

**Are executives more socially responsible when raised with siblings?  
Evidence from Chinese family firms\***

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Abstract

Using hand-collected data on siblings of chairpersons in Chinese family firms, we examine the impact of the chairperson having siblings on the corporate social responsibility (CSR) of their firm. The findings suggest that when a firm has a siblings-chairperson, the firm has a better CSR rating than firms with a chairperson without siblings. Specifically, a firm with a siblings-chairperson, on average, has a CSR rating approximately 7.96% higher than a median firm's rating. The conclusions are robust to a battery of robustness checks including a regression discontinuity research design, alternative measures of CSR, a propensity score matching sample, placebo tests, and different estimation methods. Additional analysis suggests that the mechanisms behind siblings and CSR are consistent with both competition and altruistic effects among siblings. Further analysis suggests that the positive impact of a siblings-chairperson on the CSR rating of firms is more salient when the local familism culture is stronger, when government official career advancement incentives are lower, or when the siblings are directors or CEOs of other firms. Finally, firms with a siblings-chairperson are also pro-shareholder because they consume less perquisites than firms without a siblings-chairperson. Collectively, the findings are consistent with the notion that, by having at least one sibling, a chairperson is more competitive and altruistic than a chairperson without siblings, and such behavior enhances CSR. Family structure matters in corporate practices.

Key words: corporate social responsibility; siblings; family structure; competition; altruism  
JEL code: G3; M12

## **Are executives more socially responsible when raised with siblings? Evidence from Chinese family firms**

### **1. Introduction**

Human capital is the foundation of economic and social development (Becker and Lewis, 1973; Butcher and Case, 1994). Studies in economics, sociology, psychology, and biology suggest that family structure shapes a specific behavior pattern and contributes to the human decision-making process (Becker and Tomes, 1976; Blake, 1989). For instance, Bisin and Verdier (2000) find that parents may impact their children by instilling certain values from an early age. Further evidence shows that when Congress members and federal judges in the United States have daughters, their legislation or legal opinions are more woman-friendly (Washington, 2008; Glynn and Sen, 2014).

Through the lens of finance, several studies document that executives' own personal experience and background drive their firms' corporate practices in terms of accounting conservatism and corporate risk-taking (Benmelech and Frydman, 2015; Cain and McKeon, 2016; Feng and Johansson, 2018). Recent studies have begun to investigate how executive family structure affects a family firm's performance in terms of having sons involved (Bertrand et al., 2008) or having a spouse involved in management (Amore et al., 2017). In terms of the impact of family structure on corporate practice, Cronqvist and Yu (2017) document that when a firm's chief executive officer (CEO) has a daughter, its corporate social responsibility (CSR) is about 9.1% higher than a median firm. Thus, CEOs' decisions on CSR are shaped, in part, by their family structure. The impact of other aspects of family structure, like siblings, on corporate practices is underexplored.

The purpose of this paper is to study whether firms have better CSR when their executives having siblings. CSR is a discretionary corporate practice that is important to the ideal of a better society. Sibling relationships are more complicate than the daughter

relationship studied by Cronqvist and Yu (2017). For parents and daughters, the relationship is likely to be harmonious, but the siblings can be collaborators or rivals.<sup>1</sup> In addition, when studying siblings of executives, there is less self-selection than other characteristics of executives, and thus endogeneity issues are minimized.<sup>2</sup> Therefore, it is interesting to examine the impact of having at least one sibling on a firm's CSR activities.

There are two perspectives on why executives raised with siblings contribute to better CSR for their firms. First is the competition effect of siblings. Siblings compete against each other for scarce tangible and intangible family resources (Becker and Lewis, 1973; Blake, 1989). The fierce competition can push one sibling to proactively seek opportunities to look better than other siblings inside or outside of the family. Therefore, we expect that firms that have executives with siblings engage in more CSR because the sibling-executive can use CSR to increase his or her personal reputation to gain legitimacy in the family.

Second is the altruistic effect of having siblings. Siblings grow together in their early childhood and youth, face challenges together, and socialize together (Downey and Condrón, 2004; Whiteman et al., 2015). Then, as a result of this lifetime interaction, siblings develop a caring attitude toward others leading to more CSR for firms with executives with siblings. Overall, siblings are an important factor in families and each child's behavior is shaped by family dynamics. We expect that, based on the altruistic perspective, siblings also have a positive impact on executive's decisions concerning CSR.

We examine our research questions using a sample of Chinese family firms over 2010–2016. We hand-collect sibling information of board chairpersons to execute our analysis. In

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<sup>1</sup> For instance, in the Far East Organization in Singapore, the collaborative relationship of brother Robert and Philip Ng has helped make their firm the largest private property developer in Singapore and put them at the top of the Singapore Rich List in recent years. In contrast, in the Lotte Group in South Korea, brothers Shin Dong Bin and Shin Dong Ju have engaged in fierce competition to succeed their father that has hurt the Lotte Group in terms of a failed initial public offering of its hotel subsidiary.

<sup>2</sup> Previous studies have potential selection bias issues. For instance, in the setting of Cronqvist and Yu (2017) an executive can choose not to have children, or in Benmelech and Frydman (2015), a financially conservative firm can choose a person with a military background as its CEO. In contrast, an individual cannot choose whether to have siblings.

China, the board chairperson is the ultimate decision-maker for a family firm. A chairperson's power in China is equivalent to that of a CEO in western economies. Hence, it is more meaningful to examine the chairperson in China. Focusing on family firms offers several advantages. First, family firms are privately owned, which allows us to circumvent the impact of government on CSR decisions in state-owned firms (SOEs).<sup>3</sup> Second, because family firms have better disclosure in executive family structure, and the media is likely paying more attention to and reports more information about family firm executives, there is more available and detailed sibling information on family firms than for non-family firms. Third, executives in family firms have more power and thus more discretion to make CSR decisions. Thus, focusing on family firms allow us to examine the competition and altruistic effects in the CSR decision.

We offer several findings. First, as expected, when a chairperson has siblings, the firm conducts more CSR activities and has a better CSR rating than a firm whose chairperson has no siblings. Specifically, when a chairperson has siblings, its firm's CSR rating is approximately 7.96% higher than a median firm. Interestingly, the daughter effect on CSR documented in Cronqvist and Yu (2017) is not significant in our sample, but our results remain intact even after controlling for this daughter effect. To mitigate the unobservable omitted variables bias, we use China's One Child Policy (OCP)<sup>4</sup> as a natural experiment to examine the impact of having siblings on CSR. The results strongly suggest that, as an exogenous shock, the decrease in the number of siblings since the implementation of OCP has significantly decreased firms' investment in CSR. The application of a regression discontinuity (RD) research design that allows for explicit "breaks" due to the OCP confirms our findings. In addition, our baseline findings are robust after accounting for potential endogeneity by using propensity score matching (PSM), using a placebo test, conducting a survivorship bias analysis,

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<sup>3</sup> Tan and Tang (2016) document that state-owned firms, in general, are reluctant to donate to charitable organizations.

<sup>4</sup> The OCP is a government-mandated population control policy in China that began in late 1979.

controlling for an individual wealth effect, controlling for province and firm fixed effects, and using alternative definitions of key variables. In addition, we find that when a firm changes from a chairperson with (without) siblings to one without (with) siblings, the CSR rating decreases (increases).

Second, we consider competition and altruistic effects as two underlying mechanisms. Regarding the competition effect, we document that when a firm has a chairperson who is the youngest or a female among siblings, he or she is more likely to have a network marriage or attain the highest possible level of education than the eldest or a male chairperson. That is, a sibling leverages network marriage or pursues education to boost competitive advantages over other siblings. By examining the moderating impact of the competition effect, we find that the firm engages in more CSR when a chairperson has network marriage, the highest level of education among siblings, or co-manages the firm with siblings. Regarding the altruistic effect, we document that a firm has a high CSR score if the firm is located in a highly altruistic region, when the relationship among siblings is good, or when there is a female sibling.

Additional analysis suggests that the positive impact of having a chairperson with siblings on the CSR rating of a firm is more salient when the local familism culture is stronger, local government official career advancement incentives are lower, or the siblings are directors or CEOs of other firms. Last, we find that firms with siblings-chairpersons are also pro-shareholder because the chairperson consumes less perquisites than chairpersons without siblings, which corroborates with siblings-chairperson firms' high CSR engagement. Overall, our findings lend support to the hypothesis that when a chairperson has siblings, he or she has a pro-CSR attitude, which results in better CSR for the firm than a comparable firm that has a chairperson without siblings.

Our paper makes several contributions. First, we advance the CSR literature by documenting the impact of family structure on CSR in the context of siblings. Our findings

complement those in Cronqvist and Yu (2017) and have a broad implication for the impact of family structure on corporate policies. Cronqvist and Yu (2017) find that when a CEO has a daughter, the firm has better CSR, whereas we document that when a chairperson has siblings, the firm has better CSR. In addition, we document that competition among siblings and their altruistic behavior explain the impact of a firm's having a siblings-chairperson on CSR. Thus, our findings suggest a different explanation of a firm's CSR behavior. Specifically, our results highlight siblings' use of network marriages and education levels and indicate how siblings leverage these tools to enhance their competitiveness within a family.

Second, we contribute to the literature on the impact of executive's personal characteristics on shaping a firm's corporate practices. Whereas other studies have found that executives' military background (Benmelech and Frydman, 2015), pilot's license (Cain and McKeon, 2016), and childhood famine experience (Feng and Johansson, 2018), among others, contribute to their firms' corporate practices, we document that having siblings plays a role in a firm's CSR practices. Specifically, we complement the literature by documenting that local familism culture and government officials' own career advancement are additional factors that affect a firm's policies. Firm policies are shaped not just by the personal characteristics of its executives, but also by the executive's family structure and cultural environment in a firm's surrounding region.

Finally, we advance the literature that uses family structure to explain corporate practices or performance. We add to the previous literature showing that executive behavior and corporate practices are shaped by the family founders' children (Bertrand et al., 2008), marriage (Bunkanwanicha et al., 2013), having daughters (Cronqvist and Yu, 2017), or having a spouse in management (Amore et al., 2017), by showing that siblings shape executive behavior and contribute to CSR. When compared to other family structures, sibling dynamics are more complex and the sibling relationship is free of self-selection bias. Thus, our findings

are rich and credible.

## **2. Literature review and hypothesis development**

### *2.1 A brief literature review*

There is a large volume of literature on CSR and how executives' personal experiences affect corporate policies. We highlight only some of them here.

#### *2.1.1 CSR*

Studies in CSR suggest that there are two major reasons for a firm to conduct CSR activities. First, firms use CSR as a corporate strategy (Sánchez, 2000; Saiia et al., 2003; Godfrey, 2005; Zhang et al., 2010; Wang and Qian, 2011; Marquis and Qian, 2014; and Pan et al., 2018). For instance, Zhang et al. (2010) document that Chinese firms in more competitive industries donated and advertised more after the Sichuan earthquake than those in less competitive industries. Hence, CSR donations are tools to enhance firms' images to keep them competitive in the marketplace. Second, firms consider CSR to be a corporate responsibility and they conduct CSR to be a good corporate citizen. In other words, CSR is simply the right thing to do for their local communities and the general society. For instance, Jha and Cox (2016) report that firms in high social capital regions have better CSR records. The authors suggest that strategic motives for CSR do not alone explain their findings. Thus, altruistic motives partially explain why firms engage in CSR activities. Similarly, Bode and Singh (2018) document that, in a large global consulting firm, a large fraction of employees are willing to take a personal salary cut to participate in the firm's CSR initiatives. The authors attribute this phenomenon, in part, to the altruistic behavior of employees. Overall, this strand of literature focuses more on examining the motives (strategic versus altruistic) behind CSR.

#### *2.1.2 How executives' personal experience or background affect corporate practices*

Several studies document that executives' personal experience or background impact their firms' corporate practices. Benmelech and Frydman (2015) document that when a CEO



has a military background, the firm has more conservative and ethical practices. Koch-Bayram and Wernicke (2018) echo the results in Benmelech and Frydman (2015) that ex-military CEOs are more likely to follow rules and regulations. Cain and McKeon (2016) report that when a firm's CEO has pilot's license, the firm takes on more risk, suggesting that personal preference in risky endeavors reflects a CEO's style. Similarly, Feng and Johansson (2018) find that executives who were born in famine years are more conservative, suggesting that hardship in childhood creates specific attributes that shape executives' preferences and that ultimately play a role in their corporate practices. These studies suggest that personal background plays a role in executives' corporate policies.

In sum, these studies focus more on the personal experience of executives. Although there are some studies on the impact of family structure on corporate policy, the area is underexplored. Bertrand et al. (2008) find that greater involvement by sons is associated with lower family firm performance, especially after the founder died. Amore et al. (2017) show that family firms led by married couples perform significantly better than other family firms. Cronqvist and Yu (2017) report that when a CEO has daughters, the firm engages in more CSR than a firm with a CEO without daughters. Chuprinin and Sosyura (2018) study the relation between mutual fund managers' family backgrounds and their fund performance and find that managers from poor families deliver higher alphas than those from rich families. It is not clear whether other forms of family structure, particularly having siblings, affects the CSR decisions of firm executives.

## *2.2 Hypothesis development*

In behavioral science, studies show that experiences in early childhood and youth shape adult behavior (Locke, 1974). The family is the first place that children experience life. Family structure, in terms of the parent-child relationship, siblings, and the social environment all contribute to the experiences of children and youth (Belsky, 1981). In the context of family

structure, siblings play a role in shaping individual behavior. Sibling relationships have several interesting characteristics. First, they last for a long time and generally last longer than the parent-children relationship. Second, they are not subject to selection bias, in contrast to choosing to have a spouse or children, which may be subject to such bias. Third, the power among siblings is more equal than in a parent-children or spousal relationship. Fourth, siblings may grow up together in a cooperative or rivalrous manner (Cicirelli, 1995), which makes the specific impact of having siblings on corporate practices unclear. Our conjecture is based on findings in Cameron et al. (2013). These authors examine 421 individuals born both before and after China's 1979 One Child Policy's (OCP) and document that the OCP has produced significantly less conscientious, less trusting, less trustworthy, less competitive, and more pessimistic individuals, which suggests that individuals with siblings engage in more altruistic behavior, but at the same time, become more competitive.

We argue that there are two main effects of chairpersons having siblings on CSR. First, when a chairperson has siblings, sibling rivalry may occur when siblings compete for scarce family resources (Blake, 1989; Butcher and Case, 1994). These scarce resources include education funding, psychological support, and opportunities in family firms. Sibling competition means a strong competitive spirit arises in all siblings (Blake, 1989; Cameron et al., 2013). To stay competitive in the business environment, siblings-chairpersons may use CSR as a strategic tool to show off to the family or media or to gain an edge over competitors. CSR literature shows that CSR can bring political, customer, and financing benefits (Fry et al., 1982; Ellen et al., 2006; Dhaliwal et al., 2011; Bauman and Skitka, 2012). Overall, high CSR in a siblings-chairperson firm may stem from a competition effect.

Second, drawing from a family economics framework (Butcher and Case, 1994; Garg and Morduch, 1998), siblings contribute to the human capital of their family members. Based on Ainsworth (1989), siblings help shape an individual's character, behavior, values, and social

emotions. In addition, having siblings can enhance social and interpersonal skills (Downey and Condrón, 2004; Fabes et al., 2002; Yucel and Yuan, 2015; Harper, Padilla-Walker, and Jensen, 2016; Lam, Solmeyer, and McHale, 2012) and it promotes a caring attitude toward people through feeling the love of siblings (Downey and Condrón, 2004; Fabes et al., 2002; Yucel and Yuan, 2015). Thus, having siblings enhances individual altruistic behavior and promotes a global mindset (Whiteman et al., 2015; Campione-Barr et al., 2015). Therefore, when executives have siblings, they care about people and are able to consider issues from a more global perspective than executives without siblings. Consequently, firms with siblings-chairpersons exhibit pro-CSR behavior and thus have better CSR than those without siblings-chairpersons. In sum, both competition and altruism lead to an increase in CSR. Hence, the testable hypothesis is:

*H1: When a chairperson has siblings, his or her firm engages in more CSR relative to a firm whose chairperson does not have siblings.*

### **3. Research design**

#### *3.1 Sample selection*

We conduct our examination using Chinese A-share family firms from 2010–2016. We start at the beginning of 2010 due to the availability of the CSR rating index from Hexun.com at that time. Following Anderson and Reeb (2003), we define family firms using two criteria: 1) ultimate control of a firm lies within an individual or a family, and 2) two or more members of the family are executives or shareholders of the firm or its subsidiaries. The data for the family firms are from the China Stock Market and Accounting Research (CSMAR) database. The related accounting and finance data are obtained from China Stock Market and Accounting Research and CSMAR databases. We delete financial firms, special treatment firms (firms with financial irregularities),<sup>5</sup> and firms with missing financial data. The final sample has 7,121

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<sup>5</sup> These firms have negative earnings in two consecutive years. On April 22, 1998, the Shenzhen Stock Exchange announced

firm-year observations from 1,591 firms. We winsorize the data at the 1% and 99% levels.

### 3.2 Variable construction

#### 3.2.1 CSR

We obtain the CSR rating for public firms from the Hexun.com Corporate Social Responsibility Report (hereafter the Report),<sup>6</sup> which has been used by Chen et al. (2015) and Li et al. (2013). The Report provides yearly CSR ratings for each Chinese firm from the perspectives of shareholders, employees, local communities, the environment, and society that carry weights of 30%, 15%, 15%, 20%, and 20%, respectively, to calculate an aggregate CSR score (*CSR\_SCORE*). We use *CSR\_SCORE* as our primary CSR metric. For robustness, we also use the five individual perspectives CSR ratings, specifically, the shareholder CSR score (*SHAREHD\_SCORE*), the employee CSR score (*EMP\_SCORE*), the local community CSR score (*COM\_SCORE*), the environmental CSR score (*ENVIR\_SCORE*), and the social CSR score (*SOC\_SCORE*). Moreover, we use the KLD CSR rating from CNRDS, which is based on the framework designed by Kinder, Lydenberg, and Domini Research & Analytics (KLD). However, there are many missing values for Chinese firms in the KLD database despite its popularity in several non-Chinese CSR studies (Conqvist and Yu, 2017; Hong and Kostovetsky, 2012) and it is not recognized as a perfect measure for CSR (Chatterji et al., 2012). Hence, we use the CSR score in the KLD as a robustness check.

#### 3.2.2 Siblings

We examine CNRDS and CSMAR databases to identify the name and characteristics of the chairperson and search several available public channels to identify the chairperson's siblings. Using the names, we manually collect sibling information for chairpersons of family firms by examining the full chairperson family tree from public sources such as annual reports,

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that it labeled these firms as “special treatment” firms.

<sup>6</sup> For details, see <http://stock.hexun.com/2013/gsshzr/index.html> (accessed on February 2, 2019)

IPO prospectuses, internet search engines, firm websites, magazine reports, and public speeches, among others. Specifically, we extensively collect information related to chairpersons and their siblings such as birth year, gender, and education. In addition, we examine spouse information to determine whether the marriage is a “network marriage,” meaning a chairperson’s or a sibling’s spouse belongs to another family firm. In our sample, a spouse’s family firm includes public or private firms.<sup>7</sup> In addition, we thoroughly search for information on sibling occupation and personal experiences. In the process, we identify whether siblings are board of directors or CEOs, government officials, or in other roles of their professions. If a chairperson has siblings, *FAM\_SIBLING* has a value of 1, and zero otherwise. Other family structure variables are defined in future sections.

### 3.2.3 Control variables

We follow Conqvist and Yu (2017) to include firm and chairperson characteristics in our multivariate regression analysis. Firm characteristics include firm size (*ASSET*), financial leverage (*LEV*), firm performance (*EBIT*), age (*AGE*), liquidity (*LIQUIDITY*), ownership concentration (*SHRZ*), independent director ratio (*INDEP*), and duality of chairperson and CEO (*DUAL*). In terms of a chairperson’s personal characteristics, we use gender (*CHAIR\_GENDER*), age (*CHAIR\_AGE*), education level (*CHAIR\_DEGREE*), and ownership percentage in the firm (*CHAIR\_SHAREHD*). Appendix A presents the detailed definitions.

### 3.3 Model

We use the following multiple regression model as our base model to examine our hypothesis:

$$CSR\_SCORE_{i,t} = \beta_0 + \beta_1 FAM\_SIBLING_{i,t} + \beta_2 Controls_{i,t} + Year + Ind + \varepsilon_{i,t}. \quad (1)$$

The variables are defined earlier. If H1 is valid,  $\beta_1$  is positive and significant. We include year and industry fixed effects. The standard errors are clustered at the firm level in Eq. (1).

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<sup>7</sup> The data are hand-collected from <https://www.qcc.com>.

## 4. Results and discussions

### 4.1 Summary statistics and univariate analysis

We present the summary statistics of the samples in Panel A of Table 1. The overall mean CSR score (*CSR\_SCORE*) is 24.529 with a standard deviation of 14.269, suggesting that there are some variations in CSR rating for family firms. In terms of siblings, the mean of a chairperson having at least one sibling (*FAM\_SIBLING*) is 0.533; that is, approximately 53.33% of our sample firm-year chairpersons have at least one sibling. In terms of female siblings, the mean of *SIBLING\_FEMALE* is 0.481, meaning that approximately 48% of the firm chairpersons have at least one sister in the subsample of siblings-firms (N = 3797).

Panel B of Table 1 displays the profile of siblings. The percent of chairpersons with 1, 2, 3, and 4 or more siblings are 31.06%, 13.66%, 4.93%, and 3.67%, respectively. If we confine the profile to female siblings, the percent drops to 21.49%, 5.03%, 0.95%, and 0.62%, respectively. We notice that *CSR\_SCORE* monotonically increases as the number of siblings or number of female siblings increases. For instance, going from no siblings to four or more siblings increases *CSR\_SCORE* from 23.457 to 27.653.

Panel C of Table 1 displays the results for the comparisons of CSR scores between sample firms with siblings-chairpersons and without siblings-chairpersons. We use overall CSR score (*CSR\_SCORE*) as well as the five individual perspective CSR scores (*SOC\_SCORE*, *COM\_SCORE*, *ENVIR\_SCORE*, *EMP\_SCORE* and *SHAREHD\_SCORE*). Consistently across all types of CSR metrics and using both parametric *t*-statistics and non-parametric Wilcoxon *Z*-statistics, firms with siblings-chairpersons have significantly higher CSR scores than firms without siblings-chairpersons. The univariate analysis offers preliminary support to H1.

### 4.2 Baseline results

We present the baseline results of Eq. (1) in Table 2. We include a simplified model with only the *FAM\_SIBLING* variable in column (1) and then an expanded model with

additional firm characteristics in column (2) and additional chairperson characteristics in column (3), respectively. Consistently across all three columns, the coefficients of *FAM\_SIBLING* are positive and significant at the 1% level. That is, if a firm's chairperson has at least one sibling, the firm's CSR score is higher than a firm without a siblings-chairperson. The findings support H1. Having a sibling-chairperson drives a firm to have a higher CSR than a firm with a chairperson without siblings.

The findings are also economically significant. In column (3), the coefficient of *FAM\_SIBLING* is 1.761, indicating that a firm with a sibling-chairperson has a CSR score 1.761 higher than a firm without a sibling-chairperson, which is approximately 7.96% ( $1.761/22.11$ ) more than a median firm. The findings in Table 2 support H1. Therefore, the results are consistent with the notion that when a firm's chairperson has siblings, the chairperson is more pro-CSR than one without siblings, and thus the firm's CSR score is better than a firm without a siblings-chairperson.

For control variables, the coefficients of *ASSET* and *EBIT* are positive and significant at the 1% level, whereas the coefficients of *LEV* are negative and significant at the 1% level in both columns. That is, when a firm is larger and more profitable, it can afford to conduct more CSR activities. The findings are consistent with Cronqvist and Yu (2017) and Brammer and Millington (2008). When a firm is highly leveraged, it cannot afford to spend resources on CSR activities and thus its CSR rating is lower, which mirrors the finding in Brammer and Millington (2008).

#### *4.3 Regression Discontinuity Design*

While the selection bias of having siblings is of a less concern, there may still be unobservable omitted variables bias. To mitigate the identification concern, we use China's One Child Policy (OCP) as a natural experiment and an RD research design to examine the impact of having siblings on CSR. We provide the discussions below.

#### *4.3.1 Historical background of the natural experiment of the OCP*

Population control is a major public policy issue in China, and it has evolved over the years. In late 1979, China adopted a strict OCP. Every family could have only one child (Qin et al., 2017; Cameron et al., 2013). Then, in 2013, the Chinese government revised the OCP to allow for two children. From 1979 to 2012, the OCP was successful as most families had only one child (Zhang and Spencer, 1992; Li, 1995; Cameron et al., 2013). Given that the time lag of child-bearing is about ten months, we expect a discontinuity point of a family having two or more children to having only one child in 1981, which is consistent with the results in Qin et al. (2017).

#### *4.3.2 Empirical strategy and diagnostic tests*

Of the common testing methods such as instrumental variables, difference in differences, and matching techniques, RD designs are a “close cousin” to randomized control trials and have the greatest “internal validity” among the alternative quasi-experimental estimators (Hahn et al., 2001; Lee, 2008). There are two types of RD designs— “sharp” and “fuzzy.” In our context, the sample probability of being a single child increases discontinuously but not from 0 to 1, which suggests that we use a fuzzy RD design (Angrist and Pischke, 1999; Chen et al., 2013). Following Qin et al. (2017), we resort to the fuzzy RD framework and estimate the local average treatment effect for the impact of the OCP on CSR.

Before conducting an RD design, we examine the identifying assumption of the RD that agents cannot precisely manipulate the forcing variable near the known cutoff (Lee and Lemieux, 2010). If this identifying assumption is satisfied, the variation in recognition status is as good as that from a randomized experiment. Because the OCP is an exogenous event, the RD design does not have a selection bias issue, which is similar to Qin et al. (2017), which uses the OCP and an RD design to consider the impact of siblings on education.

Another important assumption of the RD design is that there should not be discontinuity



in other covariates that are correlated with the CSR variables. We perform the diagnostic test by comparing the covariates of firms that are related, and the results are reported in Panel A of Table 3. The covariates include: 1) firm characteristics in terms of firm size (*ASSET*), financial leverage (*LEV*), firm performance (*EBIT*), liquidity (*LIQUIDITY*), independent director ratio (*INDEP*), ownership concentration (*SHRZ*), and duality of chairperson and CEO (*DUAL*); and 2) a chairperson's personal characteristics in terms of gender (*CHAIR\_GENDER*), age (*CHAIR\_AGE*), education level (*CHAIR\_DEGREE*), and ownership percentage (*CHAIR\_SHAREHD*). The results in Panel A show that most covariates are not significantly different between firms whose chairperson was born before the OCP and those born after the OCP. The exceptions are *AGE* and *CHAIR\_AGE*: the age differences are natural due to the time trend, and *CHAIR\_SHAREHD* has a 10% significant difference. Overall, there does not appear to be manipulation near the OCP. Further, there is generally no discontinuity in other covariates at the cutoff point.

#### 4.3.3 RD results

Following Qin et al. (2017), we use an RD to examine the impact of the OCP on CSR. Since we are interested in the local average effect of OCP, we first narrow the sample to a smaller subsample in which all observations were born just five years before and five years after cutoff point of 1981, using the same approach as Qin et al. (2017). Second, we exclude ethnic minorities as the OCP does not apply to them. We also exclude rural residents because 1) the OCP is not strictly implemented in many rural areas (Li, 1995); and 2) a large-scale rural land reform (the “household responsibility system” reform) occurred at approximately the same time as the OCP and would complicate the RD estimation (Almond et al., 2013). Third, we exclude the provinces where the OCP implementation was less strict, which allowed couples to have two or more children.<sup>8</sup> Finally, we get a sample size of 204.

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<sup>8</sup> Based on Guo (2003), the less restricted provinces are Henan, Guangxi, Gansu, Hebei, Inner Mongolia, Yunnan, Qingha, Ningxi, Hainan, and Xinjian.

Figure 1 shows the discontinuities of the single-child ratio and CSR scores at the policy cutoff point (1981). Specifically, the single-child ratio jumps in the left-hand plot and the CSR score drops in the right-hand plot after the implementation of the OCP. We interpret the profiles of the single-child ratio and the CSR score to be consistent with there being more single-child executives after the OCP, leading to lower firm CSR scores.

Panel B of Table 3 presents the RD estimates, which are obtained from non-parametric local regressions using triangular and rectangular kernels.<sup>9</sup> The dependent variable is *CSR\_SCORE*. The results in column (1) show that the OCP instantly and significantly increased the likelihood of being a single child among the respondents born around the cutoff point, with a jump in that probability of 34.9%; the decline in the probability of having siblings significantly decreases the respondents' CSR by 9.461, indicating that the *LATE* estimate is 27.088. The results are robust when we use twice the optimal bandwidth based on Imbens and Kalyanaraman (2012) in column (2). Hence, we use the triangle kernel in our main estimation and the rectangular kernel for robustness checks in column (3); the results are qualitatively similar.

As an alternative to Panel B, we use a smaller subsample in which all observations were born just two years before and after the cutoff point of 1981. The results in column (1) of Panel C show similar patterns to those in Panel B. Furthermore, we conduct placebo tests to examine whether our results disappear when we artificially assume the OCP was implemented in 1979, 1980, 1982, or 1983 instead of the actual year (1981). We report the results in columns (2)–(5) of Panel C. The coefficients of *Weighted LATE* in columns (2)–(5) are not significant, suggesting our results from the exogenous shock of the OCP remain intact.

Finally, we plot the RD estimators and their 95% confidence intervals over the spectrum of bandwidths in Figure 2. We notice that the RD estimates of the CSR score are consistently

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<sup>9</sup> Statistical literature shows that the triangle kernel is optimal for the point estimates at boundaries (Lee and Lemieux, 2010).

negative and stable, suggesting the robustness of our results in Panel B. Therefore, the results in Table 3 strongly suggest that, as an exogenous shock, being a single child significantly decreases one's investment in CSR. This is consistent with an economics experiment based on 421 individuals born just before and after the OCP (Cameron et al., 2013), which finds that when an individual is a single child, he or she displays less altruistic behavior and becomes less competitive.

#### *4.4 Robustness check*

We further conduct several robustness checks. The results are presented in Panels A to F of Table 4. We discuss them below. For brevity, we do not present the coefficients of control variables.

##### *4.4.1 Different components of CSR*

We replace *CSR\_SCORE* in Eq. (1) by the five individual perspective CSR scores (*SOC\_SCORE*, *COM\_SCORE*, *ENVIR\_SCORE*, *EMP\_SCORE*, and *SHAREHD\_SCORE*) to capture the impact of a firm's having a siblings-chairperson on alternative metrics of CSR. Three out of five columns in Panel A of Table 4 (columns (1)–(3)) show that the coefficients of *FAM\_SIBLING* are positive and significant at the 1% level. The insignificant coefficients come from *EMP\_SCORE* and *SHAREHD\_SCORE*. Hence, the impact of having siblings remains intact if we focus on local community, environmental, and societal CSR metrics.

##### *4.4.2 Propensity score matching*

We conduct propensity score matching (PSM) on the samples with siblings-chairpersons versus those without siblings-chairpersons to mitigate potential selection bias. Specifically, we use a 1:1 matching using firm characteristics, chairperson characteristics, industry, and year (as depicted in Table 2) with nearest neighbor matching in a logistic regression. Then, we compare the *CSR\_SCORE* on the matched samples. We use the matched

samples (nearest neighbor matching with a radius  $< 0.001$ ) to apply Eq. (1). The coefficient of *FAM\_SIBLING* continues to be positive and significant at the 1% level in Panel B of Table 4. Thus, the support of H1 is robust using PSM.

#### 4.4.3 Survivorship bias

We address the impact of survivorship bias on our baseline findings because some firms with siblings-chairpersons may not survive to go public due to their low CSR score and bad performance, causing the remaining firms with siblings-chairpersons to have higher CSR scores compared to those without siblings-chairpersons. We divide the sample into first- and second-generation chairperson firms.

Chinese family firms began to take off after the re-opening of stock markets in the early 1990s. Hence, most family firms are still under the control of first-generation chairpersons. The first-generation chairperson samples have some survivorship bias because some of them are unable to go public. In addition, if survivorship bias is severe, we expect the impact of siblings on CSR will become more pronounced for those firms that “survived.” From first-generation transits to second-generation chairperson firms has minimal survivorship bias because the transition does not involve listing bias.<sup>10</sup> The results in Panel C of Table 4 show that the coefficients of *FAM\_SIBLING* are positive and significant at the 5% and 1% level in first- and second-generation chairperson subsamples, respectively. Thus, survivorship bias, if any, is minimal and it does not change our baseline findings.

#### 4.4.4 Placebo tests

We conduct a placebo test in which we randomly assign a sibling to each chairperson based on the sample distribution of the chairperson’s sibling. In Table 2, we measure the sibling effect for this randomly generated family structure and reexamine the analysis 1,000 times.

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<sup>10</sup> In our sample, all second-generation chairperson firms go public before the transition from the first to the second generation.

Panel D of Table 4 reports the average coefficient for *FAM\_SIBLING* over the 1,000 repetitions and the percentage of coefficients that are significant at the 5% level. Consistent with our expectations, approximately 4% of the coefficients are significant at the 5% level, and those cases are split roughly equally between positive and negative. Moreover, attesting to the significance of our main results, the estimated coefficients are statically significant and in the “right direction” in 4% of the 1,000 replications. The evidence strongly suggests that our measure of sibling effect likely reflects an economically meaningful characterization of a chairperson’s attitude toward CSR, as opposed to random noise.

#### 4.4.5 Other robustness tests

In addition to the CSR data in the Report, we use CSR score in the KLD (*CSR\_SCORE\_KLD*) as well the amount of donations (*DONATE\_AMOUNT*) to replace *CSR\_SCORE* in Eq. (1). The results in columns (1) and (2) of Panel E in Table 4 indicate the coefficients of *FAM\_SIBLING* continue to be positive and significant at the 5% level. Hence, using alternative metrics to capture CSR performance does not qualitatively change the baseline findings.

CSR activities may be the result of having a wealthy chairperson, having a chairperson with daughters, or having a female chairperson. Hence, we account for such effects by considering whether the chairperson is listed on the Forbes China Rich List (*FORBES\_RICH* = 1 if yes, and zero otherwise), by considering the chairperson-daughter effect (*FAMILY\_DAUGHTER* = 1 if a chairperson has daughters and zero otherwise), and excluding female chairpersons in Eq. (1).

The results in column (3)–(4) of Panel E show that the coefficient of *FAM\_SIBLING* continues to be positive and significant at the 1% level, suggesting that the wealth of the chairperson and the daughter effect do not change our baseline findings. In addition, in column (5) of Panel E, after excluding female chairpersons, the coefficient of *FAM\_SIBLING* remains

positive and significant at the 1% level, indicating that the CSR performance is not due to a female chairperson effect. Thus, the daughter effect on CSR documented by Cronqvist and Yu (2017) is not significant in our sample.

In some provinces in China, chairpersons may be more pro-CSR for policy reasons and simultaneously have a larger number of siblings. Furthermore, there may be some unobservable firm-specific variations that are related to a firm's CSR decision-making. Hence, we control for such effects by incorporating province and firm fixed effects in column (6)–(7). The coefficients of *FAM\_SIBLING* remain positive and significant at the 5% level. Thus, our baseline finding does not change when we control for province and firm fixed effects.

The total number of siblings in a family may impact the relation in Eq. (1). The size of the family could matter in terms of personal development and the development of social skills that contribute to the positive aspect of pro-CSR behavior (Harper, Padilla-Walker, and Jensen, 2016; Lam, Solmeyer, and McHale, 2012) or it could mean siblings are more pressured to compete for scarce family resources (Blake, 1989). To distinguish between the impacts of having a different number of siblings and just having any sibling, we confine our sample here to firms with chairpersons that have at least one sibling in Eq. (1). The coefficient of *SIBLING\_NUMBER* (defined as the number of siblings) is positive and significant at the 5% level in column (8), indicating that a firm's CSR increases when the number of siblings for a chairperson increase.

#### *4.5 The mechanisms*

We examine the two underlying mechanisms for H1 below.

##### *4.5.1 Competition effect*

If sibling competition is the underlying mechanism for the impact of having a siblings-chairperson on CSR, we expect the magnitude of sibling competition to be positively correlated with CSR. Specifically, we use sibling education, network marriage, and whether the firm is

co-managed by siblings to quantify the degree of sibling competition.

Previous studies suggest that a sibling in a family firm often leverages education or marriage to gain a competitive edge over other siblings (Swagger, 1991; Santiago, 2011). From an internal competition perspective, a sibling can pursue education to signal his or her superiority over other siblings. From an external competition perspective, a sibling can enhance his or her competitiveness via a network marriage. A network marriage brings two families closer together and enhances the involved individuals' business network, leading to mutual benefits (such as information, knowledge, technology, and capital) for the two family firms and enhancing the potential of both firms (McMillan and Woodruff, 1999; Ingram and Simons, 2002; Bunkanwanicha et al., 2013). Therefore, due to competition with siblings, a sibling is likely to engage in a network marriage to gain legitimacy in the family firm over other siblings. In addition to education and network marriage, we can gauge an increase in sibling competition if a family firm is co-managed by more than one sibling of a family firm.

To capture the effect of sibling education, we examine the education levels of all siblings in a firm by cross-checking all public records through Baidu.com, general media, or annual reports. If a chairperson has the highest education level among all siblings,  $DEGREE\_HIGH = 1$ , and zero otherwise.<sup>11</sup>

We hand-collect sibling marriage information via all public records. If a family member from a family firm marries a person from another family firm, we define it as a network marriage. If a chairperson (other the chairperson siblings) has a network marriage, then  $CHAIR\_MAR = 1$  ( $SIBLING\_MAR = 1$ ), and zero otherwise. We obtain co-management information from a firm's annual report. If a firm has sibling co-managers (siblings serve as board of directors or managers in the same firm), then  $COWORK = 1$ , and zero otherwise.

We present results on the likelihood of being in a network marriage or obtaining the

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<sup>11</sup> If all siblings have the same level of education,  $DEGREE\_HIGH = 1$  for the chairperson.

highest level of education by comparing the youngest and eldest sibling chairpersons and female and male chairpersons in Appendix B. The intuition is that when a chairperson is the youngest or a female, in order to boost his or her competitiveness within the family, he or she is: 1) more likely to be in a network marriage, 2) is more likely to obtain the highest level of education among all siblings, and 3) more likely to have siblings with a network marriage. The findings in Panels A to C of Appendix B confirm the conjecture. That is, siblings use network marriages and education to offset the competitive disadvantages within the family due to birth order or being female.

In addition, we examine the impact of having a younger chairperson (if the chairperson is not the eldest among all siblings) or having a female chairperson on having  $DEGREE\_HIGH = 1$ ,  $CHAIR\_MAR = 1$ , or  $SIBLING\_MAR = 1$ . The findings (in Panel A of Appendix C) suggest that when a firm has a young or female chairperson, the chairperson is more likely to have attained the highest level of education, to have a network marriage, or have siblings in a network marriage. The findings in Panel B of Appendix C show that a young or female chairperson becomes more competitive to leverage these tools when a firm is co-managed by siblings, suggesting that sibling co-management leads to higher competition. Given that in Chinese culture, it is more likely that a family firm will pass to the eldest child or a male sibling, the findings in Appendix 2 are consistent with intuition that a young or female sibling needs to enhance his or her competitiveness through education and network marriage.

Then, we augment Eq. (1) with  $FAM\_SIBLING \times CHAIR\_MAR$ ,  $FAM\_SIBLING \times DEGREE\_HIGH$ ,  $FAM\_SIBLING \times SIBLING\_MAR$ , or  $FAM\_SIBLING \times COWORK$  to capture the marginal impact of having highly competitive siblings on the CSR score conditional on having a siblings-chairperson in a firm. Table 5 presents the findings. Consistently across columns (1)–(4), the coefficients of  $FAM\_SIBLING \times CHAIR\_MAR$ ,  $FAM\_SIBLING \times DEGREE\_HIGH$ ,  $FAM\_SIBLING \times SIBLING\_MAR$ , or  $FAM\_SIBLING \times$



*COWORK* are positive and significant at the 5% level, suggesting that conditional on having a siblings-chairperson, a firm's CSR score is higher if its chairperson has the most education among all siblings, has a network marriage, has a sibling in a network marriage, or has a sibling co-managing the firm. That is, when competition among siblings is high, the firm engages in more CSR, supporting the underlying logic of the competition effect in H1.

#### 4.5.2 Altruistic effect

To examine the possibility of an altruistic effect for the impact of siblings on CSR, we use three approaches. First, we use the results from the World Values Survey. We define *ALTRUSIM* as the fraction of the population in a province that answers "Yes" to the statement, "It is important to you to do something for the good of society." Second, we examine all public information, such as media interviews, public speeches, press releases, where a chairperson mentions his or her siblings in a positive manner. If a chairperson mentions a sibling, that indicates that the chairperson has a positive attitude toward his or her siblings and is more likely to be altruistic toward others. Thus, we define *REPORT* = 1 if a chairperson mentions a sibling, and 0 otherwise. Third, we follow Cronqvist and Yu (2017) to define the female socialization effect as *SIBLING\_FEMALE* = 1 if the chairperson has a female sibling, and zero otherwise. The literature supports the use of female siblings because females have been shown to have better social awareness and be more loving than males (Andreoni and Vesterlund, 2011; Schwartz and Rubel, 2005; DellaVigna et al., 2013; Adams and Funk, 2012).

If an altruistic effect is the one of the mechanisms, we expect the sibling effect for CSR would be more salient when a firm is from a more altruistic location, there is a good relationship among siblings, or when the chairperson has a female sibling. The results in Table 6 show that, in columns (1) and (2), the coefficients of *FAM\_SIBLING*×*ALTRUISM* and *FAM\_SIBLING*×*REPORT* are positive and significant at the 5% and 1% level. In column (3), the coefficient of *FAM\_SIBLING*×*SIBLING\_FEMALE* is positive and significant at the 5%

level, suggest that having a female sibling leads to a more salient impact on a firm's CSR. Collectively, the findings in Table 6 support the altruistic effect of CSR.

#### *4.6 Effect of local familism culture and government official career advancement incentives*

It is natural that local familism culture plays a role in shaping sibling behavior and consequently to a chairperson's CSR decisions. "Familism" refers to Asian societies' primary focus on the family and family-centered attitudes (Fukuyama,1995). Thus, the impact of siblings on CSR is not completely independent of local familism culture. We use two methods to gauge local familism culture. First, we follow Greif and Tabellini (2017) to use clan genealogical density to proxy for the intensity of familism culture. Clan genealogy records family trees, important individuals, and events within a family. If a locality has a high clan genealogical density, its familism culture is strong. Using various issues of the Shanghai Library Genealogy Database and the China Population Statistics Yearbook, we obtain clan genealogical density (*CLAN*) by counting the number of genealogy volumes per 100,000 people in the city in which a family firm is located.

Second, we use the attitude of local people on the importance of family in life. Specifically, we examine the World Values Survey and define *FAM\_IMPORTANCE* as the fraction of population in a province that answers "Yes" to the statement, "Family is important in life." We present the findings in Panel A of Table 7. The coefficients of *FAM\_SIBLING*×*CLAN* and *FAM\_SIBLING*×*FAM\_IMPORTANCE* are positive and significant at the 5% level, suggesting that, conditional on having a siblings-chairperson, a firm located in a high familism culture locality further enhances its CSR.

Additionally, a firm's CSR partly depends on the attitude of local government (Fry et al., 1982). We expect the top local government official's career incentives to impact the engagement in CSR of firms under his or her jurisdiction. Specifically, we argue that if the career incentive is strong, the local official will pay more attention to economic performance.

Other performance metrics are secondary, which means CSR is not the most important task for the locality. Then, at the margin, firms engage in less CSR. We proxy for government official career incentives in two ways. First, we consider the age of a mayor. If a mayor is close to retirement, he or she has little incentive to advance his or her career. We define a *RETIREMENT* variable with a value of 1 if a mayor is 57 years old or older, and zero otherwise. The *RETIREMENT* variable captures the fact that government officials have a mandatory retirement age of 60. After age 57, they have less incentive to advance. Second, we examine the actual promotion records of mayors and use two years prior to promotion as the years with high incentives. We define *PROMOTION* = 1 if the period is within two years of a mayor's promotion, and 0 otherwise. Then, we use the interaction variables (*FAM\_SIBLING*×*RETIREMENT* and *FAM\_SIBLING*×*PROMOTION*) to gauge the marginal impact of government official career advancement incentives. The results in Panel B of Table 7 show that the coefficient *FAM\_SIBLING*×*RETIREMENT* is positive and significant at the 5% level while that of *FAM\_SIBLING*×*PROMOTION* is negative and significant at the 5% level. Hence, when a local government official lacks (has) incentives to advance his or her career, a siblings-chairperson firm's CSR increases (decreases).

#### 4.7 Additional test

##### 4.7.1 Effect of sibling's career status

The competition effect suggests that siblings compete amongst themselves. To further validate this result, we examine the peer-group pressure effect of siblings' careers on a siblings-chairperson firm's CSR. We consider three types of pressure: 1) at least one sibling is a director or CEO of another firm, 2) at least one sibling is a government official, and 3) the siblings are neither a CEO nor a government official. We define two dummy variables *BUSINESS\_PERSON* and *GOVERN\_OFFICIAL* with values of 1 if (1) or (2) occur, and 0 otherwise. Similar to Table 7, we augment the baseline equation with

*FAM\_SIBLING*×*BUSINESS\_PERSON* and *FAM\_SIBLING*×*GOVERN\_OFFICIAL*. The findings are presented in Panels A and B of Table 8. In terms of descriptive statistics in Panel A, 63.68% of the siblings are directors or CEOs, while only 2.49% of the siblings are government officials. In Panel B, the coefficient of *FAM\_SIBLING*×*BUSINESS\_PERSON* is positive and significant at the 1% level, suggesting that when a sibling is a director or a CEO, the peer-group pressure on the siblings-chairperson drives his or her firm to engage in more CSR.

#### 4.7.2 Evidence on chairperson's self-discipline

When a chairperson has siblings, we show that his or her firm engages in more CSR. Does this pro-CSR attitude for the siblings-chairpersons firm translate into a pro-shareholder attitude? We examine this question by studying the impact of having a siblings-chairperson vis-à-vis not having a siblings-chairpersons on perquisite (“perk”) consumption. Perk consumption is that taken from the firm for the personal interest of executives and is a measure of agency costs. We contend that if a chairperson is pro-CSR, he or she should also be pro-shareholder. Following Cai et al. (2011), we calculate perk consumption as the sum of entertainment and travel costs, which we hand-collect from annual reports.

We modify Eq. (1) by replacing *CSR\_SCORE* with a ratio of perk expenses to total assets (*PERK\_ASSET*). Table 9 presents the results. For brevity, we do not present the coefficients of control variables. The coefficient of *FAM\_SIBLING* is negative and significant at the 5% level. That is, when a chairperson has siblings, his or her firm has lower perk expenses than firms with a chairperson with no siblings. Hence, under the influence of the pro-CSR chairperson, the firm has good self-discipline in protecting the interest of stakeholders and the public.

## 5. Summary

Using hand-collected data on siblings of chairpersons from a sample of Chinese family

firms, we compare the impact of firms' having chairpersons with siblings and chairpersons without siblings on their firms' CSR. Our study is motivated by the fact that executives' personal characteristics have a material impact on their firms' corporate practices.

Drawing from the theoretical framework of family economics, we contend that having siblings can translate into pro-CSR firm policies due to the positive rapport developed throughout the lifetimes with siblings or due to sibling competition. Our research yields the following findings. First, when a firm has sibling-chairperson, his or her firm has a better CSR rating than firms with a chairperson with no siblings. Specifically, a firm with a sibling-chairperson, on average, has a CSR rating approximately 7.96% higher than a median firm's rating. The conclusions are robust to a battery of robustness checks including a regression discontinuity design, alternative measures of CSR, PSM, placebo tests, and different estimation methods. In contrast, the daughter effect on CSR documented by Cronqvist and Yu (2017) is not significant in our sample. Second, in terms of mechanisms, we document that when sibling competition is higher, the firm engages in more CSR as reflected by higher CSR scores for firms with a chairperson who has a network marriage or a higher education level, or who co-manages the firm with siblings. Third, we also find an altruistic effect by documenting that a firm has a higher CSR score when a firm is from a more altruistic location, the relationship between siblings is better, or there is a female sibling. Fourth, we find that the impact of siblings on CSR is more salient when the local familism culture is stronger or local government officials have less incentive to advance his or her career. Finally, we document that firms with siblings-chairpersons are also pro-shareholder as represented by less perk consumption than firms without siblings-chairpersons.

Overall, the findings are consistent with the notion that, by having siblings, a chairperson is more competitive and altruistic than a chairperson without siblings, and such behavior is revealed through the higher CSR rating. In sum, our findings contribute to the broad

literature on the impact of executives' characteristics on a firms' corporate practices. Our focus is on the impact of an executive's family structure rather than his or her own personal characteristics. We document the importance of an executive's having siblings in contributing to the CSR of a firm. In addition to having daughters (Cronqvist and Yu, 2017), family structure matters in the context of siblings. Interestingly, we find that firms with siblings-chairpersons are also pro-shareholder as indicated by having less perk consumption than firms without siblings-chairpersons. That is, the pro-CSR attitude consistently applies to outside and inside constituents. Hence, in terms of public policy, promoting a large family in terms of having siblings has positive effect on social development in the lens of a better CSR society.

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## Appendix A: Variable definitions

Variable	Definition	Source
<b>Dependent variables</b>		
<i>CSR_SCORE</i>	Total corporate social responsibility rating	Hexun
<i>SOC_SCORE</i>	CSR ratings related to society	Hexun
<i>COM_SCORE</i>	CSR ratings related to community	Hexun
<i>ENVIR_SCORE</i>	CSR ratings related to environment	Hexun
<i>EMP_SCORE</i>	CSR ratings related to employment	Hexun
<i>SHAREHD_SCORE</i>	CSR ratings related to shareholder	Hexun
<b>Independent variable</b>		
<i>FAM_SIBLING</i>	A dummy variable equal to 1 if the chairperson has siblings, and zero otherwise	CSMAR/CNRDS/ Prospectus/Annual Report/Websites
<b>Firm characteristics</b>		
<i>ASSET</i>	Natural logarithm of total assets.	CSMAR
<i>LEV</i>	Financial leverage	CSMAR
<i>EBIT</i>	Ratio of earnings before interest and taxes to sale	CSMAR
<i>AGE</i>	Natural logarithm of firm age	CSMAR
<i>LIQUIDITY</i>	Ratio of current assets to current liability	CSMAR
<i>INDEP</i>	Ratio of independent directors	CSMAR
<i>SHRZ</i>	Ratio of shareholdings of the largest shareholder to that of the second-largest shareholder	CSMAR
<i>DUAL</i>	Dual role for the board chairperson	CSMAR
<i>CHAIR_GENDER</i>	Gender of the chairperson	CSMAR
<i>CHAIR_AGE</i>	Age of the chairperson	CSMAR
<i>CHAIR_DEGREE</i>	Education level of the chairperson that takes a value of 1 to 5 for high school, post-secondary, undergraduate, master's and doctorate, respectively	CSMAR
<i>CHAIR_SHAREHD</i>	Shareholding ratio of the chairperson	CSMAR
<b>Robustness Tests</b>		
<i>CSR_SCORE_KLD</i>	Corporate score responsibility rating based on KLD STATS	CNRDS
<i>DONATE_AMOUNT</i>	Ratio of donation amount to assets, multiplied by 10,000	CSMAR
<i>FORBES_RICH</i>	A dummy variable equal to 1 if the chairperson is on the Forbes China Rich List in year t, and zero otherwise	Forbes
<i>FAMILY_DAUGHTER</i>	A dummy variable equal to 1 if the chairperson has a daughter and zero otherwise	CSMAR/CNRDS/ Prospectus/Annual Report/Websites
<i>SIBLING_NUMBER</i>	Number of siblings	CSMAR/CNRDS/ Prospectus/Annual Report/Websites
<b>Mechanism-Competition effect</b>		
<i>CHAIR_MAR</i>	A dummy variable equal to 1 if a chairperson has a united marriage, and zero otherwise.	Skyeye Search/ CSMAR/CNRDS/ Prospectus/Annual Report/Websites
<i>DEGREE_HIGH</i>	A dummy variable equal to 1 if the chairperson has the highest degree among siblings, and zero otherwise.	CSMAR/CNRDS/ Prospectus/Annual Report/Websites
<i>SIBLING_MAR</i>	A dummy variable equal to 1 if another sibling has a united marriage, and zero otherwise.	Skyeye Search/ CSMAR/CNRDS/ Prospectus/Annual Report/Websites
<i>YOUNG_CHAIR</i>	A dummy variable equal to 1 if the chairperson is not the oldest sibling, and zero otherwise.	CSMAR/CNRDS/ Annual Report/Websites

<i>FEMALE_CHAIR</i>	A dummy variable equal to 1 if the chairperson is female, and zero otherwise.	CSMAR/CNRDS/ Prospectus/Annual Report/Websites
<i>COWORK</i>	A dummy variable equal to 1 if a chairperson has sibling co-management (siblings serve as board of directors or managers in the same firm), and zero otherwise.	CSMAR
<b>Mechanism-Altruistic effect</b>		
<i>ALTRUISM</i>	The proportion of people who believe “It is important to you to do something for the good of society” in a region.	World Values Survey
<i>SIBLING_FEMALE</i>	A dummy variable equal to 1 if there is sister, and zero otherwise	CSMAR/CNRDS/ Prospectus/Annual Report/Websites
<i>REPORT</i>	A dummy variable equal to 1 if the chairperson mentions siblings in speeches or in public, and zero otherwise.	Report/Websites
<b>Additional Tests</b>		
<i>CLAN</i>	Ratio of genealogies to population of that city, multiplied by 100,000.	Shanghai Library Genealogy Database
<i>FAM_IMPORTANCE</i>	The proportion of people who believe “Family is important in life” in a region.	World Values Survey
<i>RETIREMENT</i>	A dummy variable equal to 1 if the mayor is 57 years old or older, and zero otherwise.	CNRDS
<i>PROMOTION</i>	A dummy variable equal to 1 if it is two years before actual promotion for the mayor, and zero otherwise.	CNRDS
<i>BUSINESS_PERSON</i>	A dummy variable equal to 1 if at least one of the siblings of the chairperson is a director or CEO in other firms, and zero otherwise	www.qcc.com
<i>GOVERN_OFFICIAL</i>	A dummy variable equal to 1 if at least one of the siblings of the chairperson is a government official, and zero otherwise	www.qcc.com
<i>PERK_ASSETS</i>	The sum of entertainment and travel costs, divided by assets	Annual Report

## Appendix B. Mechanism test: Summary statistics of the competition effect

The table reports the summary statistics of network marriage and education level among siblings. Data are from listed family firms for 2010–2016. *CSR\_SCORE* is the dependent variable. *YOUNG\_CHAIR* (*OLDEST\_CHAIR*) is an indicator variable that is equal to 1 if the chairperson is not (is) the oldest sibling, and zero otherwise. *FEMALE\_CHAIR* (*MALE\_CHAIR*) is an indicator variable that is equal to 1 if the chairperson is female (male), and zero otherwise. Panel A presents the probability of a chairperson having a network marriage for groups classified by the chairperson’s birth order and gender. Panel B shows the probability of the chairperson attaining the highest level of education for groups classified by the chairperson’s birth order and gender. Panel C presents the probability of the chairperson’s sibling having a network marriage for groups classified by the chairperson’s birth order and gender. \*\*\*, \*\*, and \* indicate 1%, 5%, and 10% significance, respectively.

Panel A: Probability of chairperson having a network marriage			
	(1)	(2)	(1)-(2)
Variable	<i>YOUNG_CHAIR</i>	<i>OLDEST_CHAIR</i>	Mean Diff
<i>Probability of chairperson having a network marriage</i>	0.310	0.152	0.159***
Observations	1302	2495	
Variable	<i>FEMALE_CHAIR</i>	<i>MALE_CHAIR</i>	Mean Diff
<i>Probability of chairperson having a network marriage</i>	0.364	0.197	0.167***
Observations	195	3602	
Panel B: Probability of chairperson attaining the highest level of education			
Variable	<i>YOUNG_CHAIR</i>	<i>OLDEST_CHAIR</i>	Mean Diff
<i>Probability of chairperson attaining the highest level of education</i>	0.909	0.817	0.091***
Observations	1302	2495	
Variable	<i>FEMALE_CHAIR</i>	<i>MALE_CHAIR</i>	Mean Diff
<i>Probability of chairperson attaining the highest level of education</i>	0.938	0.844	0.095***
Observations	195	3602	
Panel C: Probability of a chairperson’s sibling having a network marriage			
Variable	<i>YOUNG_CHAIR</i>	<i>OLDEST_CHAIR</i>	Mean Diff
<i>Probability of sibling having a network marriage</i>	0.084	0.038	0.046***
Observations	1302	2495	
Variable	<i>FEMALE_CHAIR</i>	<i>MALE_CHAIR</i>	Mean Diff
<i>Probability of sibling having a network marriage</i>	0.195	0.047	0.148***
Observations	195	3602	

### Appendix C. The competition effect of education, network marriage, and co-management

The table reports regression results for the competition effect. Data are from listed family firms for 2010–2016. *YOUNG\_CHAIR* is an indicator variable that is equal to 1 if the chairperson is not the oldest sibling, and zero otherwise. *FEMALE\_CHAIR* is an indicator variable that is equal to 1 if the chairperson is female, and zero otherwise. Panel A presents the competition effect on network marriage and educational degrees among siblings. The dependent variables are *CHAIR\_MAR*, *DEGREE\_HIGH* and *SIBLING\_MAR*. *CHAIR\_MAR* is an indicator variable that is equal to 1 if the chairperson has a network marriage, and zero otherwise. *DEGREE\_HIGH* is an indicator variable that is equal to 1 if the chairperson attains the highest degree among his or her siblings, and zero otherwise. *SIBLING\_MAR* is an indicator variable that is equal to 1 if other siblings have a network marriage, and zero otherwise. Panel B presents the effect of having a sibling co-manage a firm. *COWORK* is an indicator variable that is equal to 1 if a chairperson has a sibling co-manager in the firm, and zero otherwise. Appendix A provides detailed definitions for all variables. Standard errors are clustered at the firm-level. \*\*\*, \*\*, and \* indicate 1%, 5%, and 10% significance, respectively.

Panel A: Competition effect on network marriage and education						
	<i>CHAIR_MAR</i>	<i>CHAIR_MAR</i>	<i>DEGREE_HIGH</i>	<i>DEGREE_HIGH</i>	<i>SIBLING_MAR</i>	<i>SIBLING_MAR</i>
	(1)	(2)	(3)	(4)	(5)	(6)
<i>YOUNG_CHAIR</i>	0.165*** (4.95)		0.098*** (3.85)		0.050** (2.50)	
<i>FEMALE_CHAIR</i>		0.184** (2.36)		0.095*** (2.63)		0.144** (2.14)
Firm characteristics	YES	YES	YES	YES	YES	YES
Chairperson characteristics	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Observations	3797	3797	3797	3797	3797	3797
Adj $R^2$	0.096	0.06	0.129	0.113	0.055	0.045

Panel B: The effect of sibling co-management on competition effect

	<i>CHAIR_MAR</i>	<i>CHAIR_MAR</i>	<i>DEGREE_HIGH</i>	<i>DEGREE_HIGH</i>	<i>SIBLING_MAR</i>	<i>SIBLING_MAR</i>
	(1)	(2)	(3)	(4)	(5)	(6)
<i>YOUNG_CHAIR</i> × <i>COWORK</i>	0.114* (1.95)		0.157*** (3.17)		0.009 (0.22)	
<i>FEMALE_CHAIR</i> × <i>COWORK</i>		0.269* (1.86)		0.114* (1.71)		0.149 (1.21)
<i>YOUNG_CHAIR</i>	0.123*** (2.78)		0.039 (1.35)		0.045** (1.98)	
<i>FEMALE_CHAIR</i>		0.064 -0.64		0.048 (0.8)		0.074 (1.06)
<i>COWORK</i>	-0.140*** (-5.05)	-0.105*** (-3.83)	-0.169*** (-4.72)	-0.115*** (-4.06)	0.025 (1.38)	0.022 (1.43)
Firm characteristics	YES	YES	YES	YES	YES	YES
Chairperson characteristics	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Observations	3797	3797	3797	3797	3797	3797
Adj <i>R</i> <sup>2</sup>	0.114	0.077	0.162	0.135	0.058	0.053



**Table 1. Summary statistics and univariate analysis**

The table reports summary statistics of the main variables. Panel A presents the distribution of the main variables in the listed family firm sample for 2010–2016. Panel B shows the distribution of CSR score along the number of family siblings and the number of female siblings. Panel C shows the comparisons of CSR scores between sample firms with siblings-chairpersons and without siblings-chairpersons. See Appendix A for variable definitions.

Panel A: Summary statistics								
variable	N	Mean	Std.	p5	p25	p50	p75	p95
<i>CSR_SCORE</i>	7121	24.529	14.269	6.730	17.620	22.110	26.690	61.760
<i>SOC_SCORE</i>	7121	4.211	3.373	-0.100	2.470	3.510	5.560	10.000
<i>COM_SCORE</i>	7121	1.450	4.455	0.000	0.000	0.000	0.000	15.000
<i>ENVIR_SCORE</i>	7121	1.391	4.482	0.000	0.000	0.000	0.000	14.000
<i>EMP_SCORE</i>	7121	2.305	2.671	0.140	0.740	1.400	2.750	9.030
<i>SHAREHD_SCORE</i>	7121	15.167	5.518	4.930	12.180	15.730	19.020	23.120
<i>FAM_SIBLING</i>	7121	0.533	0.499	0.000	0.000	1.000	1.000	1.000
<i>SIBLING_FEMALE</i>	3797	0.481	0.500	0.000	0.000	0.000	1.000	1.000
<i>ASSET</i>	7121	21.498	0.943	20.197	20.801	21.382	22.065	23.244
<i>LEV</i>	7121	0.341	0.196	0.069	0.181	0.315	0.476	0.693
<i>EBIT</i>	7121	0.131	0.144	0.001	0.066	0.119	0.190	0.346
<i>AGE</i>	7121	3.702	1.092	1.609	3.091	3.850	4.382	5.375
<i>LIQUIDITY</i>	7121	3.799	4.469	0.838	1.415	2.226	4.125	12.429
<i>INDEP</i>	7121	0.376	0.053	0.333	0.333	0.333	0.429	0.444
<i>SHRZ</i>	7121	2.652	3.460	0.482	0.889	1.506	2.864	8.695
<i>DUAL</i>	7121	1.597	0.490	1.000	1.000	2.000	2.000	2.000
<i>CHAIR_GENDER</i>	7121	0.055	0.228	0.000	0.000	0.000	0.000	1.000
<i>CHAIR_AGE</i>	7121	3.931	0.155	3.689	3.850	3.932	4.025	4.190
<i>CHAIR_DEGREE</i>	7121	3.260	0.977	1.000	3.000	3.000	4.000	5.000
<i>CHAIR_SHAREHD</i>	7121	0.166	0.169	0.000	0.000	0.130	0.285	0.491

Panel B: Distribution of CSR score along the number of family siblings and female siblings							
Number of siblings	Frequency	Percent	<i>CSR_SCORE</i>	Female	Frequency	Percent	<i>CSR_SCORE</i>
0	3,324	46.68	23.457	0	5121	71.91	23.972
1	2212	31.06	24.843	1	1530	21.49	25.332
2	973	13.66	25.531	2	358	5.03	27.089
3	351	4.93	27.599	3	68	0.95	29.023
≥4	261	3.67	27.653	≥4	44	0.62	33.648
Total	7121	100.00		Total	7121	100.00	

Panel C: <i>t</i> -test and Wilcoxon test comparisons				
Variables	<i>FAM_SIBLING</i>		<i>t</i> -test	Wilcoxon test
	=0	=1		
<i>CSR_SCORE</i>	23.457	25.467	-2.010***	-3.967***
<i>SOC_SCORE</i>	4.003	4.393	-0.390***	-2.367**
<i>COM_SCORE</i>	1.163	1.701	-0.539***	-4.967***
<i>ENVIR_SCORE</i>	1.116	1.632	-0.517***	-4.929***
<i>EMP_SCORE</i>	2.206	2.392	-0.186***	-0.291
<i>SHAREHD_SCORE</i>	14.980	15.330	-0.349***	-2.619***
Observations	3324	3797		

**Table 2. Sibling effect and corporate social responsibility**

The table reports the results for the effect of sibling on corporate social responsibility. Data are from listed family firms for 2010–2016. *CSR\_SCORE* is the dependent variable. *FAM\_SIBLING* is an indicator variable that is equal to 1 if the chairperson has siblings, and zero otherwise. In column (1), only controls for industry and year dummies are included. Columns (2) and (3) present the results of including firm characteristic and chairperson characteristics, respectively. Appendix A provides detailed definitions for all variables. Standard errors are clustered at the firm-level. \*\*\*, \*\*, and \* indicate 1%, 5%, and 10% significance, respectively.

	<i>CSR_SCORE</i> (1)	<i>CSR_SCORE</i> (2)	<i>CSR_SCORE</i> (3)
<i>FAM_SIBLING</i>	2.181*** (3.43)	1.768*** (3.07)	1.761*** (3.01)
<i>ASSET</i>		4.793*** (11.53)	4.758*** (11.48)
<i>LEV</i>		-9.196*** (-4.90)	-9.221*** (-4.85)
<i>EBIT</i>		26.614*** (15.06)	26.677*** (15.29)
<i>AGE</i>		-0.318 (-1.27)	-0.336 (-1.30)
<i>LIQUIDITY</i>		-0.091 (-1.43)	-0.101 (-1.58)
<i>INDEP</i>		-1.449 (-0.32)	-1.113 (-0.25)
<i>SHRZ</i>		-0.001 (-0.02)	0.001 (0.01)
<i>DUAL</i>		0.533 (1.05)	0.582 (1.10)
<i>CHAIR_GENDER</i>			-1.369 (-1.39)
<i>CHAIR_AGE</i>			1.459 (0.73)
<i>CHAIR_DEGREE</i>			0.431 (1.40)
<i>CHAIR_SHAREHD</i>			0.556 (0.34)
<i>Intercept</i>	21.571*** (6.60)	-80.265*** (-8.63)	-86.739*** (-7.18)
Industry FE	YES	YES	YES
Year FE	YES	YES	YES
Observations	7121	7121	7121
Adj <i>R</i> <sup>2</sup>	0.037	0.196	0.197

**Table 3. Regression discontinuity design**

This table reports the validity of the assumption and the main results of the RDD. Panel A shows differences in observable characteristics between firms with a chairperson born before 1981 versus those with chairperson born after 1981. The period is 1976–1986 (five years before and five years after the cutoff point of 1981). Data on firm and chairperson characteristics are from the CSMAR database. Panel B presents the non-parametric regression discontinuity (RD) estimates which are obtained from kernel regressions using triangular and rectangular kernels. We use 204 observations (those born five years before and five years after the cutoff point of 1981) to draw the optimal bandwidth. The first column corresponds to the optimal bandwidth (1.9 years) by following Imbens and Kalyanaraman (2012). The results remain robust using twice optimal bandwidth in column (2). Column (3) shows that the result remains robust when the RD estimates use rectangle kernel regression. Panel C presents robustness checks. In column (1), we narrow the sample to a smaller subsample in which all observations were born just two years before and after the 1981 cutoff. In columns (2)–(5), we show the results of placebo tests when we artificially assume the OCP was implemented in years other than the actual year. Z-statistics are in parentheses. \*\*\*, \*\*, and \* indicate 1%, 5%, and 10% significance, respectively.

Panel A: Difference in observable characteristics between firms with chairperson born before and after the OCP				
Variables	Year>1981	Year≤1981	Difference	p-value
<i>ASSET</i>	21.587	21.646	-0.059	0.655
<i>LEV</i>	0.375	0.398	-0.023	0.474
<i>EBIT</i>	0.163	0.116	0.047	0.168
<i>AGE</i>	4.48	3.884	0.597	0.000
<i>LIQUIDUTY</i>	2.906	2.601	0.305	0.499
<i>INDRP</i>	0.376	0.38	-0.004	0.685
<i>SHRZ</i>	2.853	2.24	0.614	0.170
<i>DUAL</i>	1.507	1.654	-0.147	0.041
<i>CHAIR GENDER</i>	0.127	0.203	-0.076	0.175
<i>CHAIR AGE</i>	3.464	3.581	-0.117	0.000
<i>CHAIR DEGREE</i>	3.437	3.421	0.016	0.894
<i>CHAIR SHAREHD</i>	0.109	0.155	-0.046	0.058

Panel B: Non-parametric local polynomial estimates for the effect of the OCP			
	<i>CSR_SCORE</i>	<i>CSR_SCORE</i>	<i>CSR_SCORE</i>
	(1)	(2)	(3)
<i>Jump in CSR_SCORE</i>	-9.461** (-2.50)	-12.545** (-2.24)	-9.389** (-2.47)
<i>Rise in Single-child Ratio</i>	0.349*** (2.96)	0.352** (2.03)	0.344*** (2.89)
<i>Weighted LATE</i>	-27.088** (-2.23)	-35.607* (-1.84)	-27.293** (-2.18)
Optimal bandwidth	100% of IK	200% of IK	100% of IK
kernel	triangle	triangle	rectangle
cutoff point	1981	1981	1981
sample size	204	204	204

Panel C: Robustness tests	Two years before and after the OCP		Placebo test		
	<i>CSR_SCORE</i>	<i>CSR_SCORE</i>	<i>CSR_SCORE</i>	<i>CSR_SCORE</i>	<i>CSR_SCORE</i>
	(1)	(2)	(3)	(4)	(5)
<i>Jump in CSR_SCORE</i>	-9.461** (-2.50)	-1.153 (-0.35)	8.950 (1.48)	24.298** (2.38)	-3.201 (-0.53)
<i>Rise in Single-child Ratio</i>	0.349*** (2.96)	-0.146 (-1.05)	0.132 (0.62)	0.157 (1.53)	0.095 -1.04
<i>Weighted LATE</i>	-27.088** (-2.23)	7.902 (0.34)	68.005 (0.55)	154.872 (1.36)	-33.789 (-0.47)
Optimal bandwidth	100% of IK	100% of IK	100% of IK	100% of IK	100% of IK
kernel	triangle	triangle	triangle	triangle	triangle
cutoff point	1981	1979	1980	1982	1983
sample size	115	307	246	191	169

**Table 4. Robustness checks**

The table reports a battery of robustness checks. Data are from listed family firms for 2010–2016. Panel A presents the regression of CSR scores of subcategories, including *SOC\_SCORE*, *COM\_SCORE*, *ENVIR\_SCORE*, *EMP\_SCORE*, and *SHAREHD\_SCORE*. Panel B shows the results of Propensity Score Matching based on the full sample using 1:1 nearest neighbor matching with a radius of <0.001. Panel C presents the regression of corporate social responsibility ratings in first-generation and second-generation subsamples, to address survivorship bias. Panel D reports summary statistics of the regression estimates for the baseline models in Table 2, when we randomly assign siblings to each chairperson based on the observed distribution of CEO family siblings (with replacement). For each replication, we record the estimated coefficient and associated *p*-value. We repeat the procedure 1,000 times. We report the mean coefficient estimate for the main independent variables across the 1,000 replications. In brackets, we report the percentage of coefficient estimates that are positive and significant at the 5% level ( $\beta > 0$  and  $\alpha < 5\%$ ) or negative and significant at the 5% level ( $\beta < 0$  and  $\alpha < 5\%$ ). In parentheses, we report the percentage of coefficient estimates that have larger absolute value than and the same sign as our baseline estimates from Table 2 and are significant at the 5% level ( $|\beta| > |\beta^*|$  and  $\beta \times \beta^* > 0$  and  $\alpha < 5\%$ ). Panel E lists other robustness checks. In column (1), we use *CSR\_SCORE\_KLD* as the dependent variable; this rating is from another database named CNRDS but has missing values. In column (2), we use *DONATE\_AMOUNT* as the dependent variable, calculated as the ratio of donation amount to asset, multiplied by 10,000. In column (3), we further control for the chairperson’s wealth state, which refers to *FORBES\_RICH*. In column (4), we further control for the chairperson-daughter effect by including a dummy variable, *FAMILY\_DAUGHTER*, which is equal to 1 if the chairperson has a daughter, and zero otherwise. In column (5), we exclude all female chairpersons. In column (6) and (7), we control for province fixed effect and firm fixed effect, respectively. In column (8), we investigate the impact of the number of siblings on *CSR\_SCORE*. *SIBLING\_NUMBER* is defined as the total number of siblings. *CSR\_SCORE* is the dependent variable. *FAM\_SIBLING* is an indicator variable that is equal to 1 if a chairperson has siblings, and zero otherwise. Appendix A provides detailed definitions for all variables. Standard errors are clustered at the firm level. \*\*\*, \*\*, and \* indicate 1%, 5%, and 10% significance, respectively.

Panel A: CSR scores of subcategories					
	<i>SOC_SCORE</i>	<i>COM_SCORE</i>	<i>ENVIR_SCORE</i>	<i>EMP_SCORE</i>	<i>SHAREHD_SCORE</i>
	(1)	(2)	(3)	(4)	(5)
<i>FAM_SIBLING</i>	0.354*** (2.76)	0.595*** (3.03)	0.542*** (2.70)	0.197 (1.62)	0.068 (0.41)
Firm characteristics	YES	YES	YES	YES	YES
Chairperson characteristics	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
Observations	7121	7121	7121	7121	7121
Adj <i>R</i> <sup>2</sup>	0.173	0.086	0.075	0.082	0.511

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Panel B: 1:1 nearest neighbor matching with radius of <0.001

---

*CSR\_SCORE*

---

(1)

---

*FAM\_SIBLING*

1.710\*\*\*

(2.85)

Firm characteristics

YES

Chairperson characteristics

YES

Industry FE

YES

Year FE

YES

Observations

5414

Adj  $R^2$

0.190

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Panel C: Survivorship bias

	<i>CSR_SCORE</i>	
	First Generation	Second Generation
	(1)	(2)
<i>FAM_SIBLING</i>	1.536**	5.127***
	(2.53)	(2.66)
Firm characteristics	YES	YES
Chairperson characteristics	YES	YES
Industry FE	YES	YES
Year FE	YES	YES
Observations	6693	428
Adj $R^2$	0.199	0.230
Empirical $p$ -values [(1) vs. (2)] on coefficients of <i>FAM_SIBLING</i>		0.007***

Panel D: Placebo test

	<i>CSR_SCORE</i>
	(1)
<i>Mean <math>\beta</math> for Chairperson with Family Sibling</i>	0.0016
[% $\beta > 0$ & $\alpha \leq 5\%$ ; % $\beta < 0$ & $\alpha \leq 5\%$ ]	[2.2%; 1.8%]
(% $ \beta  >  \beta^* $ & $\beta \times \beta^* > 0$ & $\alpha \leq 5\%$ )	4%

Panel E: Other robustness checks								
	Alternative Dependent Variables		Wealth, Daughter, & Female chairperson effects			Other Fixed Effects		
	<i>CSR_SCORE_KLD</i>	<i>DONATE_AMOUNT</i>	<i>CSR_SCORE</i>	<i>CSR_SCORE</i>	<i>CSR_SCORE</i>	<i>CSR_SCORE</i>	<i>CSR_SCORE</i>	<i>CSR_SCORE</i>
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>FAM_SIBLING</i>	1.186** (2.28)	0.578** (2.04)	1.671*** (2.86)	1.793*** (3.06)	1.606*** (2.65)	1.209** (2.20)	2.390** (2.26)	
<i>FORBES_RICH</i>			1.021 (1.13)					
<i>FAMILY_DAUGHTER</i>				-0.934 (-1.06)				
<i>SIBLING_NUMBER</i>								0.817** (2.56)
Firm characteristics	YES	YES	YES	YES	YES	YES	YES	YES
chair characteristics	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Province FE	NO	NO	NO	NO	NO	YES	YES	NO
Firm FE	NO	NO	NO	NO	NO	NO	YES	NO
Male Chair only	NO	NO	NO	NO	YES	NO	NO	NO
Observations	957	7121	7121	7121	6731	7121	7121	7121
Adj $R^2$	0.241	0.056	0.198	0.198	0.200	0.256	0.595	0.198



**Table 5. Mechanism test: multivariate analysis of competition effect on CSR**

The table reports the results for the competition effect. Data are from listed family firms for 2010–2016. *CSR\_SCORE* is the dependent variable. *FAM\_SIBLING* is an indicator variable that equals 1 if a chairperson has siblings, and zero otherwise. *CHAIR\_MAR* is an indicator variable that equals 1 one if the chairperson has a network marriage, and zero otherwise. *DEGREE\_HIGH* is an indicator variable that equals 1 if the chairperson attains the highest degree among siblings, and zero otherwise. *SIBLING\_MAR* is an indicator variable that equals 1 if another sibling has a network marriage, and zero otherwise. *COWORK* is an indicator variable that equals 1 if a chairperson has a sibling co-managing the firm, and zero otherwise. Appendix A provides detailed definitions for all variables. Standard errors are clustered at the firm level. \*\*\*, \*\*, and \* indicate 1%, 5%, and 10% significance, respectively.

	<i>CSR_SCORE</i>	<i>CSR_SCORE</i>	<i>CSR_SCORE</i>	<i>CSR_SCORE</i>
	(1)	(2)	(3)	(4)
<i>FAM_SIBLING</i> × <i>CHAIR_MAR</i>	3.258** (2.07)			
<i>FAM_SIBLING</i> × <i>DEGREE_HIGH</i>		2.692** (2.47)		
<i>FAM_SIBLING</i> × <i>SIBLING_MAR</i>			5.000** (1.97)	
<i>FAM_SIBLING</i> × <i>COWORK</i>				1.400** (2.13)
<i>CHAIR_MAR</i>	0.490 (0.49)			
<i>FAM_SIBLING</i>	1.084* (1.79)	-0.515 (-0.49)	1.470** (2.51)	1.463* (1.78)
Firm characteristics	YES	YES	YES	YES
Chairperson characteristics	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	7121	7121	7121	7121
Adj <i>R</i> <sup>2</sup>	0.203	0.199	0.200	0.199

**Table 6. Mechanism test: multivariate analysis of altruism effect on CSR**

The table reports the results for the altruistic effect. Data are from listed family firms for 2010–2016. *CSR\_SCORE* is the dependent variable. *FAM\_SIBLING* is an indicator variable that equals 1 if a chairperson has siblings, and zero otherwise. *ALTRUSIM* refers to the fraction of the population in a region answering “YES” to the statement, “It is important to you to do something for the good of society”. *REPORT* is an indicator variable that equals 1 if the chairperson mentions siblings in their speeches or in the public domain, and zero otherwise. *SIBLING\_FEMALE* is an indicator variable that equals 1 if there is a sister in the family, and zero otherwise. Appendix A provides detailed definitions for all variables. Standard errors are clustered at the firm level. \*\*\*, \*\*, and \* indicate 1%, 5%, and 10% significance, respectively.

	<i>CSR_SCORE</i>	<i>CSR_SCORE</i>	<i>CSR_SCORE</i>
	(1)	(2)	(3)
<i>FAM_SIBLING</i> × <i>ALTRUISM</i>	3.642** (2.34)		
<i>ALTRUISM</i>	-1.789 (-1.55)		
<i>FAM_SIBLING</i> × <i>REPORT</i>		15.328*** (4.01)	
<i>FAM_SIBLING</i> × <i>SIBLING_FEMALE</i>			1.917** (2.21)
<i>FAM_SIBLING</i>	-0.992 (-0.75)	1.361** (2.36)	0.844 (1.28)
Firm characteristics	YES	YES	YES
Chairperson characteristics	YES	YES	YES
Industry FE	YES	YES	YES
Year FE	YES	YES	YES
Observations	6963	7121	7121
Adj <i>R</i> <sup>2</sup>	0.2	0.213	0.199

**Table 7. Effect of local familism culture and government officials' career incentives**

The table reports the results for the effect of local familism culture and government officials' career incentives. Data are from listed family firms for 2010–2016. *CSR\_SCORE* is the dependent variable. *FAM\_SIBLING* is an indicator variable that equals 1 if a chairperson has siblings, and zero otherwise. Panel A presents the results for the effect of local familism culture. *CLAN* refers to the ratio of genealogy volumes to the population of that city, multiplied by 100,000. *FAM\_IMPORTANCE* refers to the fraction of population in a region answering “YES” to the statement, “Family is important in life.” Panel B presents the results for the effect of government officials' career incentives. *RETIREMENT* is an indicator variable that equals 1 if the mayor is 57 years old or older, and zero otherwise. *PROMOTION* is an indicator variable that equals 1 if the period is two years before actual promotion for the mayor, and zero otherwise. Appendix A provides detailed definitions for all variables. Standard errors are clustered at the firm-level. \*\*\*, \*\*, and \* indicate 1%, 5%, and 10% significance, respectively.

Panel A: Effect of local familism culture

	<i>CSR_SCORE</i> (1)	<i>CSR_SCORE</i> (2)
<i>FAM_SIBLING</i> × <i>CLAN</i>	2.248** (2.13)	
<i>CLAN</i>	-0.556 (-0.89)	
<i>FAM_SIBLING</i> × <i>FAM_IMPORTANCE</i>		8.668** (2.15)
<i>FAM_IMPORTANCE</i>		-5.014 (-1.55)
<i>FAM_SIBLING</i>	0.959 (1.40)	-22.603** (-1.98)
Firm characteristics	YES	YES
Chairperson characteristics	YES	YES
Industry FE	YES	YES
Year FE	YES	YES
Observations	7121	6860
Adj <i>R</i> <sup>2</sup>	0.199	0.197

Panel B: Effect of local government officials' career incentives

	<i>CSR_SCORE</i> (1)	<i>CSR_SCORE</i> (2)
<i>FAM_SIBLING</i> × <i>RETIREMENT</i>	3.492** (2.14)	
<i>RETIREMENT</i>	-0.093 (-0.10)	
<i>FAM_SIBLING</i> × <i>PROMOTION</i>		-2.497** (-2.00)
<i>PROMOTION</i>		-1.086 (-1.08)
<i>FAM_SIBLING</i>	1.594*** (2.73)	1.899*** (3.17)
Firm characteristics	YES	YES
Chairperson characteristics	YES	YES
Industry FE	YES	YES
Year FE	YES	YES
Observations	7121	7121
Adj <i>R</i> <sup>2</sup>	0.198	0.199

**Table 8. Effect of siblings' occupations**

The table reports the results for the effect of the occupation of a chairperson's siblings. Data are from listed family firms for 2010–2016. *CSR\_SCORE* is the dependent variable. *FAM\_SIBLING* is an indicator variable that equals 1 if a chairperson has siblings, and zero otherwise. Panel A presents the distribution of chairpersons' siblings' occupations. Panel B shows the results for the effect of occupation of a chairperson's siblings. *BUSINESS\_PERSON* is an indicator variable that equals 1 if at least one of the chairperson's siblings is a director or CEO and zero otherwise. *GOVERN\_OFFICIAL* is an indicator variable that equals 1 if at least one of the chairperson's siblings is governmental official, and zero otherwise. Appendix A provides detailed definitions for all variables. Standard errors are clustered at the firm level. \*\*\*, \*\*, and \* indicate 1%, 5%, and 10% significance, respectively.

Panel A: Distribution of occupations of chairpersons' siblings		
Chairperson's siblings' position	#Obs	Percent
Businessperson	1278	63.68%
Governmental Official	50	2.49%
Other	679	33.83%
Total	2007	100%

Panel B: Effect of chairperson's sibling's occupation	
	<i>CSR_SCORE</i>
<i>FAM_SIBLING</i> × <i>BUSINESS_PERSON</i>	2.222*** (2.61)
<i>FAM_SIBLING</i> × <i>GOVERN_OFFICIAL</i>	-0.075 (-0.03)
<i>FAM_SIBLING</i>	0.185 (0.24)
Firm characteristics	YES
Chairperson characteristics	YES
Industry FE	YES
Year FE	YES
Observations	7121
Adj <i>R</i> <sup>2</sup>	0.200

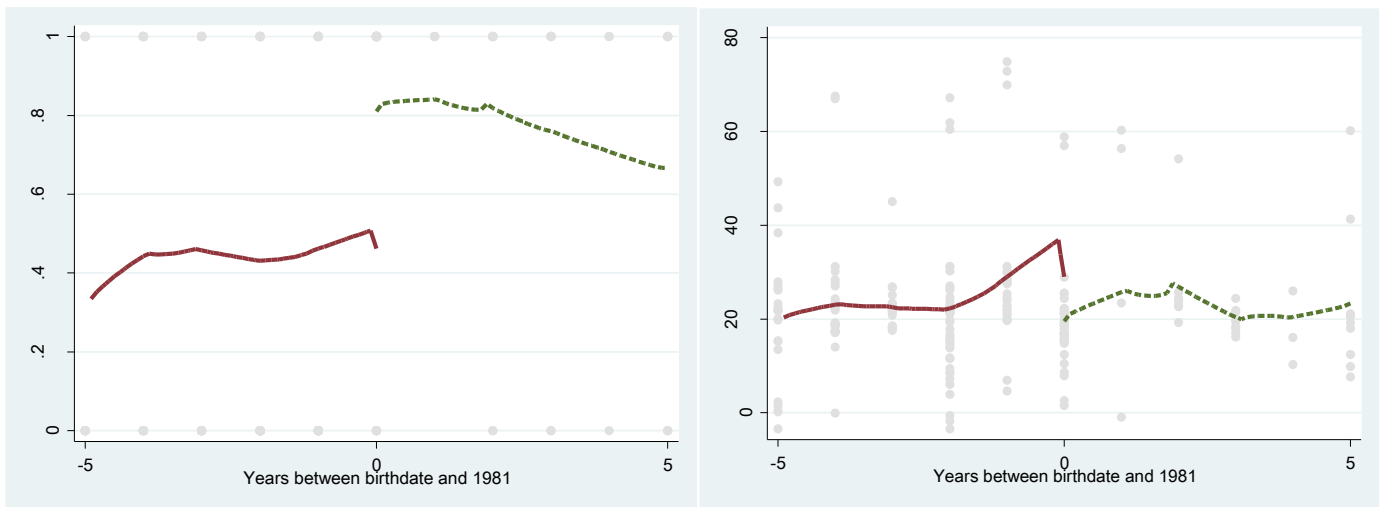
**Table 9. Evidence on chairperson’s self-discipline**

The table reports the results for the effect of sibling on a chairperson’s self-discipline. Data are from listed family firms for 2010–2016. Chairperson’s self-discipline refers to *PERK\_ASSET*, calculated by the sum of entertainment and travel costs, divided by assets. *FAM\_SIBLING* is an indicator variable that equals 1 if a chairperson has siblings, and zero otherwise. Appendix A provides detailed definitions for all variables. Standard errors are clustered at the firm level. \*\*\*, \*\*, and \* indicate 1%, 5%, and 10% significance, respectively.

	<i>PERK_ASSETS</i>
	(1)
<i>FAM_SIBLING</i>	-3.694** (-2.07)
Firm characteristics	YES
Chairperson characteristics	YES
Industry FE	YES
Year FE	YES
Observations	5596
Adj $R^2$	0.103

**Figure 1. RD plots of single-child ratio and CSR score on China's One-Child Policy**

The figure plots RD graphs of the single-child ratio and the CSR score before and after the China's One-Child Policy



**Figure 2. RD bandwidths**

This figure plots the RD estimates with different bandwidths using local polynomial regression models. The x axis represents the bandwidth, where “100” is the optimal bandwidth reported in Table 3, “200” is two times the optimal bandwidth, etc. The y axis represents the coefficient estimates and their upper/lower 95% confidence limits.

