Corporate Philanthropy: Do Board Gender Diversity and CEO Gender Matter?

ABSTRACT

We examine the relationship between boardroom gender diversity and corporate philanthropy. Specifically, we hypothesize associations between corporate philanthropy and (i) board gender diversity, (ii) CEO gender, and (iii) genders of CEOs serving as board chairs. Both corporate philanthropy and presence of females in the boardroom have long been issues of importance to society but only relatively recently embraced by corporate boards. Corporate philanthropy is a discretionary social responsibility and the advancement of females to the boardroom is also voluntary as there is no U.S. legislative mandate to appoint women as CEOs or directors. Thus, our setting is a 'natural laboratory.' Using a relatively large dataset of 10,573 observations on corporate philanthropy of listed companies in the United States, we find evidence that corporate philanthropy is positively related to greater percentage of female independent directors on the board, when the CEO is female, and when female CEOs serve as board chair. Our results are robust to addressing selection bias and endogeneity that the limited prior studies on gender and corporate philanthropy have not considered. We further find that the critical mass threshold for board gender diversity to influence philanthropy is two female independent directors with three or more having a greater effect than two. Our study has important implications for gender and governance research, and for various stakeholders in practice.

Keywords: board diversity; corporate philanthropy; corporate social responsibility; gender.

INTRODUCTION

In the specific context of corporate philanthropy, we explore three related research questions in this study. First, how is the gender diversity of the board of directors related to corporate philanthropy? Second, how is the gender of the CEO related to corporate philanthropy, and third, how is the gender of the CEO serving as board chair related to corporate philanthropy? Given the pressures from society and interest groups faced by corporate America for increased corporate philanthropy and better corporate governance in terms of gender diversity in the boardroom, we juxtapose two separate but related research paradigms that have received scant focus in the literature. Despite the important role CEOs and directors play in developing a strategic response to philanthropy pressures from society, their effect on corporate philanthropy based on a paucity of research remains unclear. In particular, the limited scholarly research that we discuss later remains unclear on how board gender diversity and CEO gender are related to corporate philanthropy. The role of the gender of the CEO is virtually non-existent as only Kabongo, Chang, and Li (2013) consider CEO gender.

From a practical perspective, corporate social responsibility has seen a tectonic shift in society's expectations and corporate responsiveness over the last few decades. Management and boards are facing increasing pressure from social groups demanding greater social responsibility (Siefert, Morris, and Bartkus 2003; Kabongo et al. 2013) and emphasis by investment managers on socially responsibility. The Social Investment Forum (SIF) (US SIF 2018) reports that money managers are increasingly investing in socially responsible corporations, increasing investments

phenomenally from $639 billion in 1995 to $12 trillion in 2018.[1] While the focus on social factors has caught up with the focus on environmental factors over the last decade (SIF 2018), corporate philanthropy remains a relatively low priority. According to Giving USA (2018), giving by corporate America makes up a mere 5% of total giving, which has remained the same since 2009. Such philanthropy statistics confirm corporate America's view that philanthropy is the lowest ranked social responsibility (Aupperle, Carroll, and Hatfield 1985; Useem 1988) primarily because it is not demanded or required; rather it is a discretionary social responsibility (Carroll 1979). The belief that corporate philanthropy does not lead to significant direct tangible financial benefits in the form of revenues or profits may explain the low priority given to philanthropic activities by boards and executives (Rangan, Chase, and Karim 2015).

To heighten the awareness of the imperative for active corporate philanthropy, the Committee Encouraging Corporate Philanthropy (CECP) was formed in 1999. The CECP comprises CEOs and board of director chairs of corporate America and conducts regular meetings, conferences, and correspondence to drive giving back to the community. The CECP is the only international forum of business CEOs and Chairpersons actively involved in strategically pursuing a mission focused exclusively on corporate philanthropy. According to the CECP, although the value of corporate philanthropy has increased including the number of organizations giving due to pressure from society, total giving remains well below desired levels. Since CEOs and boards of directors are involved in shaping strategies for social responsibility (Kabongo et al. 2013), an important question that naturally arises is why some boards and CEOs emphasize corporate

[1] The Social Investment Forum defines itself as "the U.S. national nonprofit membership association for professionals, firms and organizations dedicated to advancing the practice and growth of socially responsible investing (SRI). Critical to responsible investment practice is the consideration of environmental, social and corporate governance criteria in addition to standard financial analysis. Forum members support SRI through portfolio selection analysis, shareholder advocacy and community investing" (US SIF 2018).

philanthropy and others do not. This is a worthy issue to consider not only because of its impact on society but also because research on corporate determinants of philanthropy remains inconclusive (Vaidyanathan 2008; Gautier and Pache 2015) and has barely touched on how the gender of those empowered to make philanthropic decisions influence corporate philanthropy (Wang and Coffey 1992).

Wang and Coffey (1992) examine how the proportion of women and minority directors on the board is related to corporate contributions to charity. For a small sample of 78 Fortune 500 firms in 1984 they find that their variable is approaching marginal significance ($p = 0.105$) in its association with corporate contributions. Due to their variable measure, it is not discernible from their results whether it is the gender or minority status of the directors that are important in the analysis. Moreover, Williams (2003) argues that the small sample and lack of appropriate control variables make it difficult to interpret the results in Wang and Coffey (1992). Williams (2003) argues that Wang and Coffey (1992) do not control for firm profitability, firm risk, and industry effects.

Williams (2003) extends Wang and Coffey (1992) and finds for a sample of 185 Fortune 500 firms across 1991 and 1994 that the percentage of females on the board is positively related to corporate philanthropy after controlling for firm profitability, board independence, and firm reputation. However, Williams (2003) also does not consider industry effects nor does he include year effects. In a more recent study, Kabongo et al. (2013) utilize the *Kinder, Lydenberg, and Domini Ratings Data* (KLD) to derive their board diversity representation and charitable giving variables. They examine gender as a component of their two board diversity variables that are labelled *BOARD* and *CEO*. The *BOARD* variable is a dummy variable that is coded 1 if (i) four or more of the board seats are held by a female, a minority, or a disabled director if the board size

is at least 12 directors, or (ii) one-third or more of the board seats is held by a female, a minority, or a disabled director if the board size is at less than 12 directors, and 0 otherwise. The *CEO* variable is also a dummy variable that is coded 1 if the CEO is a female or a minority, and 0 otherwise. Kabongo et al. (2013) report mixed results on the relationship between their two board diversity measures and corporate philanthropy.[2] Given their measures, it is not apparent which component of their board diversity variable (gender, minority, or disabled) and CEO diversity variable (gender or minority) drives their results.

In the limited existing research only Williams (2003) focuses on gender on the board and corporate philanthropy. Williams (2003) acknowledges the limitations of his sample and urges future research to more comprehensively examine board gender diversity and corporate philanthropy when the prevalence of women directors increases. He proposes that as females gain board seats and serve as CEOs, they will garner power to shape their organization's philanthropic focus. To the best of our knowledge, no existing study has examined the effects of gender diversity on the board, the gender of the CEO, and the gender of the dual role of CEO and board of director chair on corporate philanthropy. We reason that in addition to design differences in the three studies reviewed above (e.g., design, measurement of variables, sample period, and sample size), two important explanations for the limited research and mixed results are (i) the low incidence of female representation on corporate boards and in the role of the CEO, and (ii) the unavailability of

[2] Similarly, in the general corporate social responsibility literature, the association between female presence on the board and corporate social performance (CSP) is mixed. For example, Bear, Rahman, and Post (2010) examine 51 healthcare companies in Fortune's Most Admired in 2009 and find that the number of females on the board is positively related to CSP. Boulouta (2013) finds no significant effect of women on the board and CSP strengths but a marginal negative effect of women on boards and bad CSP outcomes for 820 S&P 500 firms across 1999 to 2003. In contrast, Hafsi and Turgut (2013) report for a sample of 95 S&P 500 firms in 2005 that the number of females serving as independent directors is positively associated with good CSP outcomes.

such data to facilitate large scale empirical research.[3] We exploit available datasets (KLD and *The Corporate Library*) to address our research questions thereby extending our understanding of how gender in the boardroom influences corporate philanthropy and filling an important void identified by Williams (2003) and Hillman, Shropshire, and Cannella (2007).[4] In addition to employing a more comprehensive set of control variables, we also implement advanced statistical procedures to address selection bias and endogeneity that has been neglected in gender and corporate philanthropy research specifically, and in CSP research generally.

We postulate that differences between males and females in relation to their innate nurturing and caring traits, as well as their sensitivities and support for morality and social justice, provide an opportunity to provide some insight on variations in corporate philanthropy. Our results based on 10,753 observations spanning 2003 to 2009 show that greater female presence on the board, female CEOs, and female CEOs serving as board chair are positively related to charitable giving. Our results are robust to selection bias and endogeneity, and to a battery of additional analyses. We also find that the critical mass for females to make a difference to corporate philanthropy is two female independent directors. As reported subsequently, we find strong evidence of a positive relationship between corporate philanthropy and both board gender diversity and females taking leadership as CEO. These findings exemplify and clarify the role of females in the boardroom with respect to corporate philanthropy.

BOARD AND CEO GENDER AND CORPORATE PHILANTHROPY

[3] For example, data from Catalyst (2009, 2018) shows that only one Fortune 500 firm had a female CEO in 1995 that increased to 24 in 2018. Similarly, female presence on boards has increased from an average of 9.6% in 1995 to about 15% in 2017.

[4] KLD was acquired by GMI Risk Metrics in 2009. Data on CEO and director gender is available through *The Corporate Library*, which was acquired by GMI Risk Metrics.

Resource dependence theorists postulate that organizations interact and are dependent on entities in their external environment that control important resources (Pfeffer 1972; Pfeffer and Salancik 1978). As the largest entity in the external environment is the society at large and national and local communities, an important consideration from a resource dependence perspective is how CEOs and boards of directors respond to the pressures of society to manage its relationships with the external environment. Our examination of the link between gender of the CEO and directors in a corporate philanthropy context extends prior resource dependence research that focuses on the functional and occupational attributes of the directors. Williams (2003) and Hillman et al. (2007) urge researchers to explore how the gender of the CEO and gender diversity on the board of directors is related to corporate philanthropy to advance our understanding and knowledge of the potential benefits of female CEOs and directors.

One important change over the years seen in the boardroom is the slow but gradual increase in gender diversity. Females in executive and directorial positions can influence the philanthropy strategy of the organization from several theoretical perspectives. First, resource dependence theory stresses that organizational survival depends on an organization's ability to manage and respond to its external environment by forming linkages with elements of the external environment (e.g., Pfeffer 1972; Pfeffer and Salancik 1978). Pfeffer and Salancik (1978) posit that the board of directors is a primary vehicle for the organization-external environment linkage, and since the pressure from the external environment is fluid, there is a reciprocal imperative to maintain a board comprising directors possessing skills, influence, or connections to the external environment. Second, legitimacy theory argues that organizational practices are a response to societal demands and pressures; that is, an organization strategically seeks to gain legitimacy by responding to its key constituents (e.g., Ashforth and Gibbs 1990; Meyer and Rowan 1977; Suchman 1995). The

extent to which an organization conforms is a major determinant of its reputation and eventual survival. Prior research (Wang and Coffey 1992; Williams 2003) argues that compared to males, females have greater connectedness to the community and have backgrounds that make them more sensitive to firms' social responsibility. Under both the resource dependence and legitimacy theories, having females serve as CEOs and as directors can increase a firm's responsiveness to social environmental pressures and enhance its relationship with external stakeholders.

Female CEOs and female directors on the board can bring a unique set of resources and organizational legitimacy to the firm for several reasons. First, society is increasingly demanding diversity in the workplace and equal opportunities for women in top managerial and executive positions (Catalyst 2008; Kabongo et al. 2007). Second, it makes good business sense to include females on the board because females represent the majority component of the consumer market (Hillman et al. 2007). Third, a female CEO or the presence of female directors on the board signals managerial commitment to diversity and equal opportunities for women (e.g., Rynes and Rosen 1995). Fourth, female CEOs and directors often serve as mentors or are seen as role models for other women both within and outside the organization (Mattis 2000). Fifth, females have symbolic value both internally and externally, and firms are likely to gain legitimacy from female and minority employees and other stakeholders as female friendly employers if females hold executive positions (Kabongo et al. 2013). Finally, because increasing the presence of females on the board brings greater diversity, the likelihood of forming new or strengthening existing linkages with elements of the external environment is greater (Hillman et al. 2007; Kabongo et al. 2013).

One of the most prominent theories on gender differences, gender socialization theory, has received significant support in the extant literature. This theory postulates that males and females have different orientations toward moral principle primarily because females internalize ethical

and communal values through their social roles. For example, Eagly (1987) argues that females are more socially sensitive and responsive than males, Eagly and Carli (2003) suggest that females are more helpful, kind, nurturing, and sympathetic than males, and Toussaint and Webb (2005) show that females are more empathetic than males. Females are also known to be more sensitive to ethical and moral issues than males (Gilligan 1982; Jaffee and Hyde 2000; Ibrahim, Angelidis, and Tomic 2009). Smith, Wokutch, Harrington, and Dennis (2001) argue that females exhibit a stronger corporate social orientation than males. Collectively, these studies suggest that females are likely to be more concerned about various stakeholders than their male counterparts, and thus, be more responsive and supportive of corporate philanthropy. A substantial body of research indicates that females are more altruistic than males (e.g., Kabongo et al. 2013)

Since charitable giving is discretionary, independent directors can take the opportunity to enhance their directorial reputation by engaging in charitable giving. In the current business environment where firms are facing scrutiny from regulators and the public, independent directors may also respond by promoting corporate philanthropy as a sign of good corporate citizenship. Performance as an independent director influences the reputation of the individual in the directorial labor market, which is clearly evident when directors lose board seats due to corporate wrongdoing. As females are posited to have stricter moral and ethical standards, female independent directors may be more concerned about social compliance. Thus, greater female presence on the board suggests that firms with greater female independent directors on the board will be more likely to embrace corporate philanthropy as females are likely to enact their nurturing, caring, empathetic, and socially sensitive behaviors. Consistent with signaling theory, female independent directors may heighten attention to their firm's social responsibilities to not only enhance their firm's but their own reputational standing within the organization through their focus

on establishing links with and responding to external stakeholders' concerns on social issues. Hence, our first hypothesis is:

Hypothesis 1. Female independent director representation on the board will be positively associated with corporate philanthropy.

As the CEO is the top management position in the firm and sets the tone and culture of the firm, CEOs are in a commanding position to shape the firm's philanthropy agenda. The CEO serves on the board and is the key link between board governance and firm management. Drawing on resource dependence, legitimacy, and gender socialization theories, we therefore posit that female CEOs will be positively associated with corporate philanthropy.

Hypothesis 2. Female CEOs will be positively associated with corporate philanthropy.

Finally, we advance that female CEOs who also serve as board chairs will be positively associated with corporate philanthropy because holding the position of CEO and board chair vests considerable power in this position, which can significantly influence the philanthropic tone of the firm.

Hypothesis 3. Female CEOs serving as board chair will be positively associated with corporate philanthropy.

METHOD

Sample

Our sample was created by matching corporate philanthropy data from KLD, financial data from Compustat, and governance and director biographical data from *The Corporate Library* for

years 2003 to 2009.[5] The KLD and *The Corporate Library* databases contain information on more than 3,000 firms. After merging these databases and excluding observations with missing data, our final sample consists of 10,573 observations. Our sample is one of the largest in a study of corporate philanthropy primarily because the data is not survey based and thus not subject to non-responses or biases, not limited to large firms such as the Fortune 500 or S&P 500 because the data sources above, especially KLD, provide expanded coverage, and we are not limited to manual collection of governance data that in the past has constrained sample size in governance and CSP research.

Empirical Model and Variables

We construct our corporate philanthropy regression model based on prior studies on corporate philanthropy (e.g., Siefert, Morris, and Bartkus 2003; Williams 2003; Kabongo et al. 2013) and gender effects on corporate social performance (e.g., Bear, Rahman, and Post 2010; Boulouta 2013; Hafsi and Turgut 2013). The dependent, test, and control variables in our regression models are discussed in the following subsections.[6] All regressions results are based on Huber-White robust standard errors adjusted for heteroskedasticity.[7]

$$Charity = f\{Female\ Representation,\ Female\ CEO\ (or\ Female\ Duality),\ Board\ Independence,\ Board\ Size,\ Duality,\ Firm\ Size,\ Profitability,\ Free\ Cashflow,\ Leverage,\ Growth,\ Community\ Concerns,\ Industry\ and\ Year\ Fixed\ Effects\} \quad (1)$$

Dependent variable

[5] We begin our sample in 2003 because KLD significantly expanded its coverage to more than 3,000 companies and because the presence of females on boards increased significantly following governance reforms due to the passage of the Sarbanes-Oxley Act of 2002. Our sample ends in 2009 because KLD was acquired by Risk Metrics and data structures have changed since.

[6] Operational definitions of all variables are summarized in Table 2.

[7] Our results are consistent when we estimate standard (non-robust) OLS regressions.

Our dependent variable is the extent of a firm's corporate philanthropy, denoted *Charity*. The KLD database provides multidimensional ratings of a firm's CSP and this database has been extensively used in the management and corporate social responsibility literatures (e.g., Waddock and Graves 1997; Hillman and Keim 2001; Boulouta 2013; Kabongo et al. 2013). KLD provides the most comprehensive data on multiple dimensions of CSP. The advantages of KLD data are that analysts at KLD rate firms using an objective set of screening criteria, the ratings are applied consistently across companies, the analysts performing the ratings are independent of the rated companies or any brokerage house, and the data are gathered from a wide range of sources. An added advantage of the KLD data is that since its inception in 1988, the data coverage has expanded from 650 firms to 3,100 since 2003. Such coverage extends the generalizability of the analyses beyond the largest firms typically included in the Fortune 500 or S&P 500.

Consistently across 2003 to 2009, the KLD data on Community (giving back to the community) includes six categories of direct charitable giving and include: (i) charitable giving of at least 1.5% of a trailing three-year net income before tax, (ii) giving to non-profit charitable organizations that support the economically disadvantaged, (iii) charitable giving outside the U.S. that comprises at least 20% of all giving, (iv) public or private partnerships that provide housing for the economically disadvantaged, (v) public or private partnerships that provide primary or secondary education particularly for the economically disadvantaged, and (vi) other strong in-kind giving program. Therefore, following prior research, we create a variable called *Charity* by summing these categories.[8] For our regression analyses, we use the natural logarithm of *Charity*.

[8] Prior research on CSP adds the strengths and subtracts the weaknesses in a given category of CSP because they are interested in the overall CSP of a firm (e.g., Waddock and Graves 1997; Boulouta 2013). However, our dependent variable of interest is more specific as we focus on corporate philanthropy. KLD data does not have a comparative weakness for corporate philanthropy so it is not possible to derive a net (strengths minus weakness) score of philanthropy. For example, a firm that does not give back to the community is not rated weak on the charitable items but is given a score of zero.

Test variables

Our three test variables are derived as follows. *Female Representation* captures the gender diversity on the board and is the percentage of independent female directors on the board. An independent female director has no personal or professional affiliation with the firm other than the director's membership on the board. The total number of independent female directors is scaled by the total number of directors on the board to derive our percentage measure. Our second test variable, *Female CEO* is an indicator variable that is coded 1 if the CEO is a female, and 0 otherwise. Our final test variable, *Female Duality*, is an indicator variable that is coded 1 if a female CEO also serves as the board chair, and 0 otherwise. Data on the gender of each member of the board was obtained from *The Corporate Library* database.

Control variables

We include several control variables previously used in corporate philanthropy, and gender and CSP research, and added two variables not considered in prior research. We include *Board Independence, Board Size, Duality, Firm Size, Performance, Free Cashflow, Leverage, Growth, Community Concerns,* and *Industry* and *Year Fixed Effects*. *Board Independence* represents the percentage of independent directors on the board and is the number of directors with no personal or professional affiliation with the firm other than the director's membership on the board, scaled by the total number of directors on the board. *Board Size* is the total number of directors on the board. *Duality* is coded 1 when the CEO also serves as the chairperson of the board. We obtain board and CEO data from *The Corporate Library* database.

We control for firm size (*Firm Size*) using the natural logarithm of total assets, firm profitability (*Profitability*) using return on assets derived as net income scaled by total assets, firm risk using total liabilities scaled by total assets (*Leverage*), and firm growth based on change in

sales over the prior year (*Growth*). Size and profitability control for the effect that larger firms and more profitable firms have more discretionary resources and are highly visible to external stakeholders (e.g., Williams 2003; Boulouta 2013; Kabongo et al. 2013) and may have a profit motivated strategy to engage in corporate philanthropy (Fry, Keim, and Meiners 1982). However, more profitable firms may not be inclined to engage in corporate philanthropy because they may not need charitable activities to drive profits and moreover, these firms may view philanthropic activities as an expense (Fry et al. 1982). We include risk because Waddock and Graves (1997) posit that risk influences management's attitude towards CSP whereby risky firms may or may not engage in philanthropic activities as the focus on risk management may or may not include enhancing corporate reputation in the community. We control for growth because firms seeking growth are more likely to use corporate philanthropy as a marketing strategy or may shy away from philanthropic activities to channel their resources to supporting growth activities (e.g., Fry et al. 1982; Hillman and Keim 2001).

We include two new control variables not previously considered in the philanthropy literature, *Free Cashflow*, that represents the amount of cash available for discretionary purposes, and *Community Concerns*, that captures firms' activities and events at the community level that can harm corporate reputation. *Free Cashflow* is computed as cash from operations less capital expenditure scaled by total assets.[9] It is important to control for free cash flow because firms may be more likely to give if they have discretionary cash, which profitability may not capture because cash and profits are not synonymous (Thomas et al. 1999; Copeland et al. 2005) and because charitable activities often require cash contributions. *Community Concerns* is the natural logarithm of the sum of four categories of activities and actions that KLD codes as having a negative effect

[9] Free cash flow computed as cash from operations less capital expenditure is the most common measure of free cash flow metric reported by U.S. firms (Adhikari and Duru 2006).

on the community. These four KLD negative community categories are investment controversies, negative economic impact, tax disputes, and other events. We control for *Community Concerns* because firms may be motivated to enhance and/or remedy any tainted reputation by engaging in philanthropic activities.

Since previous research indicates CSP ratings and corporate giving differ across industries (e.g., Waddock and Graves 1997; Siefert et al. 2003), and the CECP data shows that corporate philanthropy also varies by industry, we include industry fixed effects. The industry fixed effects also control for differences in firm financial performance (Waddock and Graves 1997) and the likelihood of female directors serving on the board (Hillman et al. 2007). We employ the Fama and French 10 industry portfolio categories for industry fixed effects. Data for all of the financial and industry control variables are obtained from Compustat. Finally, because our data spans 2003 to 2009, we include year fixed effects. For efficiency of presentation, we do not tabulate industry and year fixed effects.

<<< INSERT TABLE 1 ABOUT HERE >>>

RESULTS

Descriptive Results

Table 1 presents the Fama and French 10 industry portfolio composition of our sample and distribution of charitable giving, board gender diversity and CEO gender across these industries. Of the total sample of 10,573 observations, there are 1,017 (9.6%) firms engaged in charitable giving which is distributed across industries ranging from 6.7% to 15.6%. The data also shows that as a proportion of their respective industry groups, the top-three charitable giving industries are consumer non-durables, utilities, and consumer durables. The top-three industries for independent female directors are consumer non-durables, utilities, and shops, and for female CEOs

are telecom, shops, and consumer non-durables. The distribution of these variables by industry supports the needs to control for industry fixed effects in the multivariate analyses.

Table 2 – Panel A reports descriptive statistics on our variables. The mean of *Charity* is 0.080 and its median is 0. The average percentage of independent female directors is about 12.5% and female CEO occur in about 3% of our sample. The presence of female independent directors in our sample compares well to those reported by independent agencies. For example, Catalyst (2008) reports that of the Fortune 500 firms, 14.8% and 15.2% of board seats were held by females in 2007 and 2008, respectively. The mean (median) of our board variables (*Board Independence* = 0.821 (0.857), *Board Size* = 9.24 (9), and *Duality* = 0.475 (0)) are similar to prior governance research. Other descriptive statistics can be gleaned from Table 2.

None of the correlations in Table 2 – Panel B between the test and control variables are sufficiently high (> 0.80) to suggest potential multicollinearity threats. The highest correlation between variables included together in a regression is 0.632 between *Free Cashflow* and *Profitability*. Further, regression variance inflation factors (VIFs) do not exceed 3.5 that is well below the accepted maximum threshold of 10 (Kennedy 1992).

<<< INSERT TABLES 2 AND 3 ABOUT HERE >>>

Hypotheses Tests

Table 3 reports the results of our primary analyses that test the three research hypotheses. Overall, our supported hypotheses are statistically significant and the explanatory power of our regressions are comparable to prior research.[10] Hypothesis 1 predicted that female independent director representation on the board will be positively associated with corporate philanthropy. The evidence in Table 3 supports hypothesis 1 as it shows that *Female Representation* is positively and

[10] As some studies use a binary measure for corporate philanthropy (Kabongo et al. 2013) and logistic regression, we re-perform our tests similarly and find all our results are consistent.

statistically significantly related to *Charity* across all relevant regressions ($p < 0.01$). Hypothesis 2 predicted that female CEOs will be positively associated with corporate philanthropy. The evidence in Models II and III in Table 3 supports this hypothesis as the *Female CEO* variable is positively and statistically significantly related to *Charity* ($p < 0.01$). Hypothesis 3 predicted that a female CEO serving as board chair will be positively associated with corporate philanthropy. The evidence in Table 3 (Model IV) supports hypothesis 3 since *Female Duality* is positively and statistically significantly related to *Charity* ($p < 0.01$).

Results on our control variables indicate that *Board Independence, Board Size, Firm Size, Free Cashflow,* and *Community Concerns* are all positively and statistically significantly ($p < 0.01$) associated with *Charity*. In contrast, *Profitability* and *Growth* are negatively and statistically significantly ($p < 0.01$) associated with *Charity*.

Additional Analyses

Potential selection bias and endogeneity

We employ two different but complementary analyses to address selection bias and endogeneity. It is likely that the presence of females on the board and serving as a CEO is not a random event because (i) some firms may value greater gender diversity on the board and in top management, (ii) special interest groups (e.g., NACD, Catalyst) may engender greater gender diversity on the board and top management, and (iii) female candidates may accept or decline such positions based on firms' profiles. Therefore, the presence of females on the board and in the role of CEO may be related to some of the factors affecting corporate philanthropy and/or females may be more willing to accept invitations to serve in more community or charitable entities given their concern for social justice, and innate nurturing and caring nature. If we do not control for such potential endogenous effects, the parameter estimates on our three test variables, *Female*

Representation, Female CEO, and *Female Duality*, could be biased. We do not delve into determinants of females on the board and in the role of the CEO as that is not the focus of our study, but leave that to future research. The two approaches we employ are a Heckman two-stage analysis and propensity score matching (PSM).

We implement a two-stage Heckman (1979) procedure to derive an inverse-mills ratio (IMR) by estimating the following first-stage probit choice model based on the prior literature on gender diversity on the board and top management team (Fryxell and Lerner 1989; Agrawal and Knoeber 2001; Carter et al. 2003; Farrell and Hersch 2005; Hillman et al. 2007; Adams and Ferreira 2009; Srinidhi, Gul, and Tsui 2011) and include the IMR in the second-stage regressions of *Charity* on our test variables.

$$Female = f\{Board\ Independence, Board\ Size, Active\ CEOs, Multiple\ Boards, Firm\ Size, Profitability, Free\ Cashflow, Leverage, Market\ to\ Book, TobinsQ, Firm\ Age, Inside\ Own, CSR\ Concerns, Industry\ and\ Year\ Fixed\ Effects\} \quad (2)$$

The dependent variable, *Female*, is coded 1 if there is at least one female on the board serving as an independent director or the firm's CEO, and 0 otherwise. We include *Board Independence* because independent boards are associated with female presence in the top echelons of the firm. We include *Board Size, Active CEOs,* and *Multiple Boards* because larger boards, presence of active CEOs on the board, and directors serving on multiple boards can increase networking opportunities to seek out female candidates for invitations to the board and in top management. As larger firms and more established firms are more visible and attract greater attention from interest groups on gender diversity issues, and females are risk averse and thus may find more profitable, financially cash healthy, and highly valued firms less risky, we include *Firm Size, Firm Age, Profitability, Free Cashflow,* and *TobinsQ*. In contrast, as females may view more

leveraged, high growth firms, and firms with corporate social responsibility concerns as riskier, we incorporate *Leverage, Market to Book,* and *CSR Concerns* in the first-stage probit model. We also include *Inside Own* because firms closely held by insiders are less likely to invite females to serve in top positions. Finally, we include industry fixed effects (*Industry Fixed Effects*) because certain industries have a greater pool of female candidates for directorships and top management positions, and year fixed effects (*Year Fixed Effects*) are included to control for time effects. We report the results of this first-stage probit model in Table 4, which shows that *Board Independence, Board Size, Active CEOs, Multiple Boards, Firm Size, Free Cashflow, TobinsQ,* and *Firm Age* are positively related, while *Inside Own* and *CSR Concerns* are negatively related to the presence of a female independent director or female CEO. *Profitability, Leverage,* and *Market to Book* are not significant in the first-stage model.

The significant IMR variable suggests evidence of selection bias in relation to the presence of a female independent director and/or a female CEO is present in our analyses and should be accounted for. When we include the IMR in our hypotheses test regressions, the second-stage regression results in Table 4 indicate that the three test variables, *Female Representation, Female CEO,* and *Female Duality*, are consistent with our primary results and do not alter the conclusions of our primary regressions reported in Table 3.

We apply PSM methodology (Rosenbaum and Rubin 1983) to select control observations where there are no females on the board or CEO role. The PSM procedure we employ matches firms without replacement on the condition that there is at least one female independent director on the board or the CEO is a female (*Female* = 1) to firms where there is no female on the board or serves as a CEO (*Female* = 0) across variables per Equation (2) above. The idea underlying the

PSM technique is to produce a matched-pairs sample where observations are similar across the variables matched on to reduce bias from potential misspecification (Rosenbaum and Rubin 1983).

The PSM algorithm is estimated separately for each year and include industry fixed effects. Overall, using a 0.01 match tolerance yields a sample size of 4,368 comprising 2,184 matched-pairs observations. The differences in the means between the pre-and post-PSM matched samples are presented in Table 5 and show that the significant differences in the variables prior to the PSM fade after the PSM. In Table 6, we present the regressions based on the PSM sample which confirms our primary results in Table 3 and corroborates the Heckman two-stage analyses results in Table 4. All in all, we infer that our results are robust as the results across Tables 3, 4, and 6 provide coherent assurance that our findings are consistent when we employ two approaches to address selection bias and potential endogeneity, and when we do not employ such procedures.

Critical mass

Based on interviews with 50 females serving as directors, Konrad, Kramer, and Erkut (2008) proposed that the presence of a female effect on boardroom decisions is achieved when a critical mass of at least three female directors are on the board. They reason that one female on the board is tokenism, two is better but three provides a sense of collective support for their voices to be heard. In our sample, the presence of none, one, two, and three or more female independent directors on the board respectively are 35.2%, 37.2%, 20.8%, and 6.8%. To examine whether the critical mass proposition also applies to corporate philanthropy, we create three indicator variables, *Female_1*, *Female_2*, and *Female_3*, which are respectively coded 1 if there is only one female independent director, only two female independent directors, and three or more female independent directors on the board, and 0 otherwise. We then substitute the *Female Representation* variable by these three indicator variables and re-estimate the Model III regression

in Table 3 for the full sample. In untabulated tests, we find that *Female_1* is not significant, but both *Female_2* and *Female_3* are positive and significantly ($p < 0.01$) related to *Charity*. *Female CEO* remains positive and significant ($p < 0.01$) as per the results of Model III in Table 3. We repeat this test by re-estimating the Model I regression in Table 3 for the sample where the CEO is male as the critical mass of females on the board may matter more when the leader is a man. Again, in untabulated tests, we find the same results; both *Female_2* and *Female_3* are positive and significantly ($p < 0.01$) related to *Charity*. To evaluate whether having three female independent directors is better than two as proposed by Konrad et al. (2008), we test the differences in the coefficients of *Female_2* and *Female_3* and find that indeed *Female_3* has a greater impact than *Female_2* (F test $p < 0.01$). Overall, our results here suggest that the presence of one female independent director may be indicative of tokenism, and while the critical mass threshold is two female independent directors, the impact of having three independent female directors is much larger. Our findings here open up research opportunities for empirically examining gender critical mass effect in other corporate contexts such as CSP and firm performance where the jury is still out on the effect of gender presence on the board.

Alternative measures and additional control variables

To check the robustness of our results, we performed several alternative analyses. First, we derived alternative measures for some of our test variables and re-estimated all the primary regressions reported in Table 3. We find similar results when we employ the number of female independent directors on the board or an indicator variable taking the value 1 if there is at least one independent female director on the board, and 0 otherwise. Second, we employ alternative measures for firm size including the natural logarithm of total sales and natural logarithm of number of employees and find the same results. Likewise, alternative measures for risk (debt to

equity), profitability (return on equity or return on sales), and growth (market to book ratio) also produce similar results, and more importantly, the results for our three hypothesized variables do not change. Our test variable results are also not sensitive to the inclusion of geographic and business segments to capture corporate operational diversity, while both segment variables are positively and statistically significantly ($p < 0.05$) related to *Charity*.[11] Next, since most previous research on corporate philanthropy and CSP study large firms comprising the S&P 500 or Fortune 500, we perform two additional sets of analyses. First, we include an indicator variable for membership in either of these indices and find it to be positively and statistically significantly ($p < 0.01$) related to *Charity* and the significance of our three test variables (*Female Representation, Female CEO, Female Duality)* remain the same ($p < 0.01$) in the respective regressions. Second, we re-estimate the primary regressions only on the sample of firms in the S&P 500 or Fortune 500 indices and obtain consistent results on a reduced sample. Finally, we control for firms' performance on other socially responsible activities along the KLD dimensions of diversity, environmental performance, employee relations, and human rights. Inclusion of a CSR score constituted by netting off the strengths and weaknesses along these four dimensions does not alter our results in Table 3 nor our ensuing conclusions. This net CSR score is positive and significant ($p < 0.01$) in all four regressions and *Female Representation, Female CEO,* and *Female Duality* also remain positive and significant ($p < 0.05$) in a smaller sample ($n = 4,553$) due to missing data on the other CSR metrics.

DISCUSSION AND CONCLUSION

A significant void exists in our understanding of the relationship between gender diversity in leadership roles and corporate social responsibility (Rao and Tilt 2016). The specific motivation

[11] For the segment tests, our sample size drops to 6,268 due to missing segment data in Compustat.

for this study is to investigate the relationship between board gender diversity and CEO gender, and corporate philanthropy. Although top management and boards of directors are facing increasing pressure to give back to society, and the fact that observations by corporate philanthropy watchdogs such as the CECP show considerable variations in the area of corporate philanthropy, it remains unclear why some companies engage in philanthropy and others do not. It also remains unclear why some executives and boards of directors' support philanthropy and others do not. Coupled with philanthropy pressures is the public and regulatory scrutiny on companies to implement better governance practices and diversify the representation of females on the board and at the executive level. While there are studies examining how the presence of females engender firm value or performance, research on board gender diversity and female CEOs are virtually non-existent in the CSP literature generally, and in relation to corporate philanthropy specifically. Against such a backdrop, our study provides important exploratory evidence to fill a research void. Drawing on the resource dependence, legitimacy, and social theories, we test hypothesized associations between variables representing board gender diversity and CEO gender, and corporate philanthropy on a sample of 10,573 observations spanning 2003 to 2009.

Theory suggests that female representation on the board and a female CEO are more likely to engage in corporate philanthropy because females care more about social justice, are more ethical and are likely to represent various interest groups (relational capital). The evidence from our tests bear out these predictions and suggests that females at the top are more supportive and responsive to societal pressures for philanthropy. While our evidence suggests from a social justice and reputation building perspectives that corporate philanthropy may be a good thing, from a firm strategy perspective it could be detrimental to firm value and investment opportunities. We believe more research is warranted to unravel how gender effects on corporate philanthropy

influences firm value and performance, and the role of investors in this process. For instance, a potential issue we have yet to explore is the motives of directors and executives for engaging in corporate philanthropy, which could differ by gender. Motives could range from individual and corporate reputation building to seeking profits, or to placate society and investors following visible corporate wrongdoing that may include financial and non-financial events. These possibilities present opportunities for advancing our understanding of how gender in the boardroom interplays with corporate philanthropy and firm outcomes.

Our study speaks to managers of non-profits and other charitable organizations seeking contributions and partnerships with listed companies. These interest groups can utilize the results of our study to pursue firms that have more gender diverse boards and executives, and frame their requests as social responsibility and giving back to the community. For firms, our study suggests that they can increase their reputation and responsiveness to social issues by implementing more gender diverse boards and placing females in top executive roles. As firms and boards are increasingly being evaluated along social responsibility, our results suggest that gender diverse boards and firms with female CEOs may be rated more favourably. Moreover, as money managers are channelling more funds into socially responsible firms, corporate management may find it fruitful to increase female presence in the boardroom as a signal of good and responsible governance.

One limitation of our study is that the KLD data only provides categorical data (yes or no) on whether a firm makes a charitable contribution, so we are unable to test the value of corporate giving. A second limitation is that while we conduct robustness tests, we cannot rule out other endogenous effects, and most importantly, our analyses do not imply causation but provides evidence of associations.

APPENDIX

Six KLD Community Giving Categories

Charitable Giving: The company has consistently given over 1.5% of trailing three-year net earnings before taxes (NEBT) to charity, or has otherwise been notably generous in its giving. In 2002, KLD renamed the Generous Giving Strength as Charitable Giving.

Nonprofit Giving: The company has a notably innovative giving program that supports nonprofit organizations, particularly those promoting self-sufficiency among the economically disadvantaged. Companies that permit nontraditional federated charitable giving drives in the workplace are often noted in this section as well.

Non-US Charitable Giving: The company has made a substantial effort to make charitable contributions abroad, as well as in the U.S. To qualify, a company must make at least 20% of its giving, or have taken notably innovative initiatives in its giving program, outside the U.S.

Support for Housing: The company is a prominent participant in public/private partnerships that support housing initiatives for the economically disadvantaged, *e.g.*, the National Equity Fund or the Enterprise Foundation.

Support for Education: The company has either been notably innovative in its support for primary or secondary school education, particularly for those programs that benefit the economically disadvantaged, or the company has prominently supported job-training programs for youth. In 1994, KLD added the Support for Education Strength.

Other Giving: The company has either an exceptionally strong in-kind giving program or engages in other notably positive community activities.

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TABLE 1

Industry Membership, Charitable Giving and Gender

Industry*	n	% of Sample	Firms giving to Charity	% of Sample	Female Representation	Female CEO	% of Sample
Consumer non-durables	585	5.5	91	15.6	0.20	37	6.3
Consumer durables	240	2.3	26	10.8	0.12	0	0.0
Manufacturing	1,501	14.2	137	9.1	0.12	36	2.4
Energy	442	4.2	39	8.8	0.07	0	0.0
Hitec Business Equipment	1,824	17.3	123	6.7	0.08	39	2.1
Telecom	316	3.0	32	10.1	0.13	24	7.6
Shops	1,147	10.8	96	8.4	0.17	76	6.6
Health	909	8.6	74	8.1	0.12	28	3.1
Utilities	508	4.8	70	13.8	0.18	11	2.2
Other	3,101	29.3	329	10.6	0.12	80	2.6
Total Sample	10,573	100.00	1,017	9.6	13.10	331	3.1

*For source of industry groupings and specific SIC codes refer to the webpage of Professor Kenneth French: http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

Firms giving to Charity = number of firms engaged in charitable giving in an industry group. See Appendix A for KLD data descriptions. Female Representation = average percentage of female independent directors on the board across firms in an industry group. Female CEO = number of observations of CEOs that are female in an industry group. The total average percentage of Female Representation differs from the mean in Table 2 due to rounding.

TABLE 2 – Panel A

Descriptive Statistics

	Mean	Median	SD	Q1	Q3
Charity	0.080	0.000	0.258	0.000	0.000
Female Representation	0.125	0.125	0.119	0.000	0.200
Female CEO	0.031	0.000	0.174	0.000	0.000
Female Duality	0.013	0.000	0.112	0.000	0.000
Board Independence	0.821	0.857	0.094	0.778	0.888
Board Size	9.240	9.000	2.496	7.000	11.000
Duality	0.475	0.000	0.499	0.000	1.000
Firm Size	7.643	7.534	1.620	6.501	8.622
Profitability	0.029	0.042	0.145	0.010	0.082
Free Cashflow	0.041	0.044	0.115	0.008	0.088
Leverage	1.001	0.472	2.520	0.079	1.120
Growth	0.209	0.086	4.934	0.007	0.186
Community Concerns	0.055	0.000	0.193	0.000	0.000

Charity =	natural logarithm of the sum of six categories of direct charitable giving as reported by KLD in its Community component of Corporate Social Performance.
Female Representation =	total number of independent female directors scaled by total number of directors on the board.
Female CEO =	1 if the CEO is a female, and 0 otherwise.
Female Duality =	1 if a female CEO also serves as the board chair, and 0 otherwise.
Board Independence =	total number of independent directors scaled by total number of directors on the board.
Board Size =	total number of directors on the board.
Duality =	1 if the CEO also serves as the chair of the board, and 0 otherwise.
Firm Size =	natural logarithm of total assets.
Profitability =	return on income computed as net income scaled by total assets.
Free Cashflow =	cash from operations less capital expenditure scaled by total assets.
Leverage =	total liabilities scaled by total assets.
Growth =	change in sales over the prior year.
Community Concerns =	natural logarithm of the sum of four categories of activities and actions (investment controversies, negative economic impact, tax disputes, and other events) that KLD codes as having a negative effect on the community.

Table 2 – Panel B

Correlations

	1	2	3	4	5	6	7	8	9	10	11	12
1. *Charity*												
2. *Female Representation*	**0.173**											
3. *Female CEO*	**0.035**	**0.226**										
4. *Female Duality*	**0.052**	**0.188**	**0.632**									
5. *Board Independence*	**0.121**	**0.060**	0.014	0.004								
6. *Board Size*	**0.265**	**0.217**	**-0.031**	-0.015	**0.276**							
7. *Duality*	-0.005	-0.017	**-0.024**	**0.119**	0.017	**-0.054**						
8. *Firm Size*	**0.390**	**0.241**	**-0.032**	0.008	**0.218**	**0.569**	**0.028**					
9. *Profitability*	**0.054**	**0.051**	-0.008	-0.001	-0.005	**0.031**	0.010	**0.126**				
10. *Free Cashflow*	**0.044**	**0.040**	-0.004	0.005	-0.012	**-0.020**	**-0.020**	**0.051**	**0.632**			
11. *Leverage*	0.001	0.000	-0.003	-0.001	0.017	0.007	-0.007	0.008	-0.016	-0.013		
12. *Growth*	-0.004	-0.003	-0.002	-0.001	-0.001	0.007	0.011	0.001	-0.004	**-0.024**	0.000	
13. *Community Concerns*	**0.189**	**0.055**	**0.035**	0.001	**0.102**	**0.177**	0.018	**0.286**	**0.044**	-0.003	-0.002	0.000

Pearson correlations in bold are significant at $p < 0.05$. See Table 2 - Panel A for variable definitions.

TABLE 3

Regressions of Corporate Philanthropy on Board Gender Diversity and CEO Gender

Variables (predicted sign)	***Model I***	***Model II***	***Model III***	***Model IV***
	Coeff.	*Coeff.*	*Coeff.*	*Coeff.*
	(t stat)	*(t stat)*	*(t stat)*	*(t stat)*
Female Representation (+)	0.177***		0.158***	0.161***
	(7.88)		(6.98)	(7.25)
Female CEO (+)		0.074***	0.051***	
		(4.52)	(3.06)	
Female Duality (+)				0.080***
				(2.73)
Board Independence (+)	0.086***	0.077***	0.082***	0.084***
	(3.94)	(3.60)	(3.78)	(3.87)
Board Size (+)	0.005***	0.006***	0.006***	0.006***
	(4.35)	(5.11)	(4.51)	(4.55)
Duality (?)	-0.001	-0.001	-0.001	
	(0.24)	(0.31)	(0.17)	
Firm Size (+)	0.055***	0.058***	0.055***	0.055***
	(20.97)	(21.90)	(21.07)	(21.01)
Profitability (?)	-0.046***	-0.046***	-0.046***	-0.046***
	(3.47)	(3.50)	(3.47)	(3.46)
Free Cashflow (+)	0.070***	0.075***	0.071***	0.071***
	(3.41)	(3.61)	(3.45)	(3.44)
Leverage (?)	-0.000	-0.000	-0.000	-0.000
	(0.41)	(0.33)	(0.38)	(0.39)
Growth (?)	-0.001***	-0.001***	-0.001***	-0.001***
	(4.72)	(5.02)	(4.65)	(4.92)
Community Concerns (?)	0.109***	0.108***	0.109***	0.109***
	(5.48)	(5.40)	(5.47)	(5.47)
Intercept	-0.552***	-0.558***	-0.555***	-0.553***
	(21.94)	(22.19)	(21.99)	(22.02)
Industry FE	yes	yes	yes	yes

Variables (predicted sign)	***Model I***	***Model II***	***Model III***	***Model IV***
	Coeff. *(t stat)*	*Coeff.* *(t stat)*	*Coeff.* *(t stat)*	*Coeff.* *(t stat)*
Year FE	yes	yes	yes	yes
Adjusted R^2	0.190	0.185	0.190	0.190
F	38.50***	37.58	37.14***	38.67***
N	10,573	10,573	10,573	10,573

*, **, *** denote significance at the 0.10, 0.05, and 0.01 levels, respectively. The p-values are one-tailed for variables with an expected sign and two-tailed otherwise. Significance tests are based on Huber-White robust standard errors. *Industry FE* = industry fixed effects, *Year FE* = year fixed effects. See Table 2 - Panel A for variable definitions.

TABLE 4

Two-Stage Heckman Regressions of Corporate Philanthropy on Board Gender Diversity and CEO Gender

	First-Stage Heckman Probit	***Second-Stage Charity Regressions***			
Variables (predicted sign)[#]		**Model I**	**Model II**	**Model III**	**Model IV**
	Coeff. *(z stat)*	*Coeff.* *(z stat)*	*Coeff.* *(z stat)*	*Coeff.* *(z stat)*	*Coeff.* *(z stat)*
Female Representation (+)		0.406***		0.386***	0.385***
		(10.01)		(9.38)	(9.33)
Female CEO (+)			0.076***	0.046***	
			(4.50)	(2.70)	
Female Duality (+)					0.066***
					(2.45)
Board Independence (+, +)	1.521***	0.446***	0.364***	0.451***	0.457***
	(8.98)	(7.66)	(6.15)	(7.61)	(7.72)
Board Size (+, +)	0.143***	0.024***	0.023***	0.025***	0.025***
	(18.10)	(7.98)	(7.34)	(8.17)	(8.24)
Duality (?)		-0.004	0.001	-0.003	
		(0.46)	(0.05)	(0.40)	
Firm Size (+, +)	0.188***	0.089***	0.093***	0.090***	0.090***
	(14.61)	(21.41)	(21.95)	(21.35)	(21.29)
Profitability (+, ?)	0.009	-0.001	0.002	0.003	0.002
	(0.07)	(0.02)	(0.04)	(0.06)	(0.06)
Free Cashflow (+, +)	0.581***	0.291***	0.319***	0.230***	0.302***
	(3.28)	(5.07)	(5.45)	(5.17)	(5.20)
Leverage (-, ?)	-0.001	0.000	0.000	0.000	0.000
	(1.21)	(0.79)	(0.84)	(0.82)	(0.82)
Growth (?)		0.000	0.000	0.000	0.000
		(0.08)	(0.22)	(0.13)	(0.14)
Community Concerns (?)		0.090***	0.088***	0.089***	0.089***
		(4.90)	(4.73)	(4.81)	(4.82)
Active CEOs (+)	0.228**				

	First-Stage Heckman Probit	*Second-Stage Charity Regressions*			
Variables (predicted sign)#		**Model I**	**Model II**	**Model III**	**Model IV**
	Coeff. *(z stat)*	*Coeff.* *(z stat)*	*Coeff.* *(z stat)*	*Coeff.* *(z stat)*	*Coeff.* *(z stat)*
	(1.73)				
Multiple Boards (+)	1.056***				
	(3.13)				
Inside Own (-)	-0.153**				
	(1.77)				
TobinsQ (+)	0.052***				
	(4.00)				
Firm Age (+)	0.051***				
	(3.38)				
Market to Book (?)	0.002				
	(1.31)				
CSR Concerns (-)	-0.181***				
	(5.54)				
IMR (?)		0.238***	0.260***	0.252***	0.256***
		(7.00)	(7.33)	(7.19)	(7.30)
Intercept *(?)*	-5.342***	-1.703***	-1.620***	-1.752***	-1.762***
	(30.04)	(13.61)	(12.48)	(13.56)	(13.62)
Industry FE	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes
Chi-Square	3,403.80***	1,003.46***	893.11***	998.79***	992.66***
N	10,168	10,168	10,168	10,168	10,168

= two predicted signs for variables indicate predicted sign for the first-stage and second-stage models, respectively. *, **, *** denote significance at the 0.10, 0.05, and 0.01 levels, respectively. The p-values are one-tailed for variables with an expected sign and two-tailed otherwise. *Industry FE* = industry fixed effects, *Year FE* = year fixed effects. *Active CEOs* = proportion of active CEOs on the board; *Multiple Boards* = proportion of directors serving on at least four boards; *Market to Book* = market value of equity to book value of equity; *TobinsQ* = (market value of equity + book value of total liabilities)/book value of total assets; *Firm Age* = natural logarithm of the age of firm in years; *Inside Own* = proportion of outstanding stock held by insiders; *CSR Concerns* = natural logarithm of the sum of negative corporate social performance indicators reported by KLD excluding the Community component. See Table 2 - Panel A for other variable definitions. The sample size for the analyses drops to 10,168 due to missing data on variables in the first-stage probit model.

Table 5
Pre and Post-PSM Descriptive Statistics

	Pre-PSM			Post-PSM		
	Female = 0 Mean (n = 3,697)	*Female = 1 Mean (n = 6,876)*	*t-stat*	*Female = 0 Mean (n = 2,184)*	*Female = 1 Mean (n = 2,184)*	*t-stat*
Board Independence	0.791	0.836	24.168***	0.818	0.815	1.324
Board Size	7.840	10.000	46.308***	8.790	8.640	2.637***
Active CEOs	0.221	0.221	0.007	0.214	0.220	1.843*
Multiple Boards	0.054	0.080	11.253***	0.061	0.060	0.134
Firm Size	6.876	8.056	38.089***	7.324	7.245	1.959**
Profitability	0.017	0.034	5.624***	0.020	0.026	1.265
Free Cashflow	0.036	0.044	3.269***	0.040	0.042	0.602
Leverage	0.816	1.102	5.575***	1.155	1.156	0.002
Market to Book	3.073	4.022	0.741	2.870	2.772	0.219
TobinsQ	2.023	1.850	6.423***	1.884	1.920	0.987
Firm Age	3.184	3.502	14.882***	3.291	3.281	0.362
Inside Own	0.156	0.111	12.390***	0.135	0.137	0.398
CSR Concerns	0.700	0.703	0.248	0.568	0.594	1.517

*, **, *** denote two-tail significance at the 0.10, 0.05, and 0.01 levels, respectively. See Table 4 for variable definitions.

TABLE 6

PSM Sample Regressions of Corporate Philanthropy on Board Gender Diversity and CEO Gender

Variables (predicted sign)	Model I	Model II	Model III	Model IV
	Coeff.	*Coeff.*	*Coeff.*	*Coeff.*
	(t stat)	*(t stat)*	*(t stat)*	*(t stat)*
Female Representation (+)	0.155***		0.131***	0.135***
	(7.20)		(5.89)	(6.07)
Female CEO (+)		0.083***	0.061***	
		(5.81)	(4.10)	
Female Duality (+)				0.089***
				(3.94)
Board Independence (+)	0.063**	0.034	0.055**	0.059**
	(2.08)	(1.12)	(1.82)	(1.97)
Board Size (+)	0.004***	0.004***	0.004***	0.004***
	(2.34)	(2.51)	(2.61)	(2.50)
Duality (?)	0.001	0.001	0.001	
	(0.16)	(0.11)	(0.22)	
Firm Size (+)	0.033***	0.034***	0.034***	0.033***
	(13.57)	(13.94)	(13.81)	(13.73)
Profitability (?)	-0.022	-0.021	-0.023	-0.022
	(0.97)	(0.91)	(1.01)	(0.97)
Free Cashflow (+)	0.051**	0.056**	0.053**	0.052**
	(1.68)	(1.84)	(1.76)	(1.70)
Leverage (?)	-0.000	-0.000	-0.000	-0.000
	(0.41)	(0.38)	(0.41)	(0.41)
Growth (?)	0.001	0.001	0.001	0.001***
	(0.29)	(0.26)	(0.30)	(0.31)
Community Concerns (?)	0.043***	0.041***	0.042**	0.042***
	(2.50)	(2.36)	(2.44)	(2.44)
Intercept *(?)*	-0.343***	-0.307***	-0.344***	-0.340***
	(10.77)	(9.82)	(10.84)	(10.73)
Industry FE	yes	yes	yes	yes

Variables (predicted sign)	Model I	Model II	Model III	Model IV
	Coeff. *(t stat)*	*Coeff.* *(t stat)*	*Coeff.* *(t stat)*	*Coeff.* *(t stat)*
Year FE	yes	yes	yes	yes
Adjusted R^2	0.079	0.076	0.083	0.083
F	16.04***	15.26***	16.12***	16.71***
N	4,368	4,368	4,368	4,368

*, **, *** denote significance at the 0.10, 0.05, and 0.01 levels, respectively. The p-values are one-tailed for variables with an expected sign and two-tailed otherwise. Significance tests are based on Huber-White robust standard errors. *Industry FE* = industry fixed effects, *Year FE* = year fixed effects. See Table 2 - Panel A for variable definitions.