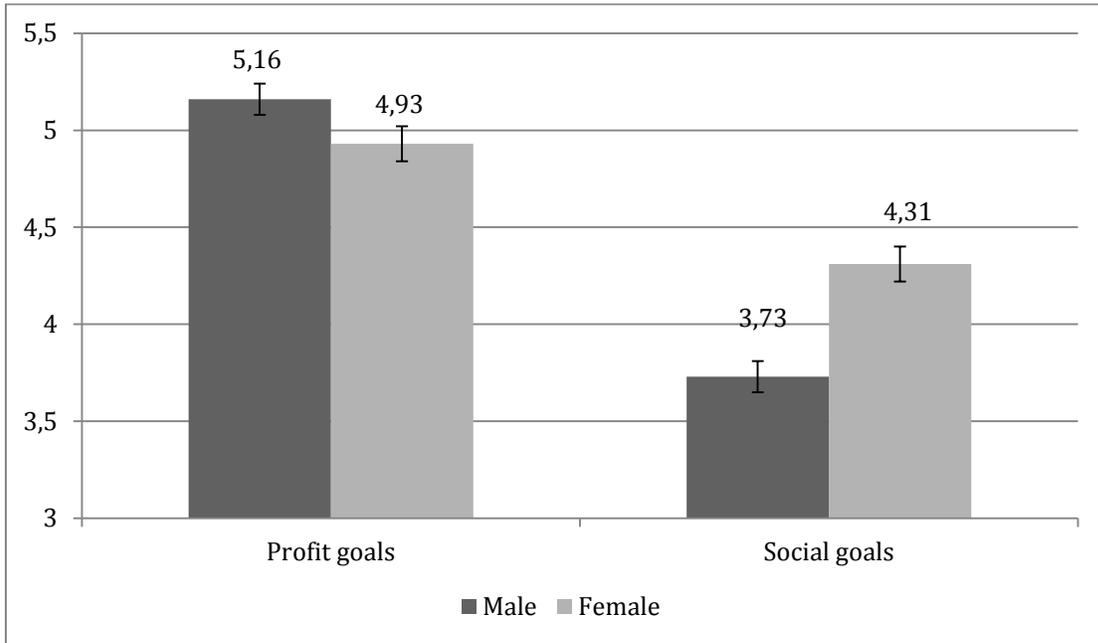


Figure 5: The effect of director gender on perception of firm goals



Gender effect on profit measure significant at $p < 0.01$; Gender effect on social measure significant at $p < 0.001$; error bars represent ± 1 standard error of means

Table 1: Summary statistics and correlations for Study 1

Variables	N	Mean	s.d.	1.	2.	3.	4.	5.	6.	7.
1. Female number	16,923	1.04	0.98							
2. Director number	16,923	9.42	2.67	0.49***						
3. Indep. directors	16,923	0.71	0.16	0.25***	0.11***					
4. ROA	16,857	0.03	0.2	0.05***	0.04***	0.02**				
5. Ln Tobin's q	15,905	0.22	0.72	-0.14***	-0.30***	-0.11***	0.13***			
6. Log assets	16,858	7.78	1.72	0.43***	0.58***	0.21***	0.09***	-0.33***		
7. Log market value	16,000	7.64	1.59	0.37***	0.43***	0.16***	0.20***	0.22***	0.83***	
8. Dividend yield	16,816	1.52	4.33	0.10***	0.13***	0.06***	0.00	-0.14***	0.13***	0.06***

*** p<0.001, ** p<0.01, * p<0.05

Table 2: Director Gender and Financial Performance

VARIABLES	Model 1 (ROA)	Model 2 (ROA)	Model 3 (Tobin's Q)	Model 4 (Tobin's Q)
Female number	0.002 (0.002)	0.002 (0.002)	0.036* (0.015)	-0.020* (0.009)
Director number	-0.000 (0.002)	-0.000 (0.001)	-0.043*** (0.007)	-0.004 (0.004)
Independent directors (%)	-0.003 (0.015)	0.010 (0.012)	-0.210** (0.073)	-0.018 (0.050)
Dividend yield	0.001* (0.000)	0.000 (0.000)	-0.014** (0.004)	-0.005*** (0.001)
Log(assets)	-0.029*** (0.008)	-0.028 (0.016)	-0.099*** (0.012)	-0.167*** (0.023)
Log(market value)	0.047*** (0.003)	0.064*** (0.004)		
ROA			0.860** (0.299)	0.509* (0.205)
Constant	-0.096*** (0.024)	-0.219* (0.095)	1.486*** (0.087)	1.666*** (0.172)
Observations	13,508	13,508	13,434	13,434
R-squared	0.068	0.076	0.167	0.231
Year FE	No	Yes	No	Yes
Firm FE	No	Yes	No	Yes
Number of firms		1,971		1,969

Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Table 3: Summary statistics and correlations for Study 2

Variables	N	Mean	s.d.	1.	2.	3.	4.
1. Diversity strengths	20,194	0.53	0.90				
2. Community strengths	20,194	0.14	0.48	0.46***			
3. Employee strengths	20,194	0.28	0.61	0.33***	0.27***		
4. ROA	20,099	0.01	0.26	0.04***	0.04***	0.04***	
5. Ln Tobin's q	18,490	0.24	0.78	0.03***	-0.07***	0.03***	0.00

*** p<0.001, ** p<0.01, * p<0.05

Table 4: Social Performance and Firm Performance

VARIABLES	Model 1 (ROA)	Model 2 (ROA)	Model 3 (Tobin's Q)	Model 4 (Tobin's Q)
Diversity strengths	0.001 (0.001)	-0.001 (0.001)	0.074*** (0.010)	-0.029*** (0.009)
Community strengths	0.003** (0.001)	0.001 (0.001)	0.013 (0.018)	-0.029† (0.016)
Environmental strengths	-0.003*** (0.001)	0.000 (0.001)	-0.004 (0.015)	-0.025 (0.016)
Corp. gov. strengths	0.005*** (0.001)	0.002 (0.001)	-0.105*** (0.017)	-0.014 (0.012)
Human rights strengths	-0.001 (0.003)	-0.001 (0.005)	-0.054 (0.084)	-0.065 (0.097)
Product strengths	-0.001 (0.003)	-0.000 (0.002)	0.161*** (0.030)	-0.001 (0.028)
Employee strengths	0.001 (0.001)	0.001 (0.001)	0.057*** (0.015)	0.018† (0.010)
Log(sales)	-0.004*** (0.001)	0.036*** (0.005)	0.119*** (0.010)	0.061† (0.031)
Log(net income)	0.040*** (0.002)	0.033*** (0.002)	0.260*** (0.025)	0.072*** (0.017)
Log(assets)	-0.048*** (0.001)	-0.074*** (0.005)	-0.483*** (0.026)	-0.347*** (0.044)
Log(market value)	0.010*** (0.001)	0.012*** (0.002)		
ROA			2.308*** (0.560)	1.481** (0.511)
Constant	0.202*** (0.007)	0.128*** (0.014)	1.692*** (0.129)	2.107*** (0.181)
Observations	14,650	14,650	14,519	14,519
R-squared	0.575	0.439	0.551	0.380
Year FE	No	Yes	No	Yes
Firm FE	No	Yes	No	Yes
Number of firms		3,096		3,083

Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05, † p<0.10

Appendix A: KLD ratings used in Study 2

Source: KLD. 2010. How to use KLD stats & ESG ratings definitions. Boston: RiskMetrics Group.

Issue area ratings

COMMUNITY

Strengths

Charitable giving
Innovative giving
Support for housing
Support for education
Non-U.S. charitable giving
Volunteer programs
Other strength

Concerns

Investment controversies
Negative economic impact
Tax disputes
Other concern

CORPORATE GOVERNANCE

Strengths

Limited compensation
Ownership strength
Transparency strength
Political accountability strength
Public policy strength
Other strength

Concerns

High compensation
Ownership concern
Accounting concern
Transparency concern
Political accountability concern
Public policy concern
Other concern

DIVERSITY

Strengths

CEO
Promotion
Board of directors
Work-life benefits
Women and minority contracting
Employment of the disabled
Gay and lesbian policies
Other strength

Concerns

Controversies
Non-representation
Other concern

EMPLOYEE RELATIONS

Strengths

Union relations
Cash profit sharing
Employee involvement
Retirement benefits strength
Health and safety strength
Other strength

Concerns

Union relations
Health and safety concern
Workforce reductions
Retirement benefits concern
Other concern

ENVIRONMENT

Strengths

Beneficial products and services
Pollution prevention
Recycling

Concerns

Hazardous waste
Regulatory problems
Ozone depleting chemicals

Clean energy
Management systems strength
Other strength

Substantial emissions
Agriculture chemicals
Climate change
Other concern

HUMAN RIGHTS

Strengths
Indigenous peoples relations strength
Labor rights strength
Other strength

Concerns
Burma concern
Mexico
Labor rights concern
Indigenous peoples relations concern
Other concern

PRODUCT

Strengths
Quality
R&D-innovation
Benefits to economically disadvantaged
Access to capital
Other strength

Concerns
Product safety
Marketing-contracting concern
Antitrust
Other concern