



Contents lists available at ScienceDirect

Journal of Corporate Finance

journal homepage: www.elsevier.com/locate/jcorpfin

Married CEOs and corporate social responsibility

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ARTICLE INFO

JEL classification:

O3
G1
G3
D8

Keywords:

Corporate social responsibility
Marriage
CEO
Risk propensity
Incentives

ABSTRACT

Studies in social sciences suggest that a normative commitment to stable, biological married life is a potent catalyst for inculcating and nourishing prosocial values, preferences and behaviors among family members. Extrapolating from this literature, we investigate whether firms led by married chief executive officers (CEOs) are associated with better corporate social responsibility (CSR). Our analysis of 2163 U.S. public corporations from 1993 to 2008 shows that firms led by married CEOs are associated with significantly higher scores on a popular CSR index, after controlling for a wide range of firm characteristics and CEO attributes. Further, the observed positive relation is particularly sharper with the diversity and employee relations components of CSR. Our findings highlight CEO marital status as an important driver of socially responsible corporate decision making.

1. Introduction

There is a large body of literature on the virtues and drawbacks of marriage. Although the overall effect of marriage on the economic and physical health of the family is debatable, the social benefits of the union appear to be significant. Also, prior research has shown that personal attributes, values and experiences of top managers, such as gender, political affiliation, religion, having children, and education, affect corporate policy. Marital status of CEOs is one such personal attribute that may be correlated with both socially responsible activities of corporations as well as several other personal traits. The main objective of this study is to explore how the marital status of CEOs affects corporate social responsibility (CSR).

Corporate social responsibility is broadly defined as a firm's commitment to minimizing potential harmful effects of its operations on its stakeholders (owners, employees, customers, community and the society at large) and maximizing its long-run beneficial impact on society. There is considerable debate regarding the economic and social desirability of CSR, i.e., whether it is value creating or destroying (Berman et al., 1999; Hillman and Keim, 2001; Chatterji et al., 2009; Boehe and Cruz, 2010; Dhaliwal et al., 2011; El Ghouli et al., 2011; Barrios et al., 2014; Cheng et al., 2014; Jiraporn et al., 2014; Bereskin et al., 2016; Smith and Smith, 2016). Another body of literature indicates that top managers' values, personal attributes, and experiences (including their marital status) affect a wide range of corporate policies (e.g., Bertrand and Schoar, 2003; Dahl et al., 2012; Roussanov and Savor, 2014). Managers' personal values, attributes, attitudes and behaviors can influence employees' response to the work environment and firm activities (Ambrose et al., 2013). CEOs' religious affiliations (Catholic or Protestant) affect corporate decisions with respect to leverage, geographic diversification, and firm value (Baxamusa and Jalal, 2016). Gender plays a critically important role because women exhibit more prosocial preferences compared to men (e.g., Beutel and Marini, 1995; Adams and Funk, 2012), and men

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Received 25 April 2018; Received in revised form 30 April 2019; Accepted 6 May 2019

Available online 09 May 2019

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parenting daughters tend to adopt more female preferences (Akerlof and Kranton, 2000; Chen and Li, 2009). Dahl et al. (2012) suggest that executives' values play an important role in shaping corporate policies (also see Adams et al., 2011; Finkelstein and Hambrick, 2009). Based on a cross-country study, Shoham et al. (2017) find that the appointment of even one woman to the board of directors makes organizations significantly more proactive in environmental sustainability and improves the disclosure of sustainability activities, regardless of the local culture. Cronqvist & Yu (2017) report male CEOs with daughters adopt pro-corporate social responsibility policies and practices. Firms led by married CEOs maintain higher dividend yields and tend to increase their dividend payout (Nicolosi, 2013).

Family studies suggest that a normative commitment to married life operates as a potent catalyst for instilling pro-social values, preferences and behavior in men and women and serves as a seedbed for fostering community voluntarism, charitable giving and the common good (Booth, 1993; Lillard and Waite, 1995; Cornwell and Peter, 1997; Stack and Eshleman, 1998; Burnham et al., 2003; Stoyanova et al., 2007; Garrison, 2008; Wilcox, 2011; Wilcox et al., 2011; Notare and McCord, 2012).¹ However, conflict-ridden unions have adverse physical and emotional effects on the spouses (Bachman, 1995; Akerlof, 1998; Nelson and Burke, 2000; Carlson and Kail, 2018; Hawkins and Booth, 2005; Umberson et al., 2006; Sampson et al., 2006; Denney, 2010; Wood et al., 2007).

There is a growing debate on whether corporations should pursue the dual objective maximizing stockholder as well as social returns. Similar to transition to fatherhood (Dahl et al., 2012) and parenting a daughter (Cronqvist and Yu, 2017), we expect the married lifestyle to boost a CEO's pro-social values because it entails stressful social readjustments and embracing the goal of caring for each other and fostering the next generation. Because of the typical tension between profit maximization and social obligations, and the susceptibility of CSR to agency issues, there exists inherent skepticism about the value of CSR across many levels of an organization (Wang et al., 2016; Glavas, 2016). It is precisely in such a situation marked by ambiguity and paradox between business profit and public good that the pro-social values and preferences cultivated in a stable and happy marriage is likely to play a crucial role in shaping the top executives' behavior toward CSR.² Motivated by the theory and evidence discussed above, we conjecture that the married status of CEOs would be positively associated with corporate social performance (CSR).

Our analysis of 2163 U.S. public corporations from 1993 to 2008 shows that firms led by married CEOs are associated with significantly higher scores on a popular CSR index, particularly on diversity and employee relations. These results are robust to a wide range of alternative explanations about the link between corporate social performance and marital status of CEOs, including CEO gender, CEO risk propensity, CEO prominence, CEO ability, CEOs who are likely to have begun their professional career at the pick year of the business cycle, star CEOs (i.e., those who received job related awards, best alumni award, or best research award), CEO Education (CEO's with MBA degree), CEOs with military service, CEO compensation, internal and external corporate governance indices, institutional holdings and democratic political beliefs of the state in which the firms' headquarter is located.

Notwithstanding the strong positive correlation between married CEOs and CSR that we document, any causal attribution is challenging because of unobserved omitted variables. For example, for lack of data, we have not been able to control for attributes like CEO religion, fatherhood, CEOs with daughters, CEOs family background all of which are likely correlated with CEO marital status and socially responsible decision-making. Another important concern with our analysis is that our test variable, *Married CEO*, is an indicator of marriage or no marriage, whereas what matters for the physical, emotional and social well-being of the family is the quality of marriage. Family research distinguishes between family structure per se (i.e., married, divorced, cohabiting, never married, widowed) and marital quality (happy, high-conflict marriage, etc.). Further, critics point out that a good part of positive marriage effects may be attributed to societal bias toward and support for those who are married and interpreted as a sign of social conformity. Yet, we are comforted by the fact that the strong positive relation of married CEOs with CSR prevails when we control for a large set of CEO attributes, and a battery of tests including propensity score matching, CEO transitions, firm fixed effects, CEO fixed effects, industry and geographic trends.

2. Data & sample

We examine a sample of 14,078 firm-years of data representing 2163 publicly traded U.S. firms that are covered in Compustat, KLD CSR Research data, and ExecuCom databases, and have a proxy for marital status in the dataset used in Roussanov and Savor (2014) and appropriate control variables as discussed below.

2.1. Corporate social responsibility proxies

For constructing proxies for corporate social responsibility, we rely on KLD CSR ratings of S&P 500 firms starting in 1991, of firms in Russell 2000 and broad market social indices. The ratings are compiled using information available from various company filings, government and non-government sources, based on which KLD gives qualitative ratings of yes/no (1/0) for seven areas of CSR *strengths* and *concerns*: corporate governance, diversity, community, employee relations, human rights, the environment, and product. In addition, KLD qualitative ratings include controversial business issues, which constitute concerns by the nature of the business itself, are alcohol, firearms, gambling, the military, nuclear power, and tobacco.

¹ Nicolosi (2013) reports that firms led by married CEOs maintain higher dividend yields and tend to increase their dividend payout. Amore et al. (2017) find that family firms led by married couples perform better than non-family firms.

² Needless to say, marital status-based discriminatory practices in hiring are unlawful (<http://www.nolo.com/legal-encyclopedia/what-marital-status-discrimination.html> and <http://www.eeoc.gov/federal/otherprotections.cfm>).

Of these, we ignore the controversial business issues and corporate governance CSR area consistent with the literature (El Ghoul et al., 2011; Borghesi et al., 2014; Cronqvist and Yu, 2017; Mishra, 2017).³ For the remaining six CSR areas (that is, diversity, community, employee relations, human rights, the environment, and product), KLD summarizes the number of strengths and concerns sorted by firm and year by adding items relating to strengths and concerns separately. From these KLD summaries, we estimate the firm-year net CSR score for each of these six areas, which is equal to strengths less concerns. Our main proxy for a firm's CSR performance (*CSR*) is the total of net CSR scores across the six areas: diversity (*DIVERSITY*), community (*COMMUNITY*), employee relations (*EMPLOYEE*), human rights (*HUMAN*), the environment (*ENVIRONMENT*), and product (*PRODUCT*). The *CSR* takes values ranging from -9 to $+15$. We generally consider a firm socially responsible if it demonstrates a positive value for *CSR*. These proxies are defined in Appendix A.

2.2. CEO marital status and characteristics

We use the CEO marital status data from Roussanov and Savor (2014), who manually collect marital status using a variety of public sources including “*Marquis Who's Who in Finance and Industry, the Notable Names Database, the U.S. Securities and Exchange Commission's insider filings, and various media mentions*” (see Roussanov and Savor, 2014, P. 2498). Given the lack of systematic and comprehensive datasets that require mandatory disclosure of CEO marital status, these researchers recognize some limitations in their marital status dataset. Yet they believe that this data reasonably represents the marital status of top executives. One important data limitation is the lack of variation over time in marital status, some of which is due to scarce information on the date of marriage, date of divorce, or on an individual CEO's choice of staying with undisclosed marriage-like relationships. Another constraint is the lack of information on marital quality – a happy or conflict-ridden marriage. In our investigation, we follow Roussanov and Savor (2014) and construct “*Married CEO*”, a dummy variable that takes a value of 1 if the CEO marital status is denoted as legally married (and in some cases, married but separated) and 0 if unmarried, which covers primarily single (never married) CEOs. Notice that we classify a CEO as married if Roussanov & Savor classify her or him as not single.⁴ From ExecuCom we also collect other CEO characteristics, such as Age, Tenure, gender and CEO ownership.

2.3. Control variables

We select control variables for the firm-level CSR performance regressions from the recent literature (McWilliams and Siegel, 2001; Cheng et al., 2014; Mishra, 2017). As larger organizations are expected to undertake more CSR activities due to lower relative cost (scale economies) (McWilliams and Siegel, 2001), and demonstrate higher CSR performance (Borghesi et al., 2014), we control for log of assets (*LogAssets*). Superior financial performance is likely to motivate organizations to increase charitable giving and engage in CSR practices (Campbell, 2007; Ioannou and Serafeim, 2012), which motivates us to control for the return on assets (*ROA*). The level of diversification likely increases as organizations become more mature and growth opportunities in the original line of business decline. Firms with more product lines are expected to engage in more CSR (McWilliams and Siegel, 2001). Further, an organization's social commitments may increase over time, suggesting higher CSR activities for older firms, leading us to control *Firm Age*. Research and Developed Expenses (R&D) and CSR activities may help generate resources and provide a competitive advantage, resulting in a positive link between R&D intensity and CSR activities (Padgett and Galan, 2010). Consistent with this view they find that R&D intensity positively affects CSR activities. Therefore, we control for Research and Developed Expenses divided by Plant, Property and Equipment (*R&D/PPE*). These views also suggest that an organization's investments in new assets, new product lines and potential growth are likely to be correlated with its innovation and CSR activities, suggesting positive effects of capital expenditure on CSR. Therefore, we control for capital expenditure divided by Plant, Property and Equipment (*CAPEX*). Prior literature suggests access to finance (in particular bank financing) can be a motive for CSR choice (Cheng et al., 2014), so we control for Book Value of Debt divided by Total Assets (*Book Leverage*) and expect it to negatively affect CSR. As Ioannou and Serafeim (2012) suggest a positive CSR effect of the relative market value of a firm's assets, we control for Market to Book value of equity (*MVBV*).

Younger CEOs are more prone to taking business risks (Faccio et al., 2016), and invest in CSR, particularly in diversity and humanitarian CSR categories (Borghesi et al., 2014). Serfling (2014) reports that older CEOs reduce firm risk through less risky investment policies, leading to a negative relation between CEO age and stock return volatility. Because of difficulties in estimating the cashflows, duration and return on investment associated with a typical CSR investment (Miller and Serafeim, 2014), older CEOs with shorter career horizons and more risk-aversion tend to have a lower propensity for CSR initiatives relative to their younger peers. By contrast, younger CEOs are more likely to favor CSR initiatives and reach out to their own managers and employees for innovative ideas worth research, development and investment. We expect *CEO Age* to be negatively associated with CSR. We control for CEO tenure (*Tenure*) because CEOs tend to become more materialistic over their tenure and firm performance on CSR declines

³ Our exclusion of these two CSR areas is consistent with many other studies.

⁴ These authors note “Unfortunately, we can obtain the actual marriage dates only for a small minority of CEOs, which means that for the bulk of our sample we have to rely on an indirect approach. More specifically, for those CEOs for whom we can find no dates, we start with the assumption that they are single and then change their status if we find information indicating the opposite... Any CEO who is ever mentioned as being married but the exact dates of marriage are not available is coded as married throughout his or her tenure...we are hopeful our data are not too unrepresentative,” (Roussanov and Savor, 2014:2498). Their elaboration on potential measurement biases suggests that the overall proportion of married CEOs in our sample is close to what one would expect to find in the general population (adjusted for age) based on the census data.

Table 1

Average number of married CEOs and CSR scores.

CSR is net overall corporate social responsibility score representing total CSR strengths less CSR concerns. *Married CEO* equals 1 if the CEO is legally married, 0 otherwise. Subscripts represent number of years after (positive) observing CEO marital status in year $t = 0$.

Year	CSR _t	CSR _{t+1}	Proportion of married CEOs	Number of married CEOs	N _t	N _{t+1}
1993	0.1680	0.3438	0.9483	367	387	384
1994	0.4169	0.7413	0.9362	411	439	429
1995	0.7466	0.7867	0.9327	416	446	436
1996	0.7719	0.8229	0.9339	438	469	446
1997	0.8351	0.9516	0.9408	465	473	455
1998	0.9247	0.8571	0.9582	458	478	462
1999	0.8701	0.9170	0.9547	485	508	482
2000	0.8372	0.6633	0.9399	485	516	490
2001	0.3910	0.4027	0.9154	714	780	730
2002	0.3269	0.1631	0.9004	741	823	803
2003	-0.0580	-0.1947	0.8357	1195	1430	1371
2004	-0.2309	-0.1451	0.8286	1213	1464	1378
2005	-0.1798	-0.1390	0.8181	1192	1457	1374
2006	-0.1860	-0.1380	0.8087	1222	1511	1406
2007	-0.1571	-0.1247	0.8003	1213	1515	1452
2008	-0.1679	-0.1780	0.7844	1084	1382	1343

(Davidson et al., 2018).

Similarly, a CEO's risk taking incentives are expected to have a significant effect on CSR investment (Mishra, 2017). Accordingly, we control for CEOs' risk-taking incentives measured as the volatility of firm returns (*Risk Propensity*), and value of unexercised options owned by CEOs divided by total CEO compensation (*Opt_Own*). Recent research suggests CEO's gender influences corporate investment and risk-taking (e.g., Ahern and Dittmar, 2012; Faccio et al., 2016) and reports a positive *Female CEO* effect on CSR performance (Borghesi et al., 2014; Cronqvist and Yu, 2017). Therefore, we expect CEO gender (*Female*) to have a positive effect on CSR. In addition to these controls, we account for unknown industry (or firm, separately) and time effects in our tests. It is plausible that a firm's CSR activities are influenced by CEO compensation. We add *LogTotalPay* (total pay includes (salary + bonus + other annual compensation + restricted stock grants + value of option grants, etc.) as a control. All variables are described in detail in Appendix A.

Table 1 presents the time series means of the main dependent and test variables over 1993–2008. The overall CSR score of a firm (our main dependent variable), *CSR*, is the net score representing total CSR strengths less CSR concerns for each firm-year. It is estimated as the sum of six net scores on Product (*PRODUCT*), Community (*COMMUNITY*), Employee Relations (*EMPLOYEE*), Diversity (*DIVERSITY*), Environment (*ENVIRONMENT*), and Human Rights (*HUMAN*). That is, *CSR*, is equal to *PRODUCT* + *COMMUNITY* + *EMPLOYEE* + *DIVERSITY* + *ENVIRONMENT* + *HUMAN*. Each of the components of overall CSR also is the net of strengths and concerns in that specific dimension. "*Married CEO*", defined as a dummy variable equal to 1 if the CEO is married, zero otherwise, is our proxy for the CEO marital status. Time subscripts t and $t + 1$ are relative to the year t of observing CEO marital status. N denotes the number of firm-year observations. The overall annual averages of contemporaneous CSR scores range from -0.2309 to 0.9247. Our sample is dominated by married CEOs - the number of firm-years associated with them varies from roughly 78% to 96% (of N_t) across 1993–2008.

We present summary statistics on the outcome and test variables, firm and several CEO characteristics in Table 2. Our sample includes over 13,000 firm-year observations. The mean and median overall CSR scores (CSR_{t+1}) are 0.142 and 0, respectively. The corresponding averages for CSR strengths (CSR_STR_{t+1}) and concerns (CSR_{t+1}) are 1.850 and 1.712, respectively. Among the components of the CSR index, the net mean scores on diversity ($DIVERSITY_{t+1}$) and community ($COMMUNITY_{t+1}$) are positive, but the rest are negative. Organizations with married CEOs account for about 86% of our firm-year observations on average. The average age of CEOs in our sample is about 55 years, with roughly six years of tenure. We note that married CEOs are older, have longer tenure, work for firms that are larger, older, more leveraged, less profitable, undervalued, less risky, less capital investment intensive, with less R&D and less institutional ownership. The mean value of 1.7% for *Female* indicates that men dominate our CEO sample. As Panel B shows, firm size, MVBV and profitability are all positively correlated with the net CSR score, which is consistent with our intuition. Of particular interest is the correlation between *Married CEO* and the net CSR score, which is positive (0.08, significant ($p < 0.01$) and consistent with our main argument that the CEO marital status is positively correlated with CSR ratings. Moreover, the correlation of CEO age (ROA) with CSR ratings is negative (positive). As expected, the simple correlation between *Risk Propensity* and the net CSR score is negative, whereas the correlation between *Female* and the net CSR score is positive. Overall, we find suggestive evidence in favor of our claim of a positive association between married CEOs and corporate social performance.

3. Empirical results

3.1. Married CEOs' commitment to CSR

For a preliminary look at the data, we performed a univariate test and found that 11,569 firm-years with married CEOs have a

Table 2
Descriptive statistics and correlation coefficients.
CSR is net overall corporate social responsibility score representing total CSR strengths less CSR concerns, estimated as PRODUCT + COMMUNITY + EMPLOYEE + DIVERSITY + ENVIRONMENT + HUMAN. The components of CSR are net of strengths and concerns of CSR scores on Product (PRODUCT), Community (COMMUNITY), Employee Relations (EMPLOYEE), Diversity (DIVERSITY), Environment (ENVIRONMENT), Human Rights (HUMAN). *Married CEO* equals 1 if the CEO legally married, 0 otherwise. Subscripts represent number of years prior (negative) and after (positive) observing CEO marital status in year $t = 0$. Variable definitions are provided in Appendix A.

Panel A: Summary statistics of key variables, 1993–2008

Variable	Mean	STDEV	P.05	P.25	Median	P.75	P.95	N
CSR _{t+1}	0.142	2.484	-4.000	-1.000	0.000	1.000	4.000	13,441
CSR_STR _{t+1}	1.850	2.321	0.000	0.000	1.000	3.000	7.000	13,057
CSR_CON _{t+1}	1.712	1.892	0.000	0.000	1.000	2.000	6.000	13,441
Product _{t+1}	-0.240	0.748	-2.000	0.000	0.000	0.000	1.000	13,441
Employee _{t+1}	-0.067	0.982	-2.000	-1.000	0.000	0.000	2.000	13,441
Diversity _{t+1}	0.519	1.351	-1.000	0.000	0.000	1.000	3.000	13,441
Environment _{t+1}	-0.130	0.835	-2.000	0.000	0.000	0.000	1.000	13,441
Human _{t+1}	-0.081	0.313	-1.000	0.000	0.000	0.000	0.000	13,441
Community _{t+1}	0.142	0.670	-1.000	0.000	0.000	0.000	1.000	13,441
Single	0.142	0.349	0.000	0.000	0.000	0.000	1.000	14,078
CAPEX	0.278	0.318	0.062	0.129	0.20514	0.330	0.690	13,115
R&D/PPE	0.355	2.206	0.000	0.000	0.000	0.163	1.574	13,575
Log assets	8.015	1.632	5.568	6.803	7.87003	9.085	10.849	14,077
Firm age	27.988	15.952	7.000	13.000	25.000	43.000	54.000	14,078
Roa	0.134	0.089	0.000	0.076	0.128	0.185	0.292	14,077
Book leverage	0.348	0.551	0.000	0.148	0.336	0.502	0.804	14,077
MVBV	1.949	1.390	0.947	1.140	1.502	2.215	4.464	14,075
CEO age	54.939	7.200	43.000	50.000	55.000	60.000	66.000	13,487
CEO tenure	5.816	4.961	0.000	2.000	5.000	8.000	14.000	14,078
OPT_OWEN	2.816	5.082	0.000	0.168	1.078917	3.089	11.611	13,974
Female	0.017	0.130	0.000	0.000	0.000	0.000	0.000	14,078
Volatility	0.340	0.193	0.135	0.212	0.293419	0.414	0.694	14,016
Eindex	2.452	1.306	0.000	2.000	3.000	3.000	4.000	12,038
LogTotalPay	8.071	1.106	6.427	7.372	8.069	8.766	9.843	13,983

Panel B: Correlation coefficients

Variable	CSR _{t+1}	Married CEO	CAPEX	R&D/PPE	LogAssets	FirmAge	ROA	BookLeverage	MVBV	CEOAge	CEOTenure	OPT_OWEN	Female CEO	Risk Propensity	Eindex
Married CEO	-0.08														
CAPEX	0.05	0.06													
R&D/PPE	0.02	0.06	0.25												
LogAssets	0.12	-0.22	-0.16	-0.13											
FirmAge	0.00	-0.16	-0.25	-0.11	0.33										
ROA	0.07	0.02	0.09	-0.08	-0.24	0.02									
BookLeverage	0.00	-0.02	-0.08	-0.04	0.21	0.09	-0.13								
MVBV	0.14	0.04	0.22	0.12	-0.22	-0.17	0.54	-0.14							

(continued on next page)

Table 2 (continued)

Panel B: Correlation coefficients															
Variable	CSR t + 1	Married CEO	CAPEX	R&D/PPE	LogAssets	FirmAge	ROA	BookLeverage	MYBV	CEOAge	CEOTenure	OPT_OWEN	Female CEO	Risk Propensity	Eindex
CEOAge	-0.05	-0.11	-0.11	-0.06	0.08	0.15	0.02	0.02	-0.07						
CEOTenure	-0.05	-0.04	-0.02	0.01	0.02	0.01	-0.02	-0.01	-0.03	0.19					
OPT_OWEN	0.06	0.00	0.11	0.04	0.02	-0.13	0.15	-0.04	0.29	0.01	0.08				
Female CEO	0.13	0.00	0.01	0.01	-0.05	-0.02	0.01	0.01	0.02	-0.06	-0.02	-0.01			
RiskPropensity	-0.05	0.07	0.16	0.12	-0.24	-0.24	-0.11	-0.02	0.08	-0.12	-0.02	-0.01	0.03		
EIndex	-0.04	0.00	-0.08	-0.04	-0.06	0.08	-0.04	0.05	-0.13	-0.01	-0.05	-0.05	-0.02	-0.06	
LogTotalPay	0.07	0.11	0.00	-0.02	0.53	0.16	0.04	0.07	0.05	0.00	0.04	-0.06	-0.02	-0.04	0.00
N	13,441	14,078	13,115	13,575	14,077	14,078	14,077	14,077	14,075	13,487	14,078	13,974	14,078	14,016	14,016

mean (standard deviation) of CSR_{t+1} equal to 0.22 (2.56), whereas the corresponding values for 1872 firm-years with unmarried CEOs are -0.34 (1.89). The difference in means (0.56) is significant ($p < 0.01$), thus providing additional suggestive evidence that there is a significant positive relation between married CEOs and standard norms of CSR.

To test our conjecture more carefully, we use annual pooled data and perform multivariate analyses of leading (i.e., $t + 1$) CSR scores on the current year (t) indicator variable for married CEOs (*Married CEO*, our test variable), and a set of control variables (W). Our primary regression model is:

$$CSR_{t+1} = \alpha + \psi \text{Married CEO}_t + \pi * W_t + \text{Industry and Year Fixed Effects} + \varepsilon_{it+1} \quad (1)$$

The control variables are drawn from the related literature along with industry and year fixed effects to control for unobserved heterogeneity. Controls for firm characteristics include accounting performance (*ROA*), capital spending (*CAPEX*), market-to-book value (*MVBV*), research and development expenses scaled by property, plant and equipment (*R&D/PPE*), firm size (*LogAssets*), firm age (*FirmAge*), leverage, and entrenchment index (*EIndex*). Our controls for CEO characteristics are age, tenure, gender, wealth (*OptOwn*), CEO total compensations (*LogTotalPay*), and *Risk Propensity*. All tests are based on firm-level cluster-robust standard errors. This test specification with industry and year fixed effects and standard errors clustered at the firm-level allows us to compare the social performance ratings of organizations run by married CEOs with those managed by their unmarried peers with similar firm and CEO characteristics and within the same industry and year. In some regressions, we control for *State Effects*, *County Effects*, *State-Year Effects*, and *County-Year Effects* to account for unobserved geographic variations and trends, and *SIC3-Year Effects* (three digit industry category and year) to capture industry trends. The number of observations varies across these tests because of missing values on some of these controls.

The regression results are reported in Table 3. In column (1), the coefficient estimate on *Married CEO* is positive (0.2952 and highly significant ($p < 0.01$), indicating a positive relation between male married CEOs and KLD CSR scores. By construction our CSR variables have both negative and positive values, ranging from a negative of 4 (at 5th percentile) to plus 4 (at 95th percentile). The mean and median for CSR_{T+1} are 0.14 and 0.00, respectively. To facilitate interpretation of regression coefficient estimates, we follow Cronqvist and Yu (2017) and normalize the net CSR scores such that the minimum value is zero. The mean and median for normalized CSR_{T+1} scores are 9.14 and 9, respectively. The coefficient estimates of *Married CEO* derived from the normalized CSR are identical to those reported in Table 3. Specifically, the estimated coefficient on *Married CEO* is 0.2952 and highly significant. This implies that when a firm's CEO is married, its CSR ratings are higher by about 3.28% ($= 0.2952/9.00$) as compared to the median firm in our sample. Also, it is approximately 12.3% ($= 0.2952/2.39$) of one standard deviation of the CSR score distribution.⁵

In addition, two more CEO demographics are significant. Consistent with our expectation, older CEOs are associated with lower social performance. Similar to Roussanov and Savor (2014), we find a significantly negative relation between CEOs' propensity for risk-taking in investment and financing and the CSR index. The indicator variable *Female CEO* isolates the female pro-CSR effect documented by Cronqvist and Yu (2017). The point estimate on *Female CEO*, which captures the CEO gender effect, is positive, substantially larger (2.3156) and highly significant ($p < 0.01$). In the presence of the control for *Female CEO*, the coefficient on *Married CEO* estimates the marginal effect of *male* married CEOs, indicating that the marriage effect on CSR ratings is not merely the female socialization effect. With respect to firm characteristics, larger, more profitable and growth firms seem to perform better on CSR.

It is plausible that firms more concerned about CSR hire married CEOs who are more likely predisposed to intensive CSR programs, implying that the direction of causality is opposite to the one we have hypothesized. One way to resolve this issue is to identify a reliable instrument for the CEO marital choice that is uncorrelated with the firm's selection of CSR activities. Since a perfect instrument is difficult to find, our choice of CSR index values taken from the following year ($t + 1$) serves to mitigate such concerns.⁶

One concern is that some joint determinants of CSR and CEO marital status are omitted from our regression specifications. We use time and industry indicator variables in most of our regressions, which are expected to account for the time- and industry-specific unobservable determinants with time-invariant effects. *SIC3-Year Effects* serve to capture industry trends, see column (6). Moreover, there may be other omitted variables that are correlated with our test variable as well as CSR. One such variable is the governance mechanisms of the firm which favor CEO entrenchment. It is plausible that the board of directors seeks to match CEO attributes and internal governance provisions with its strategic vision for the firm including CSR. To mitigate such concerns about the matching of CEO-governance-firm characteristics, we add the Bebchuk et al. (2009) *EIndex*, consisting of six strong anti-takeover provisions, as a control variable in column (2). The revised estimates indicate that the entrenchment index is insignificant, while the CEO marital status continues to have a highly significant positive effect on firm social performance. In summary, our tests reveal that married CEOs are associated with a persuasively good track-record on corporate social responsibility.

⁵ The tests thus far have used standard errors clustered at the firm level, raising concerns about bias due to within CEO correlation in the error term over time. When we repeat the tests with standard errors clustered at the CEO level, the point estimate on *Married CEO* remains essentially unchanged, confirming the robustness of our primary result that married CEOs have a positive influence on CSR scores.

⁶ The coefficient estimates of *Married CEO* remain essentially unchanged when we use CSR scores from ($t + 2$) relative to the base year t associated with the observation of CEO marital status. In addition, one may argue that firm-level CSR policies and programs tend to be sticky over time with the result that index values in the succeeding years are highly correlated with those from prior years. To account for the effect of persistent historical CSR levels, we follow Bebchuk et al. (2009) and control for the prior CSR index as of year $t-3$ (CSR_{t-3}) in untabulated tests, such that the estimated coefficients reflect sensitivity to changes in CSR over time. As expected, CSR_{t-3} is positive and highly significant, and the coefficient on *Married CEO* remains positive, but its significance level drops to $p < 0.10$ in a one-tailed test.

Table 3

CEO Marital status and corporate social responsibility.

The dependent variable CSR is net overall corporate social responsibility score representing total CSR strengths less CSR concerns. Married CEO equals 1 if the CEO is legally married, 0 otherwise. Subscripts represent number of years prior (negative) and after (positive) observing CEO marital status in year $t = 0$. All control variables are as of $t = 0$. Variable definitions are given in Appendix A. Cluster-robust t-Statistics are in brackets, and significance levels are *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	CSR _{t+1}	CSR _{t+1}	CSR _{t+1}	CSR _{t+1}	CSR _{t+1}	CSR _{t+1}	CSR _{t+1}	CSR _{t+1}
Married CEO	0.2952*** (2.874)	0.3202*** (2.763)	0.2336** (2.087)	0.4238*** (3.765)	0.3101*** (3.028)	0.2683** (2.405)	0.3002*** (2.786)	0.4310*** (3.080)
Eindex		0.0721 (1.487)						
Blue state					0.5583*** (4.663)			
CAPEX	0.0445 (0.531)	0.0943 (0.661)	0.0423 (0.476)	-0.1214 (-1.399)	0.0110 (0.129)	0.0397 (0.460)	-0.0133 (-0.152)	-0.1241 (-1.127)
R&D/PPE	0.0074 (0.871)	0.0456 (1.290)	0.0072 (0.711)	0.0180 (1.364)	0.0043 (0.579)	0.0033 (0.489)	0.0068 (0.918)	0.0108 (0.745)
LogAssets	0.1887*** (3.225)	0.2157*** (3.435)	0.2055*** (3.318)	0.1542** (2.492)	0.1887*** (3.262)	0.3202*** (4.524)	0.2030*** (3.463)	0.1380* (1.796)
FirmAge	-0.0020 (-0.478)	-0.0006 (-0.134)	0.0035 (0.778)	-0.0022 (-0.460)	-0.0030 (-0.724)	0.0023 (0.430)	-0.0005 (-0.115)	0.0026 (0.449)
ROA	2.3356*** (3.649)	2.4502*** (3.314)	2.5747*** (3.813)	2.7835*** (3.853)	2.6544*** (4.213)	3.0496*** (3.943)	2.7038*** (4.084)	2.9673*** (3.074)
Leverage	-0.0442 (-0.853)	-0.0657 (-1.096)	-0.0751 (-1.059)	-0.0236 (-0.621)	-0.0443 (-0.853)	-0.0559 (-0.744)	-0.0529 (-0.969)	-0.0693 (-0.925)
MVBV	0.1680*** (4.836)	0.2051*** (4.804)	0.1234*** (3.498)	0.0686* (1.942)	0.1438*** (4.283)	0.1143*** (2.743)	0.1330*** (3.783)	0.0513 (1.126)
CEO Age	-0.0185*** (-2.966)	-0.0163** (-2.346)	-0.0165** (-2.461)	-0.0126* (-1.777)	-0.0196*** (-3.132)	-0.0109 (-1.632)	-0.0181*** (-2.867)	-0.0133 (-1.457)
CEO Tenure	0.0075 (0.988)	0.0045 (0.535)	0.0077 (0.953)	-0.0023 (-0.258)	0.0069 (0.914)	0.0055 (0.655)	0.0053 (0.687)	-0.0014 (-0.126)
Options own	-0.0048 (-0.585)	-0.0070 (-0.794)	-0.0058 (-0.658)	-0.0061 (-0.671)	-0.0069 (-0.834)	-0.0074 (-0.819)	-0.0039 (-0.467)	-0.0004 (-0.035)
Female CEO	2.3156*** (5.594)	2.3731*** (4.820)	2.0542*** (4.868)	2.6160*** (6.244)	2.2084*** (5.441)	2.3935*** (5.008)	2.1577*** (5.151)	2.9306*** (5.862)
Risk propensity	-0.8141*** (-4.377)	-0.6961*** (-3.303)	-0.7262*** (-3.733)	-1.0444*** (-5.237)	-0.7968*** (-4.345)	-0.8334*** (-3.426)	-0.7382*** (-3.824)	-0.9669*** (-3.482)
LogTotalPay	-0.0220 (-0.466)	-0.0137 (-0.267)	0.0005 (0.009)	-0.0360 (-0.633)	-0.0198 (-0.422)	-0.0862 (-1.529)	0.0086 (0.175)	-0.0043 (-0.058)
Constant	-0.8197 (-1.359)	-1.5685** (-2.411)	-2.5936** (-2.426)	-1.9771** (-2.190)	-1.1152* (-1.819)	-1.8918*** (-2.655)	-2.1224** (-2.238)	-1.8012 (-1.518)
Observations	11,841	10,273	10,223	8448	11,742	11,841	11,791	8448
Adjusted R-squared	0.202	0.211	0.250	0.342	0.214	0.256	0.223	0.232
Year effects	Yes	Yes	Yes	Yes	Yes	No	No	No
Industry effects	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
State effects	No	No	Yes	No	No	No	No	No
County effects	No	No	No	Yes	No	No	No	No
SIC3-Year effects	No	No	No	No	No	Yes	No	No
State-Year effects	No	No	No	No	No	No	Yes	No
County-Year effects	No	No	No	No	No	No	No	Yes

3.2. Controls for omitted variable bias

Another type of correlated omitted variable bias stems from the location of a firm's headquarters - county or state of incorporation - because differences in labor union power, political beliefs, environmental policies, etc. across regions could affect both CSR and the decision of a single CEO to work for a firm headquartered in a specific state. Landier et al. (2009) use labor union power (measured as the state-level union coverage (membership) density in which the firm's headquarters is located) to proxy for CEO's employee friendliness. To further mitigate this class of potential omitted variable bias, we re-estimate the regressions by adding state as well as county fixed effects. The revised results presented in columns (3) and (4) confirm our previous estimates and indicate a significant positive relation between the marital status of CEOs and social performance of their firms (with the *Married CEO* coefficient estimates of 0.2336 and 0.4238). In addition, we control for *State-Year Effects* and *County-Year Effects* to account for unobserved geographic trends in columns (7) and (8) and find robust CEO marriage effects.

A related issue is that our control for state fixed effects could also capture democratic ('blue') vs. republican ('red') political beliefs and potentially influence our test and outcome variables. To isolate the effects of state-level political beliefs, we construct a *Blue State* dummy, which classifies a state as a permanent blue state if democratic presidential candidates consistently won all elections held in

1992, 1996, 2000, 2004 and 2008 and takes a value of one, zero otherwise. We rerun the CSR regression by adding the *Blue State* dummy to the list of other controls in our original specification, see column (5). The coefficient estimate on *Blue State* is positive (0.5583) and significant at $p < 0.01$, consistent with our expectation that firms located in permanent democratic states are CSR-friendly. More importantly, our test variable, *Married CEO*, continues to be positive (0.3101) and highly significant.⁷

4. Identification and endogeneity issues

4.1. Firm fixed effects and propensity score matching

Our findings so far are suggestive of a tendency to enhance CSR on the part of married CEOs. However, studies in the social sciences indicate that several important economic, physical, psychological, demographic, and social characteristics are associated with marital status. Therefore, the observed relationship between marital status and CSR may be spurious, attributable not to marital status but to innate heterogeneity that is correlated with firm and CEO characteristics.

To mitigate the bias due to the endogenous married CEO-firm matching, we have so far controlled for several important firm and CEO characteristics, geographic, industry and year fixed effects in our prior tests. We report additional robustness tests in [Table 4](#) while suppressing all control variables (indicated by “Yes” in the ‘Controls’ row). The number of observations varies across the tests because of missing values when we add new controls. First, in model (1) we control for firm fixed effects to account for time-invariant unknown firm-specific factors, and we continue to find a significant positive coefficient on CEO marital status. However, it is important to note that, since CEO marital status rarely changes over time in our sample, the inclusion of firm fixed effects forces the identification to changes in CEOs with different marital status (i.e., marital transitions accompanying CEO transitions). We will examine marital transitions accompanying CEO transitions differently later. Next, we turn to propensity score matching, which carefully matches the treatment and control groups on several firm and CEO characteristics as well as year and industry in an attempt to mitigate endogeneity and selection bias due to observable characteristics ([Rosenbaum and Rubin, 1983](#); [Roberts and Whited, 2012](#)). As our sample is dominated by married CEOs (about 95% in 1993, 85% overall), we select unmarried CEOs as the treatment group and married CEOs as the control group to better match the (small number of) unmarried with the (relatively abundant) married top executives. We identify 1635 pairs of firm-years with unmarried CEOs and matching firm-years with married CEOs and apply the nearest neighbor-matching technique of propensity score without repetition for a control firm, such that one married CEO firm-year enters the sample only once. In [Appendix Table A.2](#), we find that the difference in CSR between the treatment and control groups is about -0.312 , which is significant at $p < 0.01$ in both the paired t -test of differences (t -stat of -4.59) and the unpaired t -test of difference in means (t -stat of -4.51). Thus, the univariate tests based on propensity score matching support our prediction of a positive relation between married CEOs and CSR. Model (2) in [Table 4](#) uses the sample of firm-years derived from propensity score matching along with industry and year fixed effects. While our sample size drops to 3223 firm-years, the positive impact of CEO marital status on CSR remains highly significant.

4.2. Additional controls for firm, governance, and CEO attributes

Next, models (3) to (5) in [Table 4](#) present tests based on additional controls for firm, governance, and CEO attributes.⁸ Unlike most firms investing capital in CSR activities, occasionally firms make CSR part of their marketing strategy and brand image. To account for this behavior, we add advertising expenses scaled by sales (*Adv_sale*) as a control and find it to be positively and significantly correlated with CSR. However, our key result regarding the positive impact of the marital status of CEOs on CSR remains robust.⁹

⁷ It is plausible that younger married CEOs and more profitable firms display stronger commitment to CSR. To scrutinize the interactive effect related to CEO age, we partition the sample into firms with older CEOs (those with above sample median CEO Age) and younger CEOs and rerun the original tests. Consistent with our prediction, we find in untabulated results the point estimate on younger Married CEO (0.3530) is positive and highly significant, whereas the coefficient estimate on older Married CEO is lower (0.2677) and significant but at 10%. Similarly, we divide the sample into more profitable (above Fama-French 48 industry- year median return on assets (ROA)) and less profitable firms to test the second prediction. Consistent with this prediction, we find the coefficient estimate on Married CEO (0.3519) is positive and highly significant, but that for less profitable firms is smaller in magnitude (0.2331) and significant at 10%. See [Appendix Table A.1](#) for details.

⁸ We would like to thank two anonymous reviewers for encouraging us to perform several of these new tests.

⁹ Digging deeper into poor firm performance, it is plausible that firms in financial distress might invest less in CSR and are more likely to hire more risk-tolerant CEOs. To address this issue, we use two additional controls. First, the Altman Z -score assesses the likelihood of bankruptcy of a firm within two years based on five financial ratios, ([Altman, 1968](#)). Second, the SA index of financial constraints ([Hadlock and Pierce, 2010](#)) is based on firm size and age, two relatively exogenous firm characteristics. It is calculated as $(-0.737 * \text{Firm Size}) + (0.043 * \text{Firm Size}^2) - (0.040 * \text{Firm Age})$, and firms with higher index values are more constrained. Firms facing financial constraints might have different preferences for CEO attributes and CSR relative to their peers with easier access to external capital markets. However, both of these proxies turn out to be statistically insignificant, perhaps because we have already used several other correlated firm characteristics (such as *ROA*, *Leverage*, *MVBV*, *LogAssets* and *FirmAge*). In addition, there might be concerns that managers tend to waste corporate resources on CSR for private benefits and CSR scores are correlated with variables typically associated with agency costs such as diversified product lines (proxying for empire-building). To examine this issue, we use *BUSSEG* (defined as number of business segments (taken from the historical segment file of Compustat)) as an added control, but find it to be statistically insignificant in our sample.

Table 4

Corrections for biases due to omitted variables and firm-CEO matching

The dependent variable CSR is net overall corporate social responsibility score representing total CSR strengths less CSR concerns. Married CEO equals 1 if the CEO is legally married, 0 otherwise. Subscripts represent number of years after observing CEO marital status in year $t = 0$. All control variables are as of $t = 0$. Variable definitions are given in Appendix A. Cluster-robust t-Stats for models 1 to 6 and robust t-Stats for models 7 & 8 are in brackets. Significance levels are shown as follows: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Variables	CSR _{t+1}	CSR _{t+1}	CSR _{t+1}	CSR _{t+1}	CSR _{t+1}	CSR _{t+1}	CSR _{t+1}	CSR _{t+1}	CSR _{t+1}	Resid CSR _{t+1}
Married	0.1293* (1.805)	0.3102*** (3.077)	0.2950*** (2.946)	0.2846*** (2.762)	0.3105*** (2.990)	0.3960*** (3.344)	0.3249*** (2.831)	0.3253*** (2.826)		0.1318** (2.203)
Advertising-sales			5.8571*** (2.728)	6.5148*** (2.948)	6.4329*** (2.931)	6.1738** (2.515)	4.7472** (2.013)	4.7651** (2.024)		
HHI			-1.0209** (-2.402)	-1.0872** (-2.501)	-1.2039** (-2.463)	-0.8027** (-2.011)	-0.8419** (-2.140)	-0.8418** (-2.138)		
Board DIV-KLD			1.9486*** (12.169)	1.9896*** (12.078)	1.9242*** (9.977)	1.9493*** (11.143)	1.9725*** (11.388)	1.9726*** (11.427)		
GOV-KLD			0.1571** (2.311)	0.1517** (2.183)	0.1942** (2.469)	0.0849 (1.087)	0.1088 (1.407)	0.1087 (1.408)		
InstOwn				-0.4878* (-1.937)	-0.5067* (-1.778)	-0.3975 (-1.544)	-0.4121 (-1.608)	-0.4198 (-1.641)		
CEO-CHAIR			-0.0357 (-0.411)	-0.0214 (-0.241)	-0.0841 (-0.889)	-0.0865 (-0.889)	-0.1230 (-1.308)	-0.1266 (-1.346)		
Ability					-0.5736*** (-2.640)					
Gen managerial skills						-0.0736 (-1.209)				
MBA CEO							0.0987 (0.959)	0.1025 (0.993)		
Star CEO							0.1944** (2.116)	0.1977** (2.158)		
Millitary CEO							-0.0170 (-0.092)	-0.0109 (-0.059)		
American CEO							-0.0213 (-0.213)	-0.0238 (-0.239)		
PICK of BS1							0.0844 (0.822)			
PICK of BS2								0.1036 (0.819)		
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes- But no Female CEO	Yes
Constant	0.4845 (1.036)	-1.1560 (-1.593)	-0.2983 (-0.489)	-0.0818 (-0.131)	-0.4020 (-0.599)	-0.4182 (-0.597)	0.3024 (0.135)	-0.1638*** (-3.039)	0.3024 (0.135)	-0.1638*** (-3.039)
Observations	11,858	3223	11,841	11,181	9380	8126	11,841	11,841	11,841	11,841
Adjusted R-squared	0.733	0.181	0.257	0.265	0.282	0.264	0.819	0.021	0.819	0.021
Year effects	No	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No
Industry effects	No	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No
Firm-CEO effects	Firm	No	No	No	No	No	No	No	CEO	No
Propensity score match	No	Yes	No	No	No	No	No	No	No	No

As the board of directors seeks to match CEO attributes with its strategic vision for the firm, it is plausible the preferences and attributes of the board of directors are correlated with the marital status of the CEO and the firm's policy on CSR. To evaluate this concern, we include two internal governance-related controls in addition to the BCF index of [Bebchuk et al. \(2009\)](#) included in [Table 3](#). *Board Div-KLD* is a KLD measure of Board of Directors' Diversity Strength based on the representation of women, minorities, and/or the disabled and policies toward its gay and lesbian employees. *GOV-KLD* (denoting Governance Strengths less Governance Concerns from KLD which cover CEO and board compensation, transparency about social and environmental performance, political accountability, corporate culture, etc.). Moreover, following [Kim and Lu \(2011\)](#), we use Herfindahl Hirschman Index (*HHI*, constructed from revenues reported in Compustat database) of market concentration as a proxy for external governance. Firms in more competitive markets (low *HHI* in the three-digit industry category (SIC3)) are likely to waste less resources on CSR and favor more aggressive CEOs. Yet another external governance proxy is *InstOwn*, denoting the percentage of the firm's equity held by institutional investors. As predicted, the expanded estimates in models (3) to (5) show the above four internal and external governance-related variables have significant explanatory power.

On top of the five CEO attributes used as controls in our earlier benchmark tests (*CEO Age*, *CEO Tenure*, *Options Own*, *Female CEO*, *Shares Owned* and *Risk Propensity*), we consider two more attributes: *CEO_Chair* (a dummy variable to identify a CEO who also holds

the chairperson of the board position), and *CEO Ability* (a measure of revenue generated for a given level of resources used, following Demerjian et al. (2012)).¹⁰ While *CEO Chair* turns out to be statistically insignificant, *CEO Ability* is negative and highly significant. Custodio et al. (2013) find that CEOs with general managerial skills gathered during lifetime work experience earn higher compensation. As this trait could also affect CSR, we control for *CEO General Managerial Skills* (defined as the first principal component of ‘number of past positions held, number of firms served, number of industries served, dummy representing past CEO experience, and dummy representing past experience in a conglomerate firm) in model (6), but it turns out to be insignificant.

To further mitigate omitted variable concerns related to the CEO's physical, psychological, demographic and social characteristics, we are unable to use CEO fixed effects in our tests directly as by construction our married CEO variable is practically orthogonal to CEO effects. Since *Married CEO* and *Female CEO* effects are perfectly collinear with CEO fixed effects and difficult to disentangle, in models (9) and (10) we follow Gormley and Matsa (2014), p.644 and use the instrumental variable strategy within the CEO FE framework: in the first step, regress CSR scores on all control variables (except for *Female CEO*) used in model (1) of Table 3 and CEO FE and estimate residual CSR scores (*Resid CSR*). In the second step, we regress group-average *Resid CSR* on *Married CEO*, *Female CEO* and controls used in the first step. The coefficient estimate (0.1318) on *Married CEO* reported in model (10) is positive and significant at 1%.

Schoar and Zuo (2017) find CEOs who began their careers during recessions have more conservative managerial styles, which could affect their attitude toward CSR. To account for this attribute, we construct two indicator variables. *PICKBS1_CEO* (*PICKBS2_CEO*) takes a value equal to 1 for CEOs finishing their first college degree during the pick year of NBER business cycle at an assumed age of 24 (22) years, zero otherwise. Our sample includes 14% of *PICKBS1_CEO*-years and 16% of *PICKBS2_CEO*-years, respectively. Since Benmelech and Frydman (2015) report military service of CEOs is associated with conservative corporate policies and ethical behavior, we formulate a binary variable, *Military CEO*, which takes a value of 1 for CEOs who worked in armed forces (6% of our sample). BOARDX classifies 74% of CEOs in our sample as American nationals, who are identified with an indicator variable, *American CEO*, equal to 1. We also create a proxy of CEO's educational background (an indicator variable with a value for 1 for CEO's with an MBA degree), and a proxy of Star CEO taking a value of 1 for CEOs who received job related awards, best alumni award, or best research award. We add these additional CEO attributes to models (7) and (8) of Table 4. The expanded results show that our *Married CEO* proxy remains positive and highly significant with the size of coefficient estimate of about 0.32, which is broadly comparable to those reported in the preceding tests.

Overall, these additional controls and tests boost our confidence that the positive relation between married CEOs and firm CSR scores is robust to potential bias due to omitted variables and the endogenous matching of firm-governance-CEO attributes.¹¹

4.3. Marital transitions accompanying CEO turnover

To scrutinize the odds of causal inference that marriage itself matters rather than other CEO attributes, we turn to marital transitions (i.e., changes in CEO marital status) accompanying CEO turnovers. Ideally, we would like to focus on with-in CEO change in marital states, i.e., conduct a longitudinal study of marital transitions by following CEOs as they transit through different marital states – never married, marry, divorce and remain single or remarry, widowhood (death of spouse). But we do not find much data on those changes in our sample. Our next best alternative is to look at cases where marital transitions are combined with CEO turnover. We consider four types of these joint changes: a married CEO is replaced by an unmarried CEO, an unmarried CEO leaves the firm and a married CEO takes over, a married CEO makes room for another married CEO, and an unmarried CEO is appointed to replace an outgoing unmarried CEO. Our dataset includes a rather small sample of 346 firm-year (propensity score-matched) observations on the married-to-unmarried CEO type of change in the status of top executives. Regressing these changes in the CEO marital status (jointly with CEO turnover) on changes in CSR and the standard controls used in the baseline regression in Table 3, we find a significant drop in average CSR in Panel A of Table 5 (see the coefficient estimate of -0.3405 on *Married-to-Unmarried CEO*), supporting our claim of lower CSR scores for unmarried CEOs. Although this difference-in-differences regression test is very informative, it is important to note that even this marital transition test is confounded because it is associated with changes in CEOs as

¹⁰ We tried four more CEO attributes. *MBA CEO dummy* (Boardex) is based on the idea that MBA diploma affects CEO pay, firm performance, and marital relations (Falato et al., 2015 and <https://www.ft.com/content/7fe60086-4165-11d9-9dd8-00000e2511c8>). *Overconfident CEO* is defined as a CEO holding unexercised exercisable stock options that are 67% or more in-the-money during the fifth year from the grant date (Malmendier and Tate, 2008). *CEO Prominence* denotes the frequency of CEO media mentions (Roussanov and Savor, 2014). *DTotPay* (ExecuCom) is computed as the annual change in total compensation of CEO. The first three turned out to be statistically insignificant, while the last regressor was negative and significant at 10%.

¹¹ It is still possible that other unknown omitted variable bias in CEOs (as opposed to unknown heterogeneity across firms) is driving both marriage and CSR. To address this concern, we repeat propensity score matching using a more comprehensive set of CEO characteristics than before to match firm-years managed by single CEOs with those managed by married CEOs. The expanded set includes CEO Tenure, CEO Age, Option Ownership, Shares Owned, Change in compensation, CEO media prominence, Foreign Experience (# of Countries), Number of Types of Jobs (e.g., private, pub, armed forces, universities etc.), Number of Jobs, Star CEO (i.e., received job related awards, best alumni award, or best research award), MBA degree, or Entrepreneur CEO (i.e. started as CEO in the first job), and the start of recession CEOs who graduated from four year college during the pick year of business cycle as proxied by age 24 years (*PICKBS1_CEO*) (see Appendix Table A.3). After matching, the differences in means of the observable CEO characteristics between treatment and control firms are insignificant for all variables. The difference in CSR between the treatment and control groups is -0.405 , significant at 1% in both the paired t-test of differences (t-statistic of -5.15) and the unpaired t-test of difference in means (t-statistic of -5.08).

Table 5

Marital transitions and corporate social responsibility.

The dependent variable CSR is the change in net overall corporate social responsibility score representing total CSR strengths less CSR concerns. *Married CEO* equals 1 if the CEO legally married, 0 otherwise. Subscripts represent number of years prior (negative) and after (positive) observing CEO marital status in year $t = 0$. Variable definitions are given in Appendix A. Cluster-robust t-Statistics are in brackets, significance levels are reported as *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Panel A.					
					(1)
Variables					ΔCSR_{t+1}
Married-to-Unmarried CEO					-0.3405** (-1.979)
Other controls					Yes
Constant					-1.0186 (-0.947)
Observations					346
Adjusted R-squared					0.097
Year effects					Yes
Industry effects					Yes

Panel B. Marital transitions -unpaired t-test of difference-in-differences					
CEO Change	ΔCSR - Mean	ΔCSR - Stdev	N	Diff vs. NoChange	TSTAT
Unmarried to married	-0.180	1.650	50	-0.265	-1.11
No change	0.085	1.239	576		
Married to unmarried	-0.279	1.348	68	-0.364**	-2.13

well.

Persisting with our attempts to isolate the influence of the change in CEO marital status from that of CEO turnover, we focus on firms that experience at least two changes in the CEO marital status during our study period, i.e., from unmarried to married and married to unmarried or vice versa. Then we compare the change in net CSR scores of these firms with those of corresponding firm-years with no change in the CEO marital status, see the difference-in-differences tests presented in Panel B of Table 5. The base case is the mean change in CSR (0.085) when there is no change in the top executive's family status (576 observations on unmarried-to-unmarried and married-to-married CEO turnovers), which measures the average influence of CEO turnover unaccompanied by a change in their marital status. Compared with this change, the average change in CSR is negative (-0.265) when a married CEO replaces an unmarried CEO (50 observations), but the difference between the two changes is statistically insignificant. By contrast, relative to the base case the mean drop in CSR scores (equal to -0.364) is significant at $p < 0.05$ when an unmarried CEO replaces a married CEO (68 observations). Although based on a small number of observations, this difference-in-differences test is a bit more effective in isolating the influence of CEO marriage transitions from other types of CEO turnover and helps to strengthen our claim about a robust link between CEO marriage and CSR that goes beyond correlation.

In summary, lacking random assignment of CEOs to married and unmarried (cohabiting, divorced, never-married) states (treatment and control groups), we cannot rule out selection bias and acknowledge the possibility of other omitted factors (e.g., CEO religion, CEOs parenting daughters, genetic differences) influencing the link we document between CEO marital status and social performance of organizations. So, it is plausible that organizations with more pro-social style select married CEOs, rather than married CEOs having a positive effect on CSR. However, the wide range of tests including propensity score-matched samples based on firm and CEO characteristics, CEO, firm, state, and county fixed effects and marital transitions increase our confidence that the observed positive relation between married CEOs and CSR is less likely to stem from unknown heterogeneity inherent in the firm and CEO attributes.

4.4. CSR strengths and concerns

In this section, we ask: how deep and serious is the positive association between the married CEO status and corporate social performance? If married CEOs exhibit a strong commitment to CSR in comparison to their unmarried peers, do they score better on both CSR strengths and concerns related to environmental, diversity and other issues? To explore these issues, we repeat our tests by decomposing the overall CSR index, CSR (our dependent variable), into its positive (representing strengths) and negative (representing concerns) sub-indices - total CSR strengths (*CSR_STR*) and total CSR concerns (*CSR_CON*). *CSR_STR* is equal to *PRO_STR* + *COM_STR* + *EMP_STR* + *DIV_STR* + *ENV_STR* + *HUM_STR*. We define *CSR_CON* analogously using scores on CSR concerns.

The first two models in Table 6 use *CSR_STR* as the outcome variable and indicate that the coefficient estimates on *Married CEO* are all positive and highly significant. In sharp contrast, the coefficient estimates on *Married CEO* are all insignificant in models (3) through (4), all of which use *CSR_CON* as the dependent variable. These results indicate that married CEOs score on average the same

Table 6

Corporate social responsibility strengths and concerns.

The dependent variable *CSR* is net overall corporate social responsibility score representing total CSR strengths less CSR concerns. *Married CEO* equals 1 if the CEO is legally married, 0 otherwise. Subscripts represent number of years prior (negative) and after (positive) observing CEO marital status in year $t = 0$. Variable definitions are given in Appendix A. Cluster-robust t-Statistics are in brackets, significance levels are reported as *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

	(1)	(2)	(3)	(4)
Variables	CSR_STR _{t+1}	CSR_STR _{t+1}	CSR_CON _{t+1}	CSR_CON _{t+1}
Married CEO	0.2029** (2.323)	0.2455** (2.490)	-0.0900 (-1.343)	-0.0717 (-0.958)
Eindex		-0.0979** (-2.333)		-0.1670*** (-5.122)
Other Controls	Yes	Yes	Yes	Yes
Constant	-5.4334*** (-9.849)	-5.8331*** (-10.402)	-4.5119*** (-12.045)	-4.1958*** (-10.843)
Observations	11,510	10,017	11,841	10,273
Adjusted R-squared	0.374	0.395	0.415	0.440
Year effects	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes

as their unmarried peers on activities classified as CSR concerns. But married CEOs tend to perform better relative to their unmarried counterparts on activities classified as CSR strengths. These findings imply that unmarried CEOs do not ignore CSR codes and standards that may raise concerns about compliance with the norms and laws, however, they seem to show less commitment to positive CSR programs. In contrast, *Married CEOs* appear to be embracing CSR.

To scrutinize further the underlying channels of transmission of social benefits and costs of the marital status of CEOs to CSR, we repeat the tests in Table 3 using the net scores on each of the six specific areas covered by the KLD CSR index: product (*PRODUCT*), diversity (*DIVERSITY*), human rights (*HUMAN*), environment (*ENVIRONMENT*), employee relations (*EMPLOYEE*), and community (*COMMUNITY*). The estimates for each of these six outcome variables are available in Appendix Table A.4. To conserve space, we suppress all control variables and report coefficient estimates of our test variable, *Married CEO*. Only the estimate on *Married CEO* in the *DIVERSITY* regression is positive (0.1816, significant at $p < 0.01$), indicating that married CEOs score higher on diversity issues which covers hiring and promotion of women, minorities and disabled, affirmative action, and employee benefits. Their net scores on social performance are not significantly related to the remaining five areas covered by the CSR index. Panels B and C present estimates related to strengths (STR) and concerns (CON) on each of the six constituent areas of the CSR index, respectively. The results reveal that married CEOs have significantly higher scores on diversity–strengths (0.0967) and lower scores on diversity–concerns (-0.0849, significant at $p < 0.01$). Moreover, they score higher on employee relation–strengths (0.0643, significant at $p < 0.05$) which covers labor union relations, employee health and retirement benefits, safety and well-being, profit-sharing and stock ownership.¹²

The diversity category in the KLD CSR index includes the following eight topics classified as strengths and three topics labelled as concerns (variable symbols in parentheses): CEO (*div_str_a*), Promotion (*div_str_b*), Board of Directors (*div_str_c*), Work-Life Benefits (*div_str_d*), Women and Minority Contracting (*div_str_e*), Employment of Disabled (*div_str_f*), Gay and Lesbian Policies (*div_str_g*), Other Strength (*div_str_x*), Controversies (*div_con_a*), Non-Representation (*div_con_b*), and Other Concerns (*div_con_x*). We construct indicator variables for each of these component topics with a value = 1 if a firm has score in the firm-year, 0 otherwise. Then we regress each of these indicator variables on *Married CEO* and the control variables used in Table 3. The odds-ratios presented in Table A.5. in the Appendix show that organizations led by married CEOs are more likely to support hiring and promotion of women, minorities and disabled, as well as gay and lesbian policies.¹³ These findings have implications for executive misconduct, managerial incivility and rudeness and sexual misconduct in the workplace (Porath and Pearson, 2013; Woolum et al., 2017; Horwich, 2018; McCann, 2018). They suggest that firms that ignore or disregard the influence of CEO marital status may run the risk of diminished corporate image, potential consumer boycott, increased regulatory scrutiny and litigation problems (Cheah et al., 2007), particularly those companies operating in businesses where corporate social performance is scrutinized more closely (e.g., Chemicals, Oil & Gas,

¹² Additional tests (not reported) using the propensity score-matched sample confirm the full-sample finding that higher scores on corporate social performance of married CEOs are largely concentrated in diversity–strengths, diversity–concerns, and employee–strengths.

¹³ Although we rely on the KLD measures of CSR (arguably the most comprehensive and widely used social rating), Chatterji et al. (2016) observe little overlap and fairly low pairwise correlations among the ratings of six major agencies (KLD, Asset4, Calvert, FTSE4Good, DJSI, and Innovest), thus casting doubt on our inference about CEO marriage and corporate social performance. In addressing this concern, it is worth noting that KLD is the social rating industry leader and uses all publicly available information (including surveys, corporate reports, and news articles) to determine its ratings of CSR strengths and weaknesses (Kim et al., 2012). Evaluating the correlating between KLD ratings with other performance metrics based on reputation and social responsibility surveys, Sz wajkowski and Figlewicz (1999) report that these ratings have strong internal discriminant validity. Hrazdil et al. (2016) use textual analysis and focus on the tone, readability, length, numerical content, and horizon content of the narratives to develop a measure of quality of CSR reports. They find that this report quality measure is positively associated with KLD ratings of CSR as well as equity analysts' earnings forecast accuracy, thus confirming the informativeness of the KLD CSR ratings.

Table 7

CEO marital status and CSR diversity and employee relations.

Diversity (DIVERSITY) and Employee Relations (EMPLOYEE) are components of the Corporate Social Responsibility index. The dependent variable DIVERSITY and EMPLOYEE are net overall CSR scores representing total CSR strengths less CSR concerns in each of those categories. *Married CEO* equals 1 if the CEO is legally married, 0 otherwise. Subscripts represent number of years prior (negative) and after (positive) observing CEO marital status in year $t = 0$. Variable definitions are given in Appendix A. Cluster-robust t-Statistics are in brackets, significance levels are reported as *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

	(1)	(2)
Variables	Diversity $t+1$	Employee $t+1$
Married CEO	0.1701*** (3.147)	0.0566 (1.342)
Community $t+1$	0.3328*** (8.800)	0.0820*** (2.578)
Product $t+1$	0.0019 (0.053)	0.1494*** (4.749)
Environment $t+1$	0.1185*** (3.854)	0.0825*** (2.713)
Human $t+1$	-0.1478* (-1.955)	0.0544 (0.850)
Other controls	Yes	Yes
Constant	-3.3388*** (-11.771)	-0.3119 (-1.437)
Observations	11,841	11,841
Adjusted R-squared	0.368	0.150
Year Effects	Yes	Yes
Industry Effects	Yes	Yes

Power).

Our expectation based on the findings of family studies is that marriage strengthens the social preferences and behavior of CEOs. The preceding analysis suggests that the marital effect is concentrated in the two constituent dimensions of CSR, DIVERSITY and EMPLOYEE, consistent with our expectation. However, since the KLD scores on these two qualitative areas are interrelated with the remaining four dimensions included in the overall CSR score, it is important control for the degree of overlap among those four metrics to assess the robustness of our findings.

For example, the diversity category includes hiring and promotion of women, minorities and disabled, affirmative action, and employee benefits, and the employee relations area covers labor union relations, employee health and retirement benefits, safety and well-being, profit-sharing and stock ownership. These descriptions suggest a good deal of interrelation among the topics covered by these two metrics, which is confirmed by a simple correlation of 14%, significant at $p < 0.01$. Similarly, the pairwise correlation coefficients of DIVERSITY with each of ENVIRONMENT, COMMUNITY, HUMAM, and PRODUCT are (in that order) 6%, 30%, -12%, and -17%, all of which are significant at $p < 0.01$. Furthermore, we perform separate contemporaneous regressions of DIVERSITY and EMPLOYEE scores on the remaining four dimensions, other controls and *Married CEO* and present the results in Table 7. In columns (1) and (2) we find that DIVERSITY and EMPLOYEE are significantly correlated with the majority of the remaining components of CSR. Regression (1) suggests that *Married CEO* continues to have a highly significant and positive influence on DIVERSITY even after controlling for the other four categories of CSR, although its effect on EMPLOYEE is positive but not significant.¹⁴ These added tests help us identify that DIVERSITY is the channel underlying the observed positive relation between the aggregate CSR score and *Married CEO*.

¹⁴ We consider an alternative measure (to KLD ratings) of an organization's reputational risk exposure to environmental, social, and governance issues, labelled *RepRisk* (<https://www.issgovernance.com/esg/reprisk/>). Ranging from 0 to 100, higher *RepRisk* index values indicate lower social performance, and most firms score below 50, often zero. It is available only for 2007 and 2008 within our sample period. We compare the reputational risk index values of 233 firms with unmarried CEO (treatment group) with those of the propensity score matched sample of married CEOs (control group, based on nearest neighbor 1-on-1 matching without replacement), see Appendix Table A.6. The mean index values for the treatment and control groups are 4.6 and 3.6, respectively, but the difference is not significant at $p < 0.10$. Next, we compare the annual change in reputational risk following a change in the CEO status from married to unmarried with the propensity score matched sample of firms where the CEO remains married in both years. While the average change in *RepRisk* for firms where the CEOs remain married is zero, it increases significantly ($p < 0.05$) for the treated firms where top executive's status changes from married to unmarried, in both paired and unpaired *t*-tests. Although derived from a small number of annual changes in index values (sample of 18 pairs), this evidence provides some comfort that our basic inference that the married status of CEOs has a positive influence on CSR remains robust to using *RepRisk* as an alternative measure of CSR.

Table 8

CEO marital status, compensation and corporate social responsibility.

The dependent variable CSR is net overall corporate social responsibility score representing total CSR strengths less CSR concerns. *Married CEO* equals 1 if the CEO legally married, 0 otherwise. Subscripts represent number of years prior (negative) and after (positive) observing CEO marital status in year $t = 0$. All control variables are as of $t = 0$. Variable definitions are reported in Appendix A. Cluster-robust t-statistics are in brackets (for column (7) clustered corrected at CEO-level, other columns cluster corrected at firm-level). Stars indicate significance levels as follows: *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$.

	HighTotal PAY	Low TotalPay	High CashPay	Low CashPay
	(1)	(2)	(3)	(4)
Variables	CSR _{t+1}	CSR _{t+1}	CSR _{t+1}	CSR _{t+1}
Married CEO	0.3444** (2.195)	0.2691** (2.496)	0.4168*** (2.603)	0.2647** (2.495)
CAPEX	-0.1118 (-0.810)	0.0828 (0.943)	-0.1097 (-0.702)	0.0666 (0.781)
R&D/PPE	0.0677* (1.949)	-0.0023 (-0.409)	0.2488** (2.355)	0.0041 (0.625)
LogAssets	0.3004*** (3.598)	0.0402 (0.682)	0.2584*** (3.409)	0.1499*** (2.702)
FirmAge	0.0038 (0.640)	-0.0130*** (-3.456)	0.0010 (0.187)	-0.0069* (-1.693)
ROA	3.5285*** (3.507)	1.1305* (1.856)	3.2850*** (3.149)	1.6748*** (2.646)
Leverage	-0.0638 (-1.006)	-0.0044 (-0.054)	-0.0334 (-0.571)	-0.0423 (-0.550)
MVBV	0.1773*** (3.249)	0.1078*** (2.717)	0.2228*** (3.562)	0.0898*** (2.933)
CEO age	-0.0138 (-1.463)	-0.0164** (-2.530)	-0.0115 (-1.251)	-0.0208*** (-3.084)
CEO tenure	0.0126 (1.048)	-0.0040 (-0.505)	0.0027 (0.235)	0.0062 (0.745)
Options own	0.0031 (0.229)	-0.0016 (-0.189)	-0.0057 (-0.527)	-0.0042 (-0.446)
Female	2.4592*** (4.083)	1.8519*** (5.511)	2.6167*** (3.646)	1.9316*** (6.263)
Risk propensity	-0.3994 (-1.420)	-0.9464*** (-4.887)	-0.6794** (-2.201)	-0.8847*** (-4.604)
Constant	-3.4793*** (-3.643)	0.8947 (1.493)	-2.8244*** (-3.152)	0.0933 (0.158)
Observations	5949	5892	6008	5833
Adjusted R-squared	0.280	0.160	0.264	0.168
Year effects	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes

4.5. CEO pay and CSR

Our analysis thus far suggests that marriage is likely to lead CEOs to socially responsible corporate policies and decisions.¹⁵ Executive social preferences can form the bedrock of CSR, since CEOs' social beliefs and preferences anchor their efforts to promote socially responsible corporate policies and actions. Our tests based on the full sample in Table 3 show no direct relation between CSR and CEOs' total pay. Now we further examine the notion that corporate boards use CEO pay (along with or independent of CEO social preferences) to maximize its strategic dual objective function of economic and social returns. To explore this idea at a broad level, we ask: are CEOs with stronger (revealed) pro-social preferences and higher pay associated with higher future ratings on CSR? We treat current period CEO marital status as a credible proxy for their social beliefs and preferences. Two widely used measures of CEO pay are *CashPay* (defined as log (Total Salary + Bonus)) and *TotalPay* (measured as log (Salary + Bonus + Other Annual + Restricted Stock Grants + LTIP Payouts + All Others + Value of Option Grants)). We gather the data on CEO pay from ExecuCom database.

Our preliminary analysis indicates that *Married CEO* has pairwise correlations of 11% with both *CashPay* and *TotalPay*, suggesting a positive association between CEO compensation and executive social values. To scrutinize the impact of CEO marital status and pay on next period's CSR scores, we partition the full sample at median *CashPay* and *TotalPay* into *High Pay* and *Low Pay* subsamples and repeat our baseline regression shown in Table 3. The coefficient estimates on *Married CEO* in the high total pay and high cash pay subsamples (0.3444 and 0.4168, respectively) are considerably higher than the corresponding estimates (0.2691 and 0.2647) in the low total pay and low cash pay subsamples, see Table 8. That is, we find a sharper relation between future CSR ratings and CEOs with

¹⁵ Smith and Smith (2016) find that socially responsible investing (SRI) practices of universities and colleges are aligned with both the institution's mission (enhancing its "brand") and agency issues (e.g., more oriented toward generating donations and less focused on investment policy).

stronger social preferences (as proxied by their marital status) in the *High Pay* relative to *Low Pay* subsamples. Although the magnitudes of the coefficient estimates suggest economically significant variations, the difference between the two subsamples in these marginal effects is not statistically significant.¹⁶

5. Conclusion

Extrapolating from a large body of literature on how a normative commitment to traditional marriage acts as a potent catalyst in shaping the values, preferences and behavior of the spouses, we posit and find a robust positive relation between the married status of CEOs and corporate social responsibility, particularly, racial-gender-cultural diversity and employee relations. Our findings are robust to a wide range of tests to account for selection bias, endogeneity of CEO marital status, matching of CEO, governance and firm attributes, industry and geographic trends, and firm and CEO fixed effects. To firms that value the dual objective of enhancing both financial and social returns, our analysis highlights that the married status of CEOs is a reliable indicator of pro-CSR beliefs and values of top executives. However, any causal attribution remains a challenge because of many plausible reasons for the observed positive correlation.

We gratefully acknowledge the support from Edwards Research Scholar program at the Edwards School of Business, UCONN School of Business, and Dan Feenberg of NBER for personal income tax data, seminar participants and discussant at 2015 Atlantic School of Business Conference, 2018 Indian Finance Conference at IFC Calcutta, William Megginson (Editor) and two anonymous reviewers.

Acknowledgements

We gratefully acknowledge the support from Edwards Research Scholar program at the Edwards School of Business, UCONN School of Business, and Dan Feenberg of NBER for personal income tax data, seminar participants and discussant at 2015 Atlantic School of Business Conference, 2018 Indian Finance Conference at IFC Calcutta, William Megginson (Editor) and two anonymous reviewers.

Appendix A. Variable construction

Variable	Definition	Source
Panel A. Dependent variables		
CSR	Firm-level CSR performance measured as the sum of the net CSR scores for six qualitative issue areas: Community (COMMUNITY), Diversity (DIVERSITY), Employee (EMPLOYEE), Environment (ENVIRONMENT), Human Rights (HUMAN), and Product (PRODUCT). Within each of these six categories net scores are number of strengths less number of concerns.	KLD CSR/ Author's Computation
CSR_STR	Total number CSR Strengths in six qualitative areas as defined above	Same as above
CSR_CON	Total number of CSR concerns in six qualitative areas as defined above	Same as above
Panel B. CEO Characteristic		
Married CEO	Dummy representing a CEO who is legally married (and in some cases, married but separated).	Roussanov and Savor (2014)
CEO Age	Age of CEO	ExecuCom
CEO Tenure	Tenure of the CEO	ExecuCom
Female CEO	Dummy that takes a value 1 for Female CEO	ExecuCom
OPT_OWEN	Value of unexercised CEO options divided by total compensation	ExecuCom/ Roussanov and Savor (2014)
Panel C. Control variables		
LogAssets	Natural Log of Total Assets by Fiscal Year End	Compustat
Firm_Age	Numbers of years a firm was part of the Centre for Research in Security Prices (CRSP) return files.	CRSP/Author's Computation
ROA	Firm's operating earnings before depreciation and taxes divided by total assets at the beginning of the fiscal year.	Compustat/Author's Computation
CAPEX	Total capital spending divided by Plant, Property and Equipment (PPE)	Compustat/Author's Computation
Book leverage	Book value of current liability plus book value of long term debt divided by total assets	Compustat/Author's Computation
R&D	Research & Development Expenses divided by PPE	Compustat/Author's Computation
MVBV	Market value of equity divided by book value of equity	Compustat/Author's Computation
Risk Propensity	Volatility of returns estimated consistent with Roussanov and Savor (2014)	Roussanov and Savor (2014)

¹⁶ Also we performed the following univariate test: we computed differences in CSR scores between the fifth (high) and first (low) quintiles of total CEO pay for the married and unmarried CEOs. The mean difference in CSR ratings for married CEOs with high and low pay is 0.614 with a t-statistic of 7.8. In contrast, the corresponding mean difference in CSR scores for the unmarried group is 0.045 with a t-statistic of 0.2. The difference-in-differences is 0.569 with a t-statistic of 7.7.

CEO Ability	This is the proxy of managerial efficiency estimated as the decile rank by industry-year of the MA-Score (i.e., <code>ma_score_2012_rank</code>) in year t .	Demerjian et al. (2012)
CEO General Managerial Skills EIndex	The first principal component of 'number of past positions held, number of firms served, number of industries served, dummy representing past CEO experience, and dummy representing past experience in a conglomerate firm'.	Custodio et al. (2013)
Shares Owned	CEO Share ownership exclusive of options	Bebchuk et al. (2009) ExecuCom
CEO Prominence	Frequency of CEO media mentions estimated as the number of news stories mentioning CEO in Factiva Dow Jones database.	Roussanov and Savor (2014)
Inst Own	Percentage of firms equity held by Intuitional Owners	Thompson 13 F/Roussanov and Savor (2014)
LogTotalPay	Natural Log of Total Compensation (= Salary + Bonus + Other Annual + Restricted Stock Grants + LTIP Payouts + All Other + Value of Option Grants) vs. the last year's Total Compensation	ExecuCom
Blue state	A state is classified as blue state if democratic presidential candidate consistently won all elections held from 1992 to 2008.	Author's Computation/ http://uselectionatlas.org/
Fama-French 48 industries	Coded using the guidelines from Ken French's website, SIC codes are from Compustat http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/Data_Library/det_48_ind_port.html	

Table A.1

. Moderating effects of CEO age and firm profitability.

The dependent variable CSR is net overall corporate social responsibility score representing total CSR strengths less CSR concerns. *Married CEO* equals 1 if the CEO is legally married, 0 otherwise. Subscripts represent number of years after observing CEO marital status in year $t = 0$. All control variables are as of $t = 0$. The median age of CEOs in our sample is 55 years. ROA median is sorted by year and Fama-French 48 industries. Variable definitions are reported in Appendix A. Cluster-robust t-statistics are in brackets (for column (7) clustered corrected at CEO-level, other columns cluster corrected at firm-level). Stars indicate significance levels as follows: *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$.

	CEO Age > Median	CEO Age < Median	ROA > Median	ROA < Median	CEO-Cluster
	(1)	(2)	(3)	(4)	(5)
Variables	CSR _{t+1}	CSR _{t+1}	CSR _{t+1}	CSR _{t+1}	CSR _{t+1}
Married CEO	0.2677* (1.808)	0.3530*** (2.790)	0.3519*** (2.697)	0.2331* (1.814)	0.2946*** (2.899)
CAPEX	0.1804 (0.971)	0.0178 (0.210)	-0.0376 (-0.351)	0.1024 (0.972)	0.0395 (0.502)
R&D/PPE	-0.0099 (-1.427)	0.0406* (1.735)	0.1905*** (2.827)	-0.0048 (-0.899)	0.0072 (0.900)
LogAssets	0.1863*** (2.873)	0.1465** (2.313)	0.2647*** (3.653)	0.0721 (1.296)	0.1782*** (4.109)
FirmAge	-0.0051 (-1.025)	0.0008 (0.150)	-0.0016 (-0.295)	-0.0058 (-1.225)	-0.0020 (-0.572)
ROA	2.4643*** (3.038)	1.9881** (2.453)	1.6949 (1.423)	2.8053*** (3.198)	2.3049*** (4.274)
Leverage	-0.0832 (-1.397)	0.0326 (0.342)	-0.0073 (-0.178)	-0.0760 (-0.683)	-0.0442 (-0.943)
MVBV	0.1491*** (3.116)	0.1829*** (4.372)	0.1484*** (3.361)	0.1212** (2.278)	0.1662*** (5.202)
CEO Age	-0.0311*** (-2.595)	-0.0004 (-0.028)	-0.0161* (-1.846)	-0.0188** (-2.565)	-0.0185*** (-2.968)
CEO Tenure	0.0070 (0.785)	0.0091 (0.724)	-0.0030 (-0.300)	0.0193** (2.171)	0.0076 (0.987)
Options own	0.0114 (0.991)	-0.0216** (-2.416)	-0.0127 (-1.259)	0.0155 (1.455)	-0.0040 (-0.497)
Female CEO	1.3917* (1.904)	2.6069*** (5.583)	2.5451*** (5.892)	2.1379*** (3.938)	2.3143*** (5.501)
Risk propensity	-0.5034* (-1.780)	-1.1446*** (-5.162)	-1.3440*** (-5.342)	-0.3855* (-1.748)	-0.8193*** (-4.540)
Constant	-0.3248 (-0.351)	-1.2740 (-1.439)	-1.3737 (-1.624)	-0.0489 (-0.077)	-0.8892* (-1.741)
Observations	6331	5510	6167	5674	11,841
Adjusted R-squared	0.199	0.211	0.230	0.182	0.202
Year Effects	Yes	Yes	Yes	Yes	Yes
Industry Effects	Yes	Yes	Yes	Yes	Yes

Table A.2

Propensity score matching.

Treatment denotes unmarried CEOs and *Control* refers to matching sample married CEOs. *CSR* is net of corporate social responsibility strengths less concerns on six dimensions of corporate social responsibility. *N* represents number of firm-years. Variable definitions are given in Appendix A. Significance level presented as *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Panel A. Diagnostics-difference in means of variables				
Variable	Treatment	Control	Difference	T-STAT
FirmSize	7.1339	7.1699	-0.03600	-0.3100
FirmAge	24.7060	24.1030	0.60300	0.4500
Book Leverage	0.3054	0.3363	-0.03088	-0.9600
CAPEX	0.3396	0.2967	0.04295	0.9500
R&D/PPE	0.6251	0.6256	-0.00050	0.0000
ROA	0.1391	0.1389	0.00018	0.0200
CEO Tenure	6.2557	5.9237	0.33200	0.8000
CEO Age	53.1760	53.6150	-0.43900	-0.7300
Female CEO	0.0229	0.0267	-0.00382	-0.2800

Panel B. Paired & Unpaired T-test of differences in CSR _{t+1}				
Variable	Mean	Stdev	N	TSTAT
Pair (Treat - Control)	-0.312***	2.745	1635	-4.59
Control	-0.063***	2.036	1635	-4.51
Treatment	-0.375	1.920	1635	

Table A.3

Propensity score matching for additional CEO attributes.

This table presents univariate test of difference in CSR performance between single and matching sample of control firm-years with married CEOs matched primarily on CEO characteristics, year and industry. *Treatment* denotes unmarried CEOs and *Control* refers to matching sample of married CEOs). *CSR* is net of corporate social responsibility strengths less concerns on six dimensions of corporate social responsibility. The matching sample of married CEOs are selected using nearest neighbor propensity score matching technique by year using a set of carefully selected variables, CEO Tenure, CEO Age, Option Ownership, Shares Owned, Change in compensation, CEO median prominence, Foreign Experience (# of Countries), Types of Jobs (e.g., private, pub, armed forces, universities etc.), Number of Jobs, Star CEO (i.e., received job related awards, best alumni award, or best research award), MBA degree, or Entrepreneur CEO (i.e. started as CEO in the first job), the start of the recession CEOs who graduated from four year college during the PICK year of business cycle at an assumed age of 24 years (PICKBS1_CEO). We borrow the proxy of single vs. married from Roussanov and Savor (2014). Panel A presents diagnostic statistics for the difference in firm and CEO characteristics of treatment and control group of firms and Panel B presents the test of difference in CSR performance using matched pairs of firms and the difference between the mean CSR performance of treatment and control groups. *N* represents number of firm-years. Variable definitions are given in Appendix A. Significance level presented as *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Panel A: Diagnostic stat-difference in means of variables				
Variable	Treated	Control	Difference	T-STAT
Female	0.0213	0.0298	-0.00851	-0.5800
Age	52.9230	52.3910	0.53200	0.8600
Tenure	6.2511	5.9915	0.25960	0.6000
opt_own	1.2183	1.1551	0.06320	0.2100
Shares Owned	1.0772	1.0026	0.07460	0.2700
Change in Comp	25.2170	25.8160	-0.59900	-0.0500
ceo_prominence	3.9828	4.0201	-0.03730	-0.2700
Foreign Exp (countries)	2.1149	2.1447	-0.02980	-0.0400
#Types of Jobs	1.8979	1.9447	-0.04680	-0.7800
Number of Jobs	3.5319	3.5234	0.00850	0.1200
Star/Awarded	0.2596	0.2553	0.00425	0.1100
MBA	0.2255	0.2468	-0.02128	-0.5400
Entrepreneur CEO	0.0511	0.0255	0.02553	1.4400
PICKBS1_CEO	0.1575	0.1745	-0.01702	-0.5000

Panel B: Paired & unpaired T-TEST of difference (csr_n t + 1)				
Variable	Mean	Stdev	N	TSTAT
Pair (Treat - Control)	-0.405	2.900	1359	-5.15
Control	-0.018	2.257	1359	-5.08
Treatment	-0.423	1.891	1359	

Table A.4

CEO Marital status and corporate social responsibility components.

The dependent variable CSR is net overall corporate social responsibility score representing total CSR strengths less CSR concerns. Married CEO equals 1 if the CEO legally married, 0 otherwise. Subscripts represent number of years prior (negative) and after (positive) observing CEO marital status in year $t = 0$. Variable definitions are given in Appendix A. Cluster-robust t-Statistics are in brackets, significance levels are reported as *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Panel A: Net scores by CSR components						
	(1)	(2)	(3)	(4)	(5)	(6)
Variables	PRODUCT _{t+1}	DIVERSITY _{t+1}	EMPLOYEE _{t+1}	HUMAN _{t+1}	ENVIRONMENT _{t+1}	COMMUNITY _{t+1}
Married CEO	0.0140 (0.461)	0.1816*** (3.246)	0.0621 (1.470)	-0.0108 (-1.081)	0.0289 (0.784)	0.0194 (0.821)
Controls & effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	11,841	11,841	11,841	11,841	11,841	11,841
Adjusted R-squared	0.287	0.337	0.131	0.165	0.200	0.140
Panel B: CSR strengths by components						
	(1)	(2)	(3)	(4)	(5)	(6)
Variables	PRO_STR _{t+1}	DIV_STR _{t+1}	EMP_STR _{t+1}	HUM_STR _{t+1}	ENV_STR _{t+1}	COM_STR _{t+1}
Married CEO	0.0090 (0.532)	0.0967** (2.115)	0.0643** (2.163)	-0.0005 (-0.223)	0.0278 (1.171)	0.0079 (0.409)
Controls & effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	11,841	11,841	11,841	11,510	11,841	11,841
Adjusted R-squared	0.120	0.351	0.181	0.064	0.204	0.226
Panel C: CSR Concerns by components						
	(7)	(8)	(10)	(9)	(11)	(12)
Variables	PRO_CON _{t+1}	DIV_CON _{t+1}	EMP_CON _{t+1}	HUM_CON _{t+1}	ENV_CON _{t+1}	COM_CON _{t+1}
Married CEO	-0.0049 (-0.203)	-0.0849*** (-3.048)	0.0023 (0.072)	0.0103 (0.994)	-0.0011 (-0.037)	-0.0115 (-0.826)
Controls & effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	11,841	11,841	11,841	11,841	11,841	11,841
Adjusted R-squared	0.371	0.091	0.183	0.198	0.423	0.201

Table A.5

Probit tests of diversity components.

Dependent variables are indicator variables equal to 1 if a firm has a score on the following corporate social responsibility components in year t , 0 otherwise: div_str_a [CEO], div_str_b [Promotion], div_str_c [Board of Directors], div_str_d [Work-Life Benefits], div_str_e [Women and Minority Contracting], div_str_f [Employment of Disabled], div_str_g [Gay and Lesbian Policies], div_str_x [Other Strength], div_con_a [Controversies], div_con_b [Non-Representation], div_con_x [Other Concerns], Other variable definitions are reported in Appendix A. Cluster-robust t-Statistics are in brackets. Stars indicate significance levels as follows: *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Variables	div_str_a	div_str_b	div_str_c	div_str_d	div_str_e	div_str_f	div_str_g	div_str_x	div_con_a	div_con_b	div_con_x
Married	1.050 (0.617)	1.122*** (2.828)	1.057 (0.879)	1.003 (0.045)	1.083 (0.767)	1.024 (0.141)	1.248*** (4.109)	1.617*** (2.672)	1.057 (0.765)	0.792*** (-6.019)	0.623*** (-3.038)
Observations	10,500	12,292	12,204	11,836	11,069	9910	11,549	5855	11,795	12,396	5444
Chi-square	895.9	.	3907	1618	2555	723.0	2139	867.5	2836	2223	1685
Pseudo R-squared	0.420	0.0846	0.236	0.320	0.333	0.455	0.321	0.188	0.253	0.199	0.273
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table A.6

Propensity score matching for RepRisk.

RepRisk denotes Reputation Risk index, taken from ExecuCom databases for 2007 & 2008. *Married CEO* equals 1 if the CEO legally married, 0 otherwise. Subscripts represent number of years prior (negative) and after (positive) observing CEO marital status in year $t = 0$. Variable definitions are given in Appendix A. Significance levels are shown as *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Diagnostic tests include controls for Fama-French 48 industry membership.

Panel A. Diagnostic Statistics-Difference in Means of Variables				
Variable	Treated	Control	Difference	T-STAT
FirmSize	7.9482	8.1959	-0.24770	-0.6600
FirmAge	28.4440	33.5560	-5.11200	-0.9500
Book leverage	0.3670	0.3727	-0.00572	-0.0700
CAPEX	0.2569	0.2280	0.02892	0.5200
R&D/PPE	0.2308	0.1831	0.04774	-0.3200
ROA	0.1480	0.1542	-0.00615	-0.1800
CEO Tenure	1.0000	1.6111	-0.61110	-1.0500
CEO Age	51.0560	50.0000	1.05600	0.5600
Female CEO	0.0000	0.0000	0.00000	.

Panel B. Paired & Unpaired t-Test of Differences in <i>RepRisk</i> Change				
Variable	Mean	Stdev	N	TSTAT
Pair (Treat - Control)	6.778**	12.460	18	2.31**
Control	0.000	0.000	18	
Treatment	6.778**	12.460	18	2.31**

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