Gender Bias at the Top: How Prejudice Selects for Star Female CEOs

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This paper examines whether gender bias shapes the selection of executives and, consequently, the gender gap in firm performance. Using data on Chinese listed firms, we find that female-led firms outperform their male-led counterparts, with the effect more pronounced in regions more deeply influenced by Confucian culture. We further show that the performance advantage of female CEOs is concentrated in nonfamily firms but disappears in family firms with family-tied CEOs. However, the advantage reemerges when family firms appoint external female CEOs. The positive effect of female CEOs weakens following the implementation of the one-child policy, a population-control policy that broadly reduced societal gender bias. Overall, the results indicate that prejudice at the top creates a "star selection" effect: only exceptionally capable women reach CEO positions, generating superior performance among female-led firms.

Keywords: CEO gender, gender bias, regional culture, firm performance

JEL Classification: G30, J16, M14

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I. Introduction

For many years, the number of S&P 500 CEOs named "John" exceeded the total number of female CEOs.[1] This striking underrepresentation of women in corporate leadership has drawn considerable attention from regulators, practitioners, and scholars. Recent studies increasingly attribute this imbalance to gender bias and provide evidence that female managers face systematic disadvantages in promotion compared with their male counterparts (Huang, Mayer, and Miller (2024); Guo, Gupta, Mortal, and Nanda (2024); McLean, Pirinsky, and Zhao (2023); Field, Souther, and Yore (2020)).[2] However, whether gender bias contributes to the gender gap in firm performance remains largely unexplored. This paper fills a gap in the existing literature on how gender bias shapes corporate leadership outcomes by assembling a sample of CEOs with gender data, given CEOs' critical role in decision-making and firm performance (Faccio, Marchica, and Mura (2016); Lewellen (2025)).

Evidence on gender differences in workplace performance is mixed.[3] A handful of studies link gender bias in workplace to the gender gap performance. Gender bias in the workplace may result in only exceptionally capable women being promoted. As noted by Lewellen (2025), boards often hold biased beliefs about female managers and underestimate their leadership ability. Moreover, gender bias can trigger a self-selection process in which only women with above-average ability choose to pursue their careers (Kumar (2010), Li, Peng, Shen, and Wong (2025)). In this paper, we examine the gender performance gap among CEOs. If female CEOs outperform their male counterparts, this pattern is likely driven by the former mechanism,

[1] Andre Franklin, "Women CEOs at Big Companies Finally Outnumber Those Named John," *Bloomberg*, April 25, 2023, https://www.bloomberg.com/news/newsletters/2023-04-25/women-ceos-at-big-companies-finally-outnumber-those-named-john.

[2] Another well-documented reason for the low representation of women among CEOs is gender differences in preferences for competition (See, for example, Niederle and Vesterlund (2007); Croson and Gneezy (2009)).

[3] Kumar (2010) finds that U.S. female analysts issue more accurate forecasts than their male counterparts, whereas Li, Peng, Shen, and Wong (2025) show that the gender gap in analyst forecast accuracy varies with national cultural values. Lewellen (2025) shows that female and male hospital CEOs perform comparably. In contrast, Gompers, Mukharlyamov, Weisburst, and Xuan (2022) find that investments led by female venture capitalists tend to have lower success rates than those led by males.

whereby only the most capable women are promoted due to biased screening by boards. However, we do not rule out the possibility of a self-selection effect. Both mechanisms are explored in our analysis.

Using a panel of firms listed on the Shanghai and Shenzhen Stock Exchanges from 2008 to 2021, we document a significantly positive association between female CEOs and firm performance.[4] We argue that this pattern is best explained by pervasive gender bias in Chinese workplaces. For millennia, Chinese culture and social norms have been profoundly shaped by Confucianism (Chen, Ma, and Sinclair (2022)). Confucianism emphasizes hierarchy and clearly defined gender roles, under which women are expected to manage domestic affairs and defer to male authority figures (Lee (2023)). These enduring norms perpetuate gender stereotypes and reinforce the perception of leadership as a male domain, creating structural barriers that hinder women's advancement to top management positions.

To test this argument, we assess the influence of Confucianism on the relationship between CEO gender and firm performance. We construct a geographic proximity–based measure by following Du (2016), El Ghoul, Guedhami, Ni, Pittman, and Saadi (2013), and Kedia and Rajgopal (2011).[5] We find that firms headquartered closer to Confucian centers, indicating stronger cultural exposure, exhibit a more pronounced gender gap in firm performance. Specifically, the positive effect of female CEOs on firm performance is stronger in firms located nearer to Confucian centers. These results further support the argument that gender bias contributes to gender differences in firm performance.

Apart from gender roles, familism is another central tenet of Confucianism. Confucianism

[4] The significantly positive associations remain robust when using alternative measures of firm performance, applying different model specifications, and applying both the propensity score matching (PSM) and instrumental variable (IV) methods to evaluate the impact of CEO gender on firm performance.

[5] As alternative measures of Confucian influence, we use the number of Confucian temples located in the city of each firm's headquarters, following Miao, Niu, and Noe (2021) and Chen, Ma, and Sinclair (2022). The results remain similar.

emphasizes family centrality, loyalty, and strong familial commitment.[6] Accordingly, firm founders heavily influenced by Confucian values are more likely to appoint a family member as their successor (Chen, Xiao, and Zhao (2021)). This practice may mitigate gender bias within the family, as female relatives compete only with male family members rather than external candidates. However, prior research indicates that women's invisibility in succession processes persists, as daughters are rarely considered serious candidates for leadership unless the founder has no sons (Overbeke, Bilimoria, and Perelli (2013)). Notably, China's one-child policy, which limited most families to a single child, has reshaped the role of daughters and contributed to the rise of female leadership in Chinese family businesses (Chen, Ying, Wu, and You (2021)).[7] Taken together, female managers in nonfamily firms experience more severe gender bias and face greater barriers to reaching CEO positions compared with female family members in family firms.

Building on this idea, we next test whether the effect of female leadership differs between family and nonfamily firms. We provide novel findings that female CEOs outperform male CEOs in nonfamily firms, while in family firms with family-tied CEOs, the impact of female CEOs on performance is not statistically significant. In addition, we find a striking result that the positive effect of female CEOs re-emerges when family firms hire external (nonfamily) CEOs. This finding supports our conjecture that gender bias is mitigated when family firms appoint family members as CEOs, but stricter ability requirements are imposed on female candidates when nonfamily members are recruited. Additional evidence shows that family firms are more likely to appoint female CEOs (with family ties), with the likelihood approximately 38.4% higher than in nonfamily firms. Comparing the biographical

[6] Influenced by Confucianism, collectivism plays a central role in Chinese society and often manifests as familism, in which family obligations and interests take precedence over individual preferences. Such collectivist and familism values stand in sharp contrast to the individualistic orientations that are common in many Western societies (Hofstede (1991)).

[7] A comprehensive discussion of the one-child policy is provided in Section II.

characteristics of female and male CEOs across family and nonfamily firms, we find that family-tied female CEOs tend to be relatively younger, less educated, and have fewer academic qualifications than the female CEOs in nonfamily firms, suggesting that family firms offer a more conducive environment for family-tied female leaders.

As discussed above, the one-child policy helps alleviate gender bias and increases the likelihood of daughters succeeding in family firms. However, its overall effect on societal gender bias remains ambiguous. On the one hand, the policy motivates parents to invest financially and emotionally in their only child regardless of gender, thereby supporting the development of women (Fong (2002); Chen, Ying, Wu, and You (2021)). It has also reduced the impact of "child penalties" on women, thus facilitating their career advancement.[8] These effects may help mitigate societal gender bias and workplace barriers related to gender. On the other hand, the one-child policy exacerbated gender bias in some provinces where severe son preference persists. The decline in fertility resulting from the policy was accompanied by a high male-to-female birth ratio (Almond, Li, and Zhang, 2019).

Our analysis related to the one-child policy yields two key findings. First, in regions with strict enforcement, such as those with closely monitored birth quotas or higher financial penalties for additional births, the policy has reduced gender bias in society. As a result, the positive performance effect of female CEOs diminishes for those originating from provinces with stricter enforcement. Second, female CEOs who originate from provinces with abnormally high male-to-female birth ratios following the policy's implementation exhibit a stronger positive effect on firm outcomes. This pattern suggests that women born in regions with strong son preference face greater structural barriers, and those who overcome them tend to have

[8] Child penalties refer to the negative impacts on individuals' labor market outcomes that arise following the birth of a child. One of the most robust findings in labor economics is that child penalties are disproportionately borne by women (see, for example, Kleven, Landais, and Søgaard (2019)). However, Meng, Zhang, and Zou (2023) find that child penalties for mothers in China are smaller than those observed in other countries and attribute this difference primarily to the influence of the one-child policy.

abilities that enhance firm performance.

Overall, this paper finds that female CEOs outperform male CEOs in Chinese firms, with the positive effect more pronounced when (1) firms exhibit stronger gender bias and (2) female CEOs originate from regions with more severe gender bias. These findings extend Kumar (2010), Li, Peng, Shen, and Wong (2025), and Lewellen (2025) and suggest that both boards' biased beliefs and self-selection mechanisms shape the relationship between gender bias and firm performance. The stronger performance effect in firms characterized by greater gender bias—such as those influenced by Confucian culture or applying stricter ability-based criteria when appointing CEOs—implies that boards promote only exceptionally capable women to leadership positions. Moreover, the superior performance of female CEOs from provinces with stronger son preference and more severe gender bias is consistent with the self-selection mechanism, whereby only highly able women choose to pursue top management careers in such environments.

This paper contributes to the ongoing debate on the determinants of the gender gap in workplace performance. Most prior studies attribute gender differences in leadership outcomes to psychological traits (labor supply-side factors) such as overconfidence (Huang and Kisgen (2013); Levi, Li, and Zhang (2014)), risk aversion (Faccio, Marchica, and Mura (2016)), and optimism (Graham, Harvey, and Puri (2013)). However, these conclusions are at odds with the evidence in Adams and Funk (2012) and Lewellen (2025), who show that self-selection and professional expertise reduce or even eliminate the gender differences in psychological attributes that are documented in the broader populations. Consistent with the literature emphasizing labor demand-side factors, this paper attributes the gender performance gap to gender bias (Kumar (2010); Gompers, Mukharlyamov, Weisburst, and Xuan (2022); Li, Peng, Shen, and Wong (2025); Lewellen (2025)).

Our study also contribute to the growing literature highlights the role of culture in shaping

gender gaps in labor outcomes. Alesina, Giuliano, and Nunn (2013) find that countries with less historical use of the plough, which did not foster strong gender-based labor division, have higher female labor force participation and entrepreneurship today. Using equity analyst data, Li, Peng, Shen, and Wong (2025) demonstrate that national culture significantly shapes the relationship between gender, competition, and performance. In corporate contexts, McLean, Pirinsky, and Zhao (2023) and Du (2016) find that U.S. counties and Chinese provinces, respectively, with more gender-egalitarian cultures exhibit higher female representation in top management roles. Building on this literature, our study shows that regional gender bias influences the gender disparity in firm performance.

Finally, the paper contributes to the understanding of workplace discrimination from an economic perspective. Theoretical insights date back to Becker (1957), who predicted that biased firms incur costs due to inefficient employment practices. More recently, Huang, Mayer, and Miller (2024) found that mortgage companies that promote fewer women experience a decline in loan volume and are less likely to survive. Our findings also support Becker's (1957) prediction, demonstrating that gender bias in managerial roles can negatively impact firm performance. Our findings provide evidence that gender bias is an important factor in gender gaps in financial outcomes. We recommend fair consideration of managerial abilities between men and women and optimal labor allocation across genders for better economic performance.

The paper is organized as follows. Section II provides background on the Chinese institutional and cultural environment. Section III describes the data and sample. Section IV through VII present empirical analysis of gender gap in firm performance, including the effect of Confucian culture, familism, and the one-child policy. Section VII concludes.

II. Background

A. The Chinese Environment

In China, gender inequality in employment opportunities reflects a significant bias in favor of men, particularly when compared to trends observed in many Western countries. The Global Gender Gap Report ranks China 107th out of 146 countries, assessing gender gaps across four key dimensions: economic opportunities, education, health, and political leadership (Global Gender Gap Report (2023)). Economic development has generally helped narrow gender gaps (World Bank (2019)). However, China has experienced a paradoxical effect, with gender inequality persisting despite overall economic growth (Almond, Li, and Zhang (2019)).

Two primary factors, social norms and weaker legal protections for women, lead to this significant inequality. Confucianism-based cultural values establish a hierarchical gender structure that promotes male superiority, creating a distinct gender bias compared to Western cultural norms (Bao and Li (2024), Du (2016)). Empirical evidence shows that firms located in regions where Confucian traditions remain influential have significantly fewer women on their boards, suggesting a strong negative association between Confucianism and female representation in corporate leadership (Du (2016)). Additionally, the traditional patrilocal residence pattern, also rooted in Confucian ideals, further exacerbates gender disparities. After marriage, women are typically expected to relocate to their husbands' hometown, a move that often entails sacrificing existing career networks and job prospects. This mobility imposes additional structural constraints on women's career advancement (Koh, Li, Wu, Yi, and Zhang (2025)).

Furthermore, the "birds of a feather" effect, where individuals favor others with similar characteristics such as gender, exacerbates gender bias in male-dominated fields like senior management (McPherson, Smith-Lovin, and Cook (2001)).[9] Specifically, male-dominated boards tend to prefer male candidates during CEO selection processes. Matsa and Miller (2011)

[9] The "birds of a feather" effect, also known as homophilistic bias, refers to the tendency of individuals to associate, interact, and bond with others who share similar characteristics and backgrounds, including gender (e.g., McPherson, Smith-Lovin, and Cook (2001)).

find that greater female representation on corporate boards is associated with a higher proportion of women among top executives.[10] In this view, laws mandating gender diversity on corporate boards help reduce structural barriers and promote the appointment of female board chairs and CEOs (Wang and Kelan (2013)).[11] Several European countries, including Norway, Spain, France, Italy, the Netherlands, Belgium, and the state of California in the United States, have implemented mandatory gender quotas, whereas China has not. Moreover, China still lags significantly behind international standards regarding board gender diversity.[12] As men hold the majority of senior positions in Chinese public firms, gender-biased hiring practices by boards continue to disadvantage female candidates for top management roles.

B. One Child Policy

China's one-child policy, introduced in 1979 and ended in 2015, officially restricted married couples to having only one child. Following its termination, two-child and three-child policies were introduced in 2016 and 2021, respectively. The one-child policy was strictly enforced by local governments, because the degree of compliance became a criterion for performance evaluation and thus affected the career progression of local officials (Huang, Lei, Sun, 2016). Over time, local governments adopted varying implementation strategies across provinces (Ebenstein (2010)). Despite these regional variations, non-compliance typically resulted in substantial fines, job loss, and other penalties, leading to the policy being generally regarded as effectively enforced nationwide (Wang, Gonzalez, Hagendorff, and Sila (2025)). The policy has been described as one of the most dominant forces shaping Chinese social life

[10] Kunze and Miller (2017) also find that female leadership increases the promotion rates of lower-ranked female employees. Similarly, Cullen and Perez-Truglia (2023) show that male employees are more likely to network with their male managers and are subsequently more likely to be promoted.

[11] For research on gender quotas for corporate boards, see Ahern and Dittmar (2012), Eckbo, Nygaard, and Thorburn (2022), Ferrari, Ferraro, Profeta, and Pronzato (2022), and Hsu, Li, and Pan (2025).

[12] According to the MSCI Women on Boards and Beyond: 2024 Progress Report, women hold only 15.8% of board seats in Chinese firms 2024, compared to the global average of 27.3%. This places China significantly behind both developed markets (31.3%) and the overall emerging markets average (17.7%).

in its nearly four decades of existence (Cai and Feng (2021)).

A significant social consequence of the one-child policy is its influence on gender bias within society, though this influence is ambiguous. The one-child policy accelerated the movement toward gender equality in China, particularly within family firms (Chen, Ying, Wu, and You (2021)). By expanding educational opportunities for girls, the policy prompted parents to invest financially and emotionally in their only child, regardless of gender (Fong (2002)). Prior to the policy, families with many children typically allocated more resources to sons than to daughters. In family firms, especially those in urban or wealthier rural areas, the one-child policy influenced succession decisions by limiting families to a single heir. Traditionally, succession in family firms favored male heirs due to the practice of primogeniture (Bennedsen, Pérez-González, and Wolfenzon (2007)). The one-child policy helped mitigate son preference, leading to a rise in female leadership in family businesses, as daughters increasingly took on leadership roles in the absence of male heirs (Chen, Ying, Wu, and You (2021)).

However, the one-child policy exacerbated gender bias in some provinces, where severe son preference persists. Following its implementation, China experienced a significant imbalance in the sex ratio at birth, peaking at over 120 boys for every 100 girls (Figure 1). Two primary factors contributed to this skewed ratio. First, traditional cultural norms favoring sons led some families to abandon, conceal, or commit infanticide against newborn girls to avoid penalties (Ebenstein (2010)). This phenomenon contributed to what is often referred to as China's "Missing Girls." Second, rapid economic growth facilitated advances in sex-selective technologies, increasing the feasibility of gender selection and exacerbating the male-biased sex ratio (Almond, Li, and Zhang (2019)).

[Figure 1 to be inserted here]

Given the ambiguous and context-dependent effects of China's one-child policy on gender

bias, we impose no prior expectations regarding its influence on the association between female CEO leadership and firm performance. Our empirical analysis examines how this policy influences the gender gap in leadership and whether these effects vary across provinces with different sex ratios.

III. Data and Sample

A. Data Sources and Sample Construction

Our sample consists of firms listed on the Shanghai and Shenzhen stock exchanges from 2008 to 2021. The sample period begins in 2008 because data on family firms, one of our key variables, first became available in that year. We exclude observations flagged with ST and *ST because they denote special treatment owing to irregular financial reporting and negative profits for two or three consecutive years. We also exclude observations in the financial industry because of their unique accounting standards. The final sample comprises 3,941 firms, including 30,763 firm-year observations. All variables are winsorized at the 1st and 99th percentiles to reduce the effects of outliers.

We use data from multiple sources. CEO characteristics, including gender, age, educational background, professional title, overseas experience, and academic and financial expertise come from the China Securities Market and Accounting Research (CSMAR) database. We also manually collect CEO birthplace information, supplemented in part by data from the CSMAR database. Firm-level accounting data also come from CSMAR.

We use the geographic locations of firms' headquarters to capture the influence of Confucian culture (Du (2016)). The details of the calculation method are provided in the Section V. Headquarters addresses are obtained from CSMAR and matched with the geographic coordinates (longitude and latitude) of Chinese cities to obtain the precise location of the city in which each firm's headquarters is located. Following Du (2016), we identify nine

Confucian centers and manually collect their locations: Qufu in Shandong Province, Luoyang in Henan Province, Chengdu in Sichuan Province, Sanming and Longyan in Fujian Province, Dongtai in Jiangsu Province, Ningbo and Shaoxing in Zhejiang Province, and Linchuan in Jiangxi Province.

We define family firms as enterprises where (1) the ultimate controller is a natural person, multiple natural persons, or a family connected by blood or marriage, and (2) the ultimate controller is directly or indirectly the largest shareholder of the company. The sample of family firms is drawn from the "Family Firms" sub-dataset in CSMAR. We then divide family firms into two groups based on whether the CEO has family ties to the controlling family. Our empirical analysis mainly compares family firms led by family-tied CEOs with nonfamily firms and posits that the leadership gender gap driven by gender bias is substantially mitigated in family firms with family-tied CEOs. This reduction may occur because female CEOs with family ties encounter less gender bias due to consanguinity considerations, whereas CEO selection in family firms without family ties is more likely based on competence than kinship. Notably, family firms led by family ties align with the definition of family firms in Villalonga and Amit's (2006) framework, encompassing family control, ownership, and management.

The implementation of the one-child policy varied across regions and over time due to differences in enforcement (Li (1995)). To measure policy intensity, we draw on Ebenstein (2010), who provides data on financial penalties imposed on parents for additional births and provincial fertility targets.[13] Financial penalties were imposed by provinces with different timings, either as a single lump sum or in multiple annual installments, and in different forms, such as a fixed penalty, a salary reduction, or a proportion of a household's annual income. These penalties exhibited significant time and regional variation. To ensure comparability,

[13] We thank Avraham Ebenstein for providing data on financial penalties and fertility targets related to the one-child policy, which are available at https://scholars.huji.ac.il/avrahamebenstein/links?page=1

Ebenstein (2010) standardized the fines by applying a 2% annual discount rate to future payments to calculate their present value in the focal year and then normalized the fines by dividing them by the average household income in the corresponding province-year. Fertility targets are defined as the target average birth quota per family set by local governments. They take values of 1, 1.5, or 2 depending on the province and remained fixed until 2015.[14] More recently, Wang, Gonzalez, Hagendorff, and Sila (2025) also employ these two variables to measure the intensity of the one-child policy. In addition, we require newborn male-to female ratios for each province from 1933 to 1995, as our sample includes CEOs born during this period. These ratios are obtained from the 1990 and 2000 Chinese population censuses. The calculation of province–year newborn sex ratios follows Almond, Li, and Zhang (2019) and is described in detail in Section VII.

B. Sample overview

Panel A of Table 1 presents the summary statistics for all the firms in the sample. The average ROE and EPS are 0.064 and 0.391, respectively. The descriptive statistics of ROE and EPS are generally consistent with findings in previous literature (see, e.g., Talavera, Yin, and Zhang, 2021). The firm-year observations of family firms (with and without family-tied CEOs) account for approximately 57% of the total. The firm-year average likelihood of having a female CEO is 6.5%, indicating the underrepresentation of women in top positions in Chinese listed firms.

[Table 1 to be inserted here]

Panel B of Table 1 presents summary statistics by CEO gender and shows that female-led

[14] Fertility targets capture the institutional design of the one-child policy in each province and are less likely to correlate with unobserved enforcement factors, but they lack temporal and regional variation. Financial penalties, by contrast, reflect enforcement intensity and vary across provinces and time, though they may be endogenous to local conditions. To balance these strengths and limitations and to provide greater assurance regarding the overall validity of our findings, we employ both measures.

firms report better performance on average: the difference in ROE is statistically insignificant, whereas the difference in EPS is significant at the 1% level. Female CEOs are disproportionately concentrated in family firms. Among firm-year observations with male CEOs, 55.5% are family firms, whereas 72.2% of those with female CEOs are family firms. This finding is consistent with the notion that family connections reduce barriers for women to attain top leadership positions. It is important to note that differences in firm characteristics may help explain variation in CEO gender. For example, prior studies suggest that female-led firms tend to be smaller and less leveraged (Faccio, Marchica, and Mura, 2016), a pattern supported by the descriptive statistics for *Size* and *Leverage*. These characteristics may also affect firm performance. Accordingly, in our baseline regressions, we control for firm characteristics, and as a robustness check, we employ propensity score matching to mitigate the influence of these differences on our results.

IV. CEO Gender, Firm Performance, and Confucian Culture

A. Baseline regression

We begin our analysis by examining the impact of female CEOs on firm performance using the full sample and estimate the following regression:

$$Performance_{it} = \alpha_0 + \alpha_1 Female_CEO_{it} + \alpha_2 CEO_Char_{it} + \alpha_3 Firm_Char_{it} + \alpha_4 Performance_{i0} + V_j + U_t + \varepsilon_{it}. \quad (1)$$

We adopt *ROE* and *EPS* as performance metrics, consistent with established financial research (Francis, Hasan, Mani, and Ye (2016); Bennett, Bettis, Gopalan, and Milbourn (2017)). $Female_CEO_{it}$ is a dummy variable that equals 1 if the CEO of firm *i* in year *t–1* is a woman, and zero otherwise. We control for both CEO- and firm-level characteristics that are important determinants of firm performance (Francis, Hasan, Mani, and Ye (2016), Hauser (2018)). Specifically, we control for CEO characteristics, including age, educational background,

professional title, overseas experience, and academic and financial background, as these factors are closely associated with CEOs' abilities and values, thereby affecting firm performance. We also control for firm characteristics such as firm age, size, growth capability, leverage, ownership structure, and CEO duality. To account for time-invariant and unobservable heterogeneity in firm attributes, we follow Lemmon, Roberts, and Zender (2008) and Coles and Li (2023) by including the initial value of the dependent variable as a control in our regression.[15] V_j and U_t denote industry- and year-fixed effects, respectively, and ε_{it} is the random disturbance term. Standard errors are adjusted for potential heteroskedasticity and clustered by firm and year to correct for bias. Appendix A provides all variable definitions.

Table 2 shows that the coefficients on *Female CEO* are significantly positive in both the *ROE* and *EPS* regressions, indicating that female CEOs, on average, outperform their male counterparts. The estimated coefficients indicate that firms led by female CEOs experience an increase in *ROE* of 0.008, equivalent to approximately 12.5% (= 0.008 ÷ 0.064) of the sample mean *ROE*. Similarly, female CEO leadership is associated with a rise in *EPS* of 0.090, corresponding to nearly 23% (= 0.090 ÷ 0.391) of the sample mean *EPS*. These magnitudes suggest that the impact of female CEOs on firm performance is both statistically significant and economically meaningful.

[Table 2 to be inserted here]

We conduct a series of robustness tests to confirm the significantly positive coefficient on *Female CEO*. To better isolate the impact of CEO gender, we employ propensity score matching between female- and male-led firms. We match firms on both firm-level and CEO-level characteristics, excluding gender, to ensure that performance differences are more likely attributable to CEO gender rather than other firm or CEO attributes. We also re-estimate

[15] Omitting the initial dependent variable produces comparable results.

equation (1) in two ways: (1) using the generalized method of moments and (2) including firm fixed effects in the main regressions, rather than controlling for the initial value of the dependent variable, to account for time-invariant and unobservable firm heterogeneity. In addition, we estimate one-year-lagged models. The results are reported in Table IA.1. To further test robustness, we conduct regressions using alternative measures of firm performance, including the ROE growth rate, EPS growth rate, and return on sales (ROS). These results are presented in Table IA.2. We show that the main findings in Table 2 remain unchanged and consistently indicate that firms led by female CEOs outperform those led by male CEOs.

B. Identification

To better establish the causal effect of female CEOs, we address endogeneity concerns related to CEO gender by employing an instrumental variable (IV) approach. Following Griffin, Li, and Xu (2020), who argue that top management roles are more likely to include women when female labor force participation is higher, we use the industry-level ratio of female to male employment as the instrument. The data are obtained from the China Labor Statistical Yearbook. We expect that a higher female-to-male employment ratio within an industry increases the likelihood that firms in that industry appoint a female executive. Since the endogenous variable *Female CEO* is a dummy, we adopt the control function method for estimation, which allows consistent estimation of nonlinear endogenous explanatory variables (Vytlacil and Yildiz (2007)). Specifically, we estimate a probit model in the first stage to obtain residuals and then include these residuals as independent variables in the second-stage OLS regression of firm performance. The results are reported in Table IA.3 of the Internet Appendix.

Panel A of Table IA.3 shows that the first-stage results reveal a significantly positive correlation between *Female CEO* and the industry-level female-to-male employment ratio, significant at the 1% level. The result is consistent with the argument of Griffin, Li, and Xu (2020) that a higher ratio enhances the visibility of female managers. Panel B of Table IA.3

presents the second-stage regression results, with *ROE* and *EPS* as dependent variables, showing that female CEOs exert a positive and statistically significant impact on firm performance at the 1% level. Overall, the IV estimation results are consistent with the OLS results reported in Table 2.

C. Confucian Culture, Female CEOs, and Firm Performance

In this section, we examine how Confucianism shapes gender gaps in leadership and firm performance. The enduring influence of Confucius' teachings is reflected in the establishment of nine Confucian centers located in Chinese cities where he lived and taught. To assess the influence of Confucianism on gender gap in firm performance, we follow Du (2016) and construct a geographic proximity–based measure, which is calculated as:[16]

$$Confucianism_{i,t} = \frac{Max_DIS_t - DIS_{i,t}}{Max_DIS_t - Min_DIS_t} \quad (2)$$

where $DIS_{i,t}$ is the average geographic distance between the headquarter of firm *i* in year *t* and the 9 Confucianism centers in China. Max_DIS_t and Min_DIS_t refer to the maximum and minimum values of $DIS_{i,t}$ across all firms in year *t*. The measure of geographic distance (*DIS*) between a firm and a Confucianism center is detailed in Du (2015, 2016). This distance serves as a proxy for the intensity of Confucian cultural influence, with shorter distances indicating stronger cultural exposure. That is, the higher value of $CONF$ represents stronger Confucian cultural exposure.

We include the interaction term between $Confucianism$ and *Female CEO* in equation (1) to examine whether Confucian cultural influence affects the relationship between female CEOs

[16] The use of geographic proximity to measure the effects of Confucianism is supported by prior literature. For example, Du (2015) employs a similar approach to examine the impact of Confucianism on minority shareholder expropriation. El Ghoul, Guedhami, Ni, Pittman, and Saadi (2013) use six financial centers in the US to capture the influence of regulatory intensity on corporate equity pricing. Similarly, Kedia and Rajgopal (2011) use the geographic distance between a firm and the nearest SEC office to examine its effect on suspected accounting and auditing misconduct.

and firm performance. The results, reported in Table 3, show that female CEOs are again associated with better firm performance, consistent with the findings in Table 2. The coefficient on the interaction term $Confucianism \times Female\ CEO$ is positive and significant, indicating that under stronger Confucian influence, firms with female CEOs perform better relative to those with male CEOs. This finding supports the view that in societies deeply embedded in Confucian cultural norms, women who overcome gender bias and cultural constraints tend to deliver superior firm performance. This result is consistent with our argument that the positive effect of female CEOs is more pronounced in firms that are more likely to exhibit gender bias against women.

[Table 3 to be inserted here]

V. Familism, Female CEOs, and Firm Performance

A. Familism and Gender Gaps in Leadership

When family firms appoint relatives as executives, decisions are strongly influenced by kinship ties (Chen, Xiao, and Zhao (2021)). In such cases, family firms exhibit less gender bias toward women with family connections than nonfamily firms. By contrast, in nonfamily firms, CEO selection is primarily based on ability or qualifications, where women often encounter stricter barriers (Huang, Mayer, and Miller (2024), Guo, Gupta, Mortal, and Nanda (2024)). Although daughters and other female relatives generally face greater obstacles than sons or male relatives in succession (Overbeke, Bilimoria, and Perelli (2013)), the one-child policy in China relaxed these constraints by enhancing the status of female relatives within families (Chen, Ying, Wu, and You (2021)). Accordingly, we expect family firms to provide a more supportive environment for female family members and to mitigate the tendency for only exceptionally qualified women to attain executive positions, thereby reducing the positive performance premium typically associated with female CEOs.

To test this expectation, we first compare family firms with family-tied CEOs to nonfamily firms, as female CEOs with family ties may face less gender bias due to consanguinity considerations. In contrast, CEO selection in family firms without family ties is more likely to be driven by competence rather than kinship, making them an unsuitable basis for examining gender bias differences between family and nonfamily firms. Consistent with this reasoning, our empirical analysis reveals distinct effects of female CEOs on firm performance between family firms with family-tied CEOs and nonfamily firms, as shown in Table 4.

[Table 4 to be inserted here]

Panel A of Table 4 presents the results of the analysis, which includes the interaction terms of *Family* and *Female CEO*. The coefficients on *Female CEO* are significantly positive, consistent with the results in Table 2. However, the interaction terms of *Family* and *Female CEO* are negative and significant at the 1% level, indicating that the positive effect of female CEOs on firm performance is reduced in family firms led by family-tied CEOs. The coefficient on *Family* is significantly positive at the 1% level for the *ROE* regression but insignificant for the *EPS* regression, partly supporting the findings of Anderson and Reeb (2003) and Villalonga and Amit (2006) that family ownership creates value when family members serve as CEOs. Interestingly, our later analysis in Table 6 shows that family firms do not outperform nonfamily firms when they appoint outside CEOs, which is also consistent with Villalonga and Amit (2006).

We also separate the sample into family and nonfamily firms, with the results reported in Panel B of Table 4. In family firms, the coefficients on *Female CEO* are not statistically significant for either *ROE* or *EPS*. Conversely, in nonfamily firms, the *Female CEO* coefficients are positive and statistically significant at the 5% level for *ROE* and at the 1% level for *EPS*. Furthermore, the difference in the *Female CEO* coefficients between the two subsamples is statistically significant at the 5% level, indicating that the coefficients for

nonfamily firms are significantly higher than those for family firms. Overall, our findings in Table 4 indicate that female CEOs in nonfamily firms are positively associated with firm performance, whereas the favorable influence of female CEOs in family firms is negligible.

B. Female CEO in Family and Nonfamily firms

We find that female CEOs in nonfamily firms significantly improve firm performance, whereas female CEOs with family ties attenuate this positive effect. Next, we test whether family firms provide a more conducive environment for female family members, thereby reducing the tendency for only exceptionally qualified women to attain executive positions. For this analysis, we use a sample of family firms with family-tied CEOs and nonfamily firms and employ a probit model to estimate the likelihood of appointing female CEOs. The dependent variable is a dummy equal to one if the CEO is female and zero otherwise. The key independent variable, $Family$, denotes family firm status, with one representing a family firm and zero a nonfamily firm. For control variables, we include CEO demographic characteristics, which are closely linked to cognitive abilities and values and thus influence the likelihood of becoming CEOs. We also control for firm-level characteristics because differences in firm characteristics may explain the variation in the proportion of female CEOs. For example, prior research suggests that firms led by female CEOs tend to be smaller in size and have lower leverage (Faccio, Marchica, and Mura (2016)). In addition, we incorporate operating performance (ROE) of firm *i* in year *t–1*, as prior studies suggest that the probability of hiring a female CEO is greater when firms perform poorly (Ryan and Haslam (2007)). Fixed effects and the treatment of standard errors follow the specification in equation (1). Table 5 reports the results.

[Table 5 to be inserted here]

In Panel A, Columns (1) through (5) progressively incorporate control variables: Column

(1) presents baseline results without controls, Columns (2) and (3) introduce CEO demographic and firm characteristics, respectively, Column (4) combines demographic and firm controls, and Column (5) additionally includes lagged firm performance. Across all model specifications, the coefficients on $Family$ are consistently positive and statistically significant at the 1% level. Our evidence also shows an economically significant relationship between family firms and female CEO appointments. Column (5) reveals that family firms have approximately 38.4% ($e^{0.325}$–1=38.4%) higher odds of hiring a female CEO with family ties compared to nonfamily firms.

The higher probability of female CEOs in family firms with family-tied CEOs should be interpreted with caution, as it may reflect distinctive firm characteristics. Drawing on Faccio, Marchica, and Mura (2016), which finds that female-led companies typically exhibit smaller firm sizes and lower leverage, we employed propensity score matching to mitigate potential firm characteristic biases. By matching family and nonfamily firms using firm characteristics, industry, and year dummy variables, Panel B of Table 5 validates our initial findings. The coefficients on $Family$ remain positively significant at the 1% level, consistent with the results of Panel A. Overall, Table 5 demonstrates a statistically and economically significant relationship between family ownership and female CEO appointments. Specifically, we find family firms with family-tied CEOs have a higher probability of appointing female CEOs compared with nonfamily firms.

We next examine whether and how family-tied female CEOs differ from their counterparts in nonfamily firms. Table 6 presents the results of difference-in-differences tests on CEO biographical characteristics and professional qualifications. The evidence indicates that family firms with family-tied CEOs are more conducive to women. Specifically, female CEOs in family firms with family ties are significantly younger than male CEOs (–1.009 years, $p < 0.01$), whereas the age gap in nonfamily firms is smaller and statistically insignificant (–0.375 years).

The difference-in-differences (–0.634, $p < 0.10$) confirms that the relative age gap is larger in family firms. Female CEOs in family firms have lower education levels than male CEOs (–0.148, $p < 0.01$). In nonfamily firms, the gap is negligible and slightly positive (+0.026). The difference-in-differences value (–0.174, $p < 0.01$) indicates weaker educational requirements for female CEOs in family firms. In addition, female CEOs in family firms are less likely to hold professional titles (–0.097, $p < 0.01$) and academic backgrounds (–0.140, $p < 0.01$) than male CEOs. By contrast, in nonfamily firms, women are more likely than men to hold academic backgrounds (+0.024, $p < 0.10$). The corresponding difference-in-differences estimates for academic backgrounds (–0.164, $p < 0.01$) reinforce the interpretation that family firms set lower thresholds for women with family ties. Overall, the difference-in-differences tests for age, professional titles, education level, and academic background suggest that family firms with family-tied CEOs are more accommodating to female CEOs, thereby creating a favorable environment for women's advancement to leadership positions. In summary, Tables 5 and 6 support the view that family firms create a more conducive environment for female family members, reducing the need for only exceptionally qualified women to attain executive roles.

[Table 6 to be inserted here]

C. Family Firms with Outside CEOs

Due to concerns about family control and consanguinity, family firms tend to exhibit lower levels of gender bias in management selection, particularly when competition between sons and daughters is eliminated under China's one-child policy (Cao, Cumming, and Wang (2015)). In contrast, family firms selecting CEOs from outside the family may exhibit greater gender bias. Accordingly, we expect female CEOs without family ties to have a positive effect on firm performance in family firms, consistent with the pattern observed in nonfamily firms.

We re-estimate equation (1) using the sample of family firms led by CEOs without family

ties. Columns (1) and (3) of Table 7 present the results for this sample. The coefficients on Female CEO are significantly positive, with significance at the 10% level for *ROE* and the 5% level for *EPS*. These findings indicate that female CEOs positively affect firm performance, similar to the results observed in nonfamily firms.

[Table 7 to be inserted here]

Columns (2) and (4) report the regression results for the sample comprising nonfamily firms and family firms that appointed CEOs without family ties, incorporating interaction terms between *Family* and *Female CEO*. The coefficients on *Female CEO* again reveal a significant positive effect, while the coefficients of the interaction terms are not significantly different from zero. This suggests that the negative moderating effect of family firms on the positive impact of female CEOs on firm performance is absent when female CEOs are not family members.

Overall, our results shed light on the sources of the gender gap in firm performance. We find that nonfamily firms and family firms with nonfamily CEOs impose higher barriers on women in executive selection, such that female CEOs in these settings are positively and significantly associated with improved firm performance. By contrast, family firms led by family-tied CEOs provide a more conducive environment for female executives, and the positive effect of female CEOs on firm performance becomes negligible. This divergence suggests that the performance gap between male and female CEOs is less likely to stem from inherent psychological (supply-side) differences between men and women; otherwise, the divergence would appear more consistently across settings. Instead, the evidence points to demand-side factors, such as gender bias in CEO selection.

VI. One-Child policy, Female CEOs, and Firm Performance

A. CEO Born after One-Child Policy

In this section, we first examine whether being born after the implementation of the one-child policy affects the gender gap in firm performance among CEOs. Because social expectations regarding gender roles shifted for individuals born after the policy's introduction (Chen, Ying, Wu, and You (2021)), this factor may influence gender differences in leadership outcomes. To test this, we include a dummy variable, *Post OCP CEO*, and its interaction with *Female CEO* in equation (1). *Post OCP CEO* equals one if the CEO of firm *i* in year *t* was born after 1979, the year the policy was implemented, and zero otherwise.

Table 8 reports the regression results. Consistent with prior findings, the coefficients on *Female CEO* are positive and significant across both specifications, indicating that firms led by female CEOs exhibit higher *ROE* and *EPS*. The coefficients on the interaction term between *Post OCP CEO* and *Female CEO* are statistically insignificant in both *ROE* and *EPS* regressions, suggesting that being born after the implementation of the policy does not significantly alter the performance effect of female CEOs. The coefficients on *Post OCP* are negative, and the effect is statistically significant at the 1% level in the *EPS* regression. This result indicates that CEOs born after the implementation of the one-child policy underperform relative to those born before the policy, which may be attributable to the evidence that only-child CEOs tend to underperform relative to other CEOs (Wang, Gonzalez, Hagendorff, Sila (2025)).

[Table 8 to be inserted here]

At this stage, we do not find a significant impact of the one-child policy on the relationship between female CEOs and firm performance. As mentioned earlier, the policy has complex and sometimes contradictory effects on gender bias in China. On one hand, it reinforces traditional son preference, contributing to a severely skewed sex ratio in some provinces (Ebenstein (2010), Almond, Li, and Zhang (2019)). On the other hand, the policy inadvertently promotes gender parity in education and leadership by encouraging greater investment in daughters as

sole heirs ((Fong (2002), Huang, Lei, and Sun (2016)). Moreover, variation in enforcement across regions and over time may have led to heterogeneous policy effects.[17] Given this context-dependent nature of the policy's impact, we next examine whether variation in its enforcement generated differential effects.

B. One Child Policy Intensity

To differentiate the effect of the one-child policy intensity on the gender gap in firm performance, we follow Ebenstein (2010) and Wang, Gonzalez, Hagendorff, and Sila (2025) and use financial penalties and fertility targets as two measures of policy intensity. Specifically, we construct two variables to capture stricter policy enforcement. *High OCP Fine* is a dummy variable equal to one if the financial penalty for an additional birth in the CEO's birth province and year exceeds the median penalty across all provinces in the same year. *Strict Fertility Target* is a dummy variable equal to one if the fertility target in the CEO's birth province is set at one. Table 9 reports the regression results.

[Table 9 to be inserted here]

Panel A of Table 9 reports the results when one-child policy intensity is measured by financial penalties. We find that the coefficients on *Female CEO* are positive in the *EPS* regression but negative in the *ROE* regression, both with weak significance. This result does not overturn our earlier findings. We further observe that the coefficients on the interaction between *Female CEO* and *High Fine* are positive, indicating that female CEOs outperform male CEOs in provinces with higher fines. More importantly, the coefficients on the triple interaction term, *Post OCP CEO* × *High OCP Fine* × *Female CEO*, are negative and statistically significant for both ROE (–0.132, $p < 0.01$) and EPS (–0.413, $p < 0.05$). These

[17] For example, according to Li (1995), the policy was ineffective in parts of Hebei Province during the 1980s because the provincial government did not impose penalties on many families who violated it.

results indicate that female CEOs born after the implementation of the one-child policy in provinces with stricter enforcement experience a significantly diminished positive effect on firm performance. This finding suggests that harsher enforcement of the one-child policy may have reduced gender bias, meaning fewer cases in which only exceptionally capable women advanced to CEO positions, thereby diminishing the superior performance typically associated with female CEOs. Panel B of Table 9 reports the results when one-child policy intensity is measured by fertility target. The significantly negative coefficients on the triple interaction term, *Post OCP CEO* × *Strict Fertility Target* × *Female CEO*, further support our argument.

Overall, Table 9 demonstrates that the intensity of the one-child policy influences the gender gap in firm performance. Beyond enforcement intensity, another important channel through which the policy may have shaped gender disparities is its impact on the male-to-female birth ratio. We therefore examine whether variation in the male-to-female birth ratio following the policy is associated with differences in the gender gap in firm performance.

C. Male-to-Female Birth Ratio Following the Policy

Gender bias in Chinese society is reflected in the country's high male-to-female birth ratio, a phenomenon that has drawn significant scholarly attention (see, for example, Almond, Li, and Zhang (2019)). As shown in Figure 1, China's male-to-female birth ratio has remained consistently above the natural benchmark of 1.05 (i.e., 105 male births per 100 female births).[18] Moreover, the one-child policy and son preference interacted, with the implementation of the policy coinciding with a sharp and prolonged increase in the male-to-female birth ratio. In this section, we examine whether the male-to-female birth ratio affects our findings.

For the analysis, we construct the variable *High Boy Ratio*, which equals one if the male-

[18] The natural benchmark of 1.05 is derived from sex ratio at birth data provided by Our World in Data (2025), which adapts original statistics from the United Nations (archived September 3, 2025).

to-female birth ratio in the CEO's province and year of birth exceeds 1.07, and zero otherwise.[19] Our sample includes CEOs born between 1933 and 1995. To obtain provincial-level newborn sex ratio data for this period, we follow the methodology of Almond, Li, and Zhang (2019) using data from the 1990 and 2000 Chinese population censuses. Specifically, from the 1990 census, we recorded the sex ratios for the 0-4, 5-9, and 10-14 age groups in each province to estimate newborn sex ratios for the years 1986-1990, 1981-1985, and 1979-1980, respectively. Similarly, from the 2000 census, we used the sex ratios of children aged 5-9 to estimate newborn sex ratios for 1991-1995. If $High_boy_ratio$ equals 1, it indicates that the CEO was born in a cultural environment with a stronger preference for male children, where female CEOs would likely face more pronounced gender bias as they grew up.

Table 10 reports the results. The coefficients on the triple interaction term, *Post OCP CEO* × *High Boy Ratio* × *Female CEO*, are significantly positive: 0.081 ($p < 0.01$) for the *ROE* regression and 0.241 ($p < 0.05$) for the *EPS* regression. In addition, the coefficients on *Female CEO* × *High Boy Ratio* are positive and significant at the 10% level in the *EPS* regression. Overall, the results suggest that female CEOs born in provinces with high boy ratios, particularly after the implementation of the one-child policy, are associated with significantly better firm performance.

[Table 10 to be inserted here]

Interestingly, the coefficients on $Post\ OCP\ CEO \times Female_CEO$ are significantly negative: -0.136 ($p < 0.01$) for the *ROE* regression and -0.372 ($p < 0.01$) for the *EPS* regression. This suggests that, on average, the one-child policy has altered gender dynamics in China,

[19] According to the report *Son Preference and the Sex Ratio at Birth: Trends and Regional Differences*, jointly authored by the United Nations Population Fund (UNFPA) and the China Population and Development Research Center, the sex ratio at birth is a key indicator of gender equality at the beginning of life, with a normal range between 1.03 and 1.07. A ratio exceeding 1.07 is therefore classified as high. The full report is available at: https://china.unfpa.org/sites/default/files/pub-pdf/sheng_yu_xing_bie_pian_hao_yu_chu_sheng_ren_kou_xing_bie_bi_-zhong_wen_-final.pdf

potentially easing some constraints on women's access to top management positions and thereby diminishing the positive effect of female CEOs on firm performance among those born after the policy's implementation. However, as indicated by Almond, Li, and Zhang (2019), the one-child policy may also have intensified gender bias in provinces with a stronger preference for sons. Our results consistently show that firms led by female CEOs outperform those led by male CEOs when women face stronger cultural or institutional gender bias.

VII. Conclusion

This paper provides comprehensive evidence on the relationship between CEO gender and firm performance in Chinese listed firms. While prior research often attributes gender gaps in leadership to supply-side factors such as psychological traits, our analysis emphasizes demand-side mechanisms. Specifically, we investigate whether and how workplace gender bias, arising from informal norms and formal institutions, influences the performance effects of female CEOs. Employing multiple identification strategies, we find that firms led by female CEOs outperform those led by male CEOs, particularly in environments characterized by stronger gender bias.

The magnitude of this effect varies systematically with the degree of gender bias embedded in the environment. Three key results emerge. First, female CEOs generate stronger performance in contexts where cultural or institutional gender bias is more severe, such as regions with greater Confucian influence, provinces with pronounced son preference, or nonfamily firms that typically impose stricter barriers on women's access to top management. Second, in family firms with family-tied CEOs, where kinship lowers barriers for female family members to attain leadership positions, the performance premium of female CEOs diminishes. This indicates that the observed advantage is partly attributable to selective promotion under bias. Third, the one-child policy plays a dual role in shaping the effects of gender bias. Stricter

enforcement reduces gender bias and lessens the necessity for only exceptionally capable women to rise to leadership, thereby attenuating the positive performance effect. However, in provinces exhibiting unusually high male-to-female birth ratios after the policy, heightened barriers for women reinforce the positive effect of female CEOs on firm performance.

Taken together, the results paint a consistent picture that the superior performance of female CEOs does not stem from inherent gender differences but from the selection mechanisms that arise under discriminatory environments. In contexts where gender bias is stronger, only the most qualified women advance to CEO positions, producing an observable performance premium. These findings underscore the importance of considering cultural and institutional context when evaluating the role of gender in corporate leadership and suggest that reducing gender bias in executive selection can improve the allocation of managerial talent and ultimately lead to better economic outcomes.

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Appendix. Variable Definitions

This appendix provides detailed descriptions of the variable construction.

Variable	Variable definitions	Data source
Panel A: Firm performance		
ROE	Net income before extraordinary items and preferred dividends/equity.	CSMAR
EPS	Net profit/outstanding shares of common stock.	
Panel B: Family variable		
Family	Dummy equal to one for family firms.	CSMAR
Panel C: CEO characteristics		
Female CEO	Dummy equal to one for female CEOs.	CSMAR
CEO Age	Age of CEO.	
Education	1 for specialized secondary education and below, 2 for short-cycle higher education, 3 for bachelor's degree, 4 for master's degree (including MBA), 5 for doctorate and above.	
Professional Title	Dummy set to one if the CEO has a professional title (like lawyer, accountant, and senior engineer).	
Overseas Experience	Dummy set to one if the CEO has overseas experience (overseas work or overseas study).	
Academic Background	Dummy set to one 1 if the CEO has an academic background (teaching in colleges or universities, working in scientific research institutes, or engaging in research work for associations).	
Financial Background	Dummy set to one if if the CEO has a financial background (experiences in regulatory commission, policy bank, commercial bank, insurance company, securities company, fund management company, securities depository, and clearing company, futures company, investment bank, trust company, investment management company, exchange and other financial institutes).	
CEO Pay	The natural log of CEO cash compensation.	
Panel D: Firm characteristics		
Firm Age	The natural log of the number of years that a firm is listed on the exchange.	CSMAR
TMT Size	The natural log of the number of the top management team.	
Growth	The growth rate of total operating income, calculated as (operating income in year t minus operating income in year t-1)/operating income in year t−1.	
Shareholders	The natural log of the number of shareholders.	
Duality	Dummy set to one if the CEO is also the board chair.	
%_Management	The percent of shares owned by the management team.	
%_Independent	The ratio of independent directors, calculated as the number of independent directors/the number of directors.	
%_Female Manager	The ratio of female managers, calculated as the number of female managers/the number of managers.	

Employee Count	The natural log of the number of employees.	
Size	The natural log of the company's total assets.	
Leverage	The book value of debt divided by total asset.	
Panel E: Other variables		
ROE growth	The percentage change in ROE with respect to the previous fiscal year.	CSMAR
ROIC	Return on invested capital equals net income plus finance costs, divided by invested capital.	
ROS	Return on sales is calculated by dividing operating profit by net sales.	
IndGenderRatio	The number of female employees in an industry divided by the number of male employees in the same industry.	China Labor Statistical Yearbook
Confucianism	Confucianism variables based on Confucianism centers, measured as: $Confucianism_{i,t} = \frac{Max_DIS_t - DIS_{i,t}}{Max_DIS_t - Min_DIS_t}$ $DIS_{i,t}$ is the average geographic distance between the headquarter of firm *i* in year *t* and the 9 Confucianism centers in China (Qufu, Luoyang, Chengdu, Sanming, Longyan, Dongtai, Ningbo, Shaoxing, Linchuan). Max_DIS_t and Min_DIS_t refer to the maximum and minimum values of $DIS_{i,t}$ across all firms in year *t* (Du, 2015).	Manually collected/ CNRDS
Post OCP CEO	Dummy set to 1 if the CEO was born after the implementation of the one-child policy.	1990 Chinese census
High OCP Fine	Dummy set to 1 if the financial penalty for an extra birth in the CEO's birth province and year exceeds the median penalty across all provinces in the same year.	China Population Statistics Yearbook
High Boy Ratio	Dummy set to 1 if the male-to-female newborn ratio in the CEO's birth province and year exceeds 1.07, and 0 otherwise.	
Strict Fertility Target	Dummy variable equal to 1 if the fertility target in the CEO's birth province is set at one.	Ebenstein (2010)

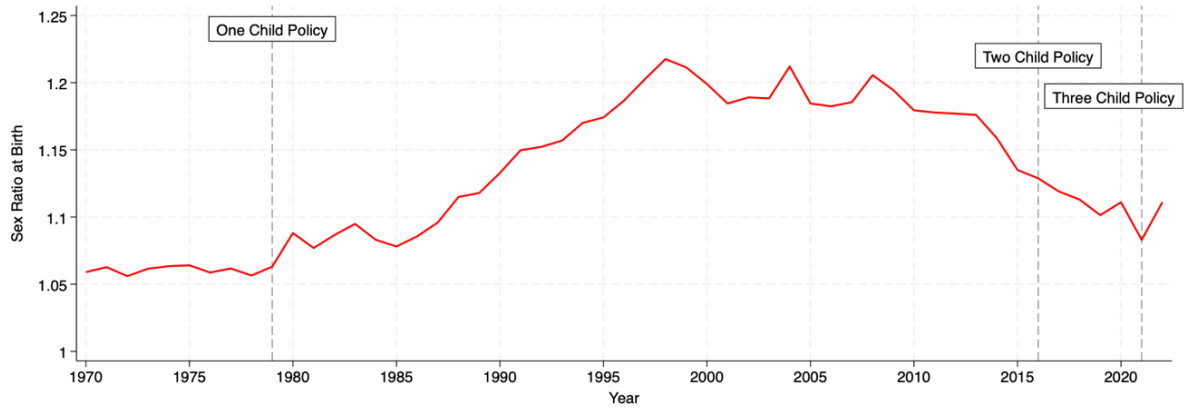


Figure 1: Time Trends in Sex Ratio at Birth (Males per Female)

The figure illustrates the trends in the sex ratio at birth (male births per female births) from 1970 to 2021. The one-child policy, two-child policy, and three-child policy were implemented by the Chinese government in 1979, 2016, and 2021, respectively.

Table 1: Descriptive Statistics

The table presents descriptive statistics for 30,763 firm-years from 2008 to 2021. Panel A reports the results for the full sample, while Panel B presents results divided by CEO gender. Variable definitions are in the Appendix. The symbols ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Descriptive Statistics for the Full Sample

	Mean	Std	Min	Median	Max	N
ROE	0.064	0.113	−0.999	0.069	0.877	30,763
EPS	0.391	0.525	−1.491	0.287	3.193	30,763
Family	0.566	0.496	0.000	1.000	1.000	30,763
Female CEO	0.065	0.246	0.000	0.000	1.000	30,763
CEO Age	49.697	6.663	24.000	50.000	81.000	30,760
Education	3.459	0.863	1.000	4.000	5.000	23,837
Professional Title	0.471	0.499	0.000	0.000	1.000	30,763
Overseas Experience	0.083	0.276	0.000	0.000	1.000	30,763
Academic Background	0.182	0.386	0.000	0.000	1.000	30,763
Financial Background	0.052	0.223	0.000	0.000	1.000	30,763
CEO Pay	13.078	1.992	0.000	13.309	17.373	30,700
Firm Age	2.167	0.761	0.693	2.303	3.466	30,763
TMT Size	1.961	0.309	0.693	1.946	3.784	30,763
Growth	0.337	0.876	−1.897	0.130	9.971	30,763
Shareholders	10.411	0.903	7.746	10.364	14.419	30,761
Duality	0.263	0.440	0.000	0.000	1.000	30,763
%_Management	0.125	0.192	0.000	0.003	0.900	29,793
%_Independent	0.374	0.055	0.000	0.333	0.800	30,763
%_Female Manager	0.186	0.113	0.000	0.167	0.722	30,763
Employee Count	7.690	1.280	2.303	7.621	13.223	30,743
Size	22.194	1.317	17.641	22.012	28.548	30,763
Leverage	0.429	0.202	0.007	0.426	0.986	30,763

Panel B: Descriptive Statistics by CEO Gender

	Male			Female			
	Mean	Std	N	Mean	Std	N	Difference
	(1)	(2)	(3)	(4)	(5)	(6)	(1) − (4)
ROE	0.064	0.112	28,778	0.066	0.120	1,985	−0.002
EPS	0.389	0.523	28,778	0.421	0.559	1,985	−0.032***
Family	0.555	0.497	28,778	0.722	0.448	1,985	−0.167***
CEO_Age	49.756	6.630	28,778	48.836	7.066	1,982	0.920***
Education	3.464	0.862	22,206	3.398	0.871	1,631	0.066***
Professional Title	0.476	0.499	28,778	0.397	0.490	1,985	0.079***
Overseas Experience	0.082	0.274	28,778	0.106	0.308	1,985	−0.024***
Academic Background	0.183	0.387	28,778	0.160	0.366	1,985	0.023***
FinBack	0.051	0.221	28,778	0.069	0.253	1,985	−0.017***
Firm Age	2.172	0.759	28,778	2.088	0.780	1,985	0.084***
TMT	1.966	0.309	28,778	1.890	0.297	1,985	0.076***
Growth	0.330	0.857	28,778	0.431	1.110	1,985	−0.101***
Shareholders	10.424	0.905	28,776	10.229	0.855	1,985	0.195***
Duality	0.265	0.441	28,778	0.223	0.416	1,985	0.042***
%_Management	0.123	0.190	27,846	0.163	0.218	1,947	−0.040***
%_Independent	0.373	0.055	28,778	0.383	0.057	1,985	−0.010***
%_Femalemanager	0.179	0.110	28,778	0.276	0.119	1,985	−0.096***
Employees	7.707	1.277	28,759	7.456	1.308	1,984	0.250***
Size	22.209	1.321	28,778	21.979	1.232	1,985	0.230***
Leverage	0.431	0.202	28,778	0.409	0.199	1,985	0.022***

Table 2: CEO Gender and Firm Performance

This table presents results from OLS regressions of the firm performance on an indicator for female CEOs and controls. Variable definitions are in the Appendix. We include industry and year fixed effects in all models. Standard errors (in parentheses) are robust and clustered by firm and year. *, **, *** indicate statistical significance level at 10%, 5%, and 1%, respectively.

	ROE	EPS
	(1)	(2)
Female CEO	0.008**	0.090***
	(0.004)	(0.025)
CEO Age	0.001*	0.001
	(0.000)	(0.001)
Education	−0.003	−0.019***
	(0.002)	(0.006)
Professional Title	−0.002	0.025**
	(0.004)	(0.011)
Overseas Experience	−0.004	0.032
	(0.005)	(0.023)
Academic Background	0.005	−0.012
	(0.004)	(0.014)
Financial Background	−0.009	0.012
	(0.006)	(0.024)
CEO Pay	0.007***	0.032***
	(0.001)	(0.004)
Firm Age	−0.000	0.040***
	(0.002)	(0.013)
TMT Size	0.018***	−0.028
	(0.006)	(0.023)
Growth	0.000	0.000
	(0.000)	(0.000)
Shareholders	−0.043***	−0.197***
	(0.003)	(0.019)
Duality	−0.008	0.017
	(0.007)	(0.013)
%_Management	0.024***	−0.019
	(0.006)	(0.039)
%_Independent	−0.092***	0.109
	(0.034)	(0.119)
%_Female Manager	0.009	−0.088*
	(0.012)	(0.047)
Employee Count	0.010***	0.036***
	(0.002)	(0.008)
Size	0.053***	0.212***
	(0.005)	(0.020)
Leverage	−0.368***	−0.835***
	(0.044)	(0.068)
ROE_0	0.092***	
	(0.021)	
EPS_0		0.607***
		(0.101)
Industry FE	Yes	Yes
Year FE	Yes	Yes
Intercept	−0.660***	−2.840***
	(0.077)	(0.231)
N	23,801	23,837
adj. R^2	0.078	0.218

Table 3: CEO gender, Confucian Culture, and Firm Performance

This table presents results from OLS regressions examining how the Confucian culture influences the relationship between female CEOs and firm performance. *CONF* is a variable representing Confucianism, constructed based on the distance between a firm's headquarters and Confucianism centers in China. A higher *CONF* value indicates a stronger influence of Confucian culture. Detailed definitions for the variables are provided in the Appendix. We include industry and year fixed effects in all models. Standard errors (in parentheses) are adjusted for potential heteroskedasticity and clustered by firm and year. *, **, *** indicate statistical significance level at 10%, 5%, and 1%, respectively.

	ROE	EPS
	(1)	(2)
Female CEO×Confucianism	0.106***	0.332**
	(0.031)	(0.154)
Female CEO	0.085***	0.311***
	(0.023)	(0.112)
Confucianism	−0.043***	−0.067
	(0.011)	(0.046)
Control	Yes	Yes
Industry FE	Yes	Yes
Year FE	Yes	Yes
N	23,426	23,379
Adj. R^2	0.082	0.268

Table 4: CEO Gender and Firm Performance: Family Firms with Family-member CEOs vs. Nonfamily Firms

This table presents results from OLS regressions examining whether CEOs with family ties influence the relationship between female CEOs and firm performance. Variable definitions are in the Appendix. Panel A reports the results including the interaction term between *Family* and *Female CEO*. Panel B presents the subsample analysis by firm type (family firms with ties vs. nonfamily firms) and reports the difference in the coefficients of *Female CEO* between these two groups (Diff. in Coef.), along with the corresponding p-value. We include industry and year fixed effects in all models. Standard errors (in parentheses) are robust and clustered by firm and year. *, **, *** indicate statistical significance level at 10%, 5%, and 1%, respectively.

Panel A: Full-sample analysis incorporating the interaction term

	ROE	EPS
	（1）	（2）
Female_CEO×Family	−0.020***	−0.121***
	(0.008)	(0.047)
Female CEO	0.019***	0.150***
	(0.006)	(0.035)
Family	0.016***	−0.020
	(0.004)	(0.017)
Control	Yes	Yes
Industry FE	Yes	Yes
Year FE	Yes	Yes
N	16,751	16,785
adj. R^2	0.160	0.318

Panel B: Subsample analysis

	ROE		EPS	
	（1）	（2）	（3）	（4）
	Family	Nonfamily	Family	Nonfamily
Female CEO	0.016	0.033**	0.045	0.139***
	(0.019)	(0.015)	(0.041)	(0.035)
Diff. in Coef.	−0.017**		−0.094**	
(P-value)	(0.0294)		(0.0456)	
Control	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	7,757	8,994	7,762	9,023
adj. R^2	0.056	0.057	0.378	0.219

Table 5: The Determinants of Female CEO

The table presents results from probit regressions of Female CEO. The dependent variable is an indicator set to one if the CEO is female. Variable definitions are in the Appendix. In Panel A, we present the full sample results. In Panel B, we report the results after matching family firms and nonfamily firms using propensity score matching (PSM), based on firm characteristics, industry fixed effects, and year fixed effects. We include industry and year fixed effects in all models. Standard errors (in parentheses) are robust and clustered by firm and year. *, **, *** indicate statistical significance level at 10%, 5%, and 1%, respectively.

Panel A: Full-sample analysis

	Dependent Variable = 1 for Female CEOs				
	(1)	(2)	(3)	(4)	(5)
Family	0.181***	0.140***	0.339***	0.317***	0.325***
	(0.036)	(0.049)	(0.055)	(0.068)	(0.069)
CEO Age		−0.005		0.000	−0.000
		(0.003)		(0.003)	(0.004)
Education		0.057**		0.077***	0.078***
		(0.023)		(0.025)	(0.026)
Professional Title		−0.160***		−0.136***	−0.142***
		(0.047)		(0.050)	(0.052)
Overseas Experience		−0.179***		−0.254***	−0.267***
		(0.062)		(0.072)	(0.074)
Academic Background		−0.161***		−0.151***	−0.144***
		(0.050)		(0.054)	(0.055)
Financial Background		−0.257***		−0.204**	−0.217**
		(0.089)		(0.095)	(0.097)
CEO Pay		−0.006		−0.005	−0.007
		(0.012)		(0.013)	(0.013)
Firm Age			0.166***	0.157***	0.161***
			(0.032)	(0.036)	(0.046)
TMT Size			−0.398***	−0.277***	−0.273***
			(0.061)	(0.073)	(0.075)
Growth			−0.017***	−0.018**	−0.016*
			(0.005)	(0.007)	(0.008)
Shareholders			−0.068**	−0.030	−0.026
			(0.030)	(0.035)	(0.036)
Duality			−0.438***	−0.463***	−0.455***
			(0.043)	(0.054)	(0.057)
%_Management			−0.269**	−0.240**	−0.283**
			(0.105)	(0.118)	(0.131)
%_Independent			1.351***	2.098***	2.162***
			(0.304)	(0.344)	(0.352)
%_Female Manager			2.752***	2.671***	2.752***
			(0.157)	(0.187)	(0.192)
Employees Count			0.056***	0.057**	0.059**
			(0.022)	(0.027)	(0.028)
Size			0.004	0.009	0.000
			(0.028)	(0.034)	(0.036)
Leverage			−0.292***	−0.521***	−0.477***
			(0.108)	(0.127)	(0.132)
Female CEO_0	2.343***	2.578***	2.334***	2.589***	2.377***
	(0.043)	(0.051)	(0.046)	(0.055)	(0.057)
L.ROE					0.216
					(0.143)
Industry FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Intercept	−1.626***	−1.343***	−1.926***	−2.763***	−2.506***

	(0.123)	(0.285)	(0.499)	(0.617)	(0.652)
N	22,899	17,290	22,014	16,754	14,446
Pseudo. R^2	0.373	0.445	0.428	0.492	0.442

Panel B: PSM analysis

	Dependent Variable = 1 for Female CEOs				
	(1)	(2)	(3)	(4)	(5)
Family	0.247***	0.327***	0.244***	0.350***	0.336***
	(0.068)	(0.088)	(0.072)	(0.092)	(0.093)
CEO Characteristics	NO	Yes	NO	Yes	Yes
Firm Characteristics	NO	NO	Yes	Yes	Yes
L.ROE	NO	NO	NO	NO	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
N	4,236	3,394	4,236	3,394	3,004
Pseudo. R^2	0.429	0.429	0.429	0.429	0.429

Table 6: CEO qualification

Table 6 reports descriptive statistics on CEO age and qualifications, comparing male and female CEOs in family firms with family-tied CEOs and in nonfamily firms. Columns (1) to (3) and (4) to (6) present mean values, standard deviations, and sample sizes for male and female CEOs in family firms, with Column (7) showing gender differences. Columns (8) to (13) provide the corresponding figures for nonfamily firms, and Column (15) reports difference-in-differences estimates between the two groups. *, **, *** indicate statistical significance level at 10%, 5%, and 1%, respectively.

	Family firms with family ties							Nonfamily firms							
	Male			Female			Diff.	Male			Female			Diff.	Diff.-Diff.
	(1)	(2)	(3)	(4)	(5)	(6)	(7) = (4)−(1)	(8)	(9)	(10)	(11)	(12)	(13)	(14) = (11)−(8)	(15) = (7)−(14)
Variable	Mean	Std	N	Mean	Std	N		Mean	Std	N	Mean	Std	N		
CEO Age	50.057	7.931	8065	49.048	8.031	793	−1.009***	50.218	5.624	12807	49.842	5.840	551	−0.375	−0.634*
Education	3.381	0.932	6967	3.233	0.956	682	−0.148***	3.591	0.781	8847	3.618	0.718	395	0.026	−0.174***
Professional Title	0.389	0.488	8065	0.293	0.455	793	−0.097***	0.565	0.496	12807	0.510	0.500	551	−0.055**	−0.042
Overseas Experience	0.141	0.348	8065	0.155	0.362	793	0.014	0.046	0.208	12807	0.034	0.183	551	−0.011	0.025
Academic Background	0.357	0.479	8065	0.217	0.412	793	−0.140***	0.107	0.309	12807	0.131	0.337	551	0.024*	−0.164***
Financial Background	0.058	0.235	8065	0.069	0.254	793	0.011	0.047	0.212	12807	0.065	0.247	551	0.018*	−0.007

Table 7: CEO Gender and Firm Performance: Family Firms without Family-member CEOs vs. Nonfamily Firms

This table presents results from OLS regressions examining whether CEOs without family ties influence the relationship between female CEOs and firm performance. Variable definitions are in the Appendix. Standard errors (in parentheses) are robust and clustered by firm and year. *, **, *** indicate statistical significance level at 10%, 5%, and 1%, respectively.

	ROE		EPS	
	(1)	(2)	(3)	(4)
Female CEO×Family		−0.022		−0.121
		(0.018)		(0.091)
Female CEO	0.012*	0.038**	0.127**	0.150*
	(0.006)	(0.016)	(0.057)	(0.071)
Family		0.010		−0.020
		(0.013)		(0.027)
Control	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	7,075	16,746	7,052	16,785
adj. R^2	0.060	0.053	0.166	0.318

Table 8: CEO Gender, One Child Policy, and Firm Performance

This table presents results from OLS regressions examining whether CEOs born after the one-child policy influences the relationship between female CEOs and firm performance. *Post OCP CEO* is a dummy set to one if the CEO was born after the implementation of the one-child policy. Detailed definitions for the variables are provided in the Appendix. We include industry and year fixed effects in all models. Standard errors (in parentheses) are adjusted for potential heteroskedasticity and clustered by firm and year. *, **, *** indicate statistical significance level at 10%, 5%, and 1%, respectively.

	ROE	EPS
	（1）	（2）
Female CEO×Post OCP CEO	0.002	0.284
	(0.018)	(0.216)
Female CEO	0.007***	0.044**
	(0.003)	(0.018)
Post OCP CEO	−0.004	−0.129***
	(0.009)	(0.033)
Control	Yes	Yes
Industry FE	Yes	Yes
Year FE	Yes	Yes
N	23,590	23,622
Adj. R^2	0.077	0.296

Table 9: CEO Gender, One Child Policy Intensity, and Firm Performance

This table presents results from OLS regressions examining whether one-child policy intensity at CEOs' birthplaces influences the relationship between female CEOs and firm performance. Panel A and Panel B repot the results using sibling penalty and fertility target, respectively, to measure one-child policy intensity. *Post OCP CEO* is a dummy set to one if the CEO was born after the implementation of the one-child policy. *High OCP Fine* is a dummy set to one if the financial penalty for an extra birth in the CEO's birth province and year exceeds the median penalty across all provinces in the same year. *Strict Fertility* is a dummy variable equal to one if the fertility target in the CEO's birth province is set at one. Detailed definitions for the variables are provided in the Appendix. We include industry and year fixed effects in all models. Standard errors (in parentheses) are adjusted for potential heteroskedasticity and clustered by firm and year. *, **, *** indicate statistical significance level at 10%, 5%, and 1%, respectively.

Panel A: Policy intensity measured by sibling penalty

	ROE	EPS
	(1)	(2)
Female CEO×Post OCP CEO×High OCP Fine	−0.132***	−0.413**
	(0.045)	(0.203)
Female CEO×High Fine	0.030**	0.081
	(0.014)	(0.056)
Female CEO×Post OCP CEO	0.030	0.030
	(0.043)	(0.127)
Post OCP CEO×High_fine	0.063	0.313**
	(0.039)	(0.125)
Female CEO	−0.019*	0.044*
	(0.011)	(0.026)
High Fine	−0.003	−0.004
	(0.004)	(0.017)
Post OCP CEO	−0.050	−0.346**
	(0.036)	(0.158)
Control	Yes	Yes
Industry FE	Yes	Yes
Year FE	Yes	Yes
N	8,005	7,982
Adj. R^2	0.185	0.302

Panel B: Policy intensity measured by fertility target

	ROE	EPS
	(1)	(2)
Female CEO×Post OCP CEO×Strict Fertility Target	−0.178***	−1.708***
	(0.057)	(0.265)
Female CEO×Post OCP CEO	−0.038	−0.102
	(0.032)	(0.101)
Post OCP CEO×Strict Fertility Target	−0.025	−0.171
	(0.041)	(0.205)
Female CEO×Strict Fertility Target	0.009	0.213**
	(0.018)	(0.095)
Female CEO	−0.005	0.025
	(0.008)	(0.052)
Strict Fertility Target	−0.005	−0.001
	(0.005)	(0.015)
Post OCP CEO	−0.009	−0.115*
	(0.019)	(0.061)
Control	Yes	Yes
Industry FE	Yes	Yes
Year FE	Yes	Yes
N	8,005	7,982
Adj. R^2	0.185	0.303

Table 10: One-Child Policy, Gender Imbalance at Birth, and Female CEO Performance

This table presents results from OLS regressions examining whether gender imbalance in birth ratios at CEOs' birthplaces after the one-child policy affects the relationship between female CEOs and firm performance. *Post OCP CEO* is a dummy set to one if the CEO was born after the implementation of the one-child policy. *High Boy Ratio* is a dummy variable set to one if the male-to-female birth ratio in the CEO's birth province and year exceeds 1.07. Detailed definitions for the variables are provided in the Appendix. We include industry and year fixed effects in all models. Standard errors (in parentheses) are adjusted for potential heteroskedasticity and clustered by firm and year. *, **, *** indicate statistical significance level at 10%, 5%, and 1%, respectively.

	ROE	EPS
	(1)	(2)
Female CEO×Post OCP CEO×High Boy Ratio	0.081***	0.241**
	(0.028)	(0.103)
Female CEO×Post OCP CEO	−0.136***	−0.372***
	(0.034)	(0.085)
Post OCP CEO×High Boy Ratio	0.062***	−0.004
	(0.017)	(0.043)
Female CEO×High Boy Ratio	0.006	0.065*
	(0.012)	(0.034)
Female CEO	−0.005	−0.023
	(0.008)	(0.021)
High Boy Ratio	−0.000	−0.005
	(0.003)	(0.009)
Post OCP CEO	−0.061**	−0.088
	(0.029)	(0.057)
Control	Yes	Yes
Industry FE	Yes	Yes
Year FE	Yes	Yes
N	7,960	7,949
Adj. R^2	0.183	0.295

Internet Appendix for "Gender Bias and the Firm Performance Gap"

Table IA.1. CEO Gender and Firm Performance: Alternative Models

This table presents robustness checks for the regression analysis reported in Table 2 and examines the effect of CEO gender on firm performance across alternative model specifications. Panel A reports results using return on equity (ROE) as the dependent variable, while Panel B reports results using earnings per share (EPS). Column (1) presents estimates from the propensity-score-matched sample. Column (2) shows results from a dynamic panel generalized method of moments (GMM) estimation that incorporates past performance into the baseline regression. Column (3) reports findings from the firm fixed effects model. Column (4) provides estimates based on one-year lagged control variables and one-year lagged *Female CEO*. Detailed definitions for the variables are provided in the Appendix. Standard errors (in parentheses) are adjusted for potential heteroskedasticity and clustered by firm and year. *, **, *** indicate statistical significance level at 10%, 5%, and 1%, respectively.

Panel A: Firm performance is measured by ROE

	PSM	GMM	Firm fixed effects	Lag one period model
	（1）	（2）	（3）	（4）
Female CEO	0.011**	0.932***	0.015**	0.016***
	(0.005)	(0.273)	(0.006)	(0.004)
Y_0	0.151***	−0.199		0.226***
	(0.040)	(0.334)		(0.029)
L.EPS		−0.573***		
		(0.101)		
L2.EPS		−0.178**		
		(0.070)		
AR (1) test (p-value)		0.010***		
AR (2) test (p-value)		0.263		
Hansen test (p-value)		0.108		
Diff-in-Hansen tests (p-value)		0.244		
Control	Yes	Yes	Yes	Yes
Firm	No	No	Yes	No
Industry	Yes	Yes	No	Yes
Year	Yes	Yes	Yes	Yes
N	3,312	20,643	23,426	21,151
adj. R^2	0.190		0.227	0.039

Panel B: Firm performance is measured by EPS

	PSM	GMM	Firm fixed effects	Lag one period model
	（1）	（2）	（3）	（4）
Female CEO	0.094***	4.568***	0.072***	0.116***
	(0.028)	(1.154)	(0.021)	(0.029)
Y_0	0.438***	−0.382		0.403***
	(0.069)	(0.374)		(0.054)
L.EPS		−0.290***		
		(0.054)		
L2.EPS		−0.654***		
		(0.096)		
AR (1) test (p-value)		0.000***		
AR (2) test (p-value)		0.873		
Hansen test (p-value)		0.813		
Diff-in-Hansen tests (p-value)		0.379		
Control	Yes	Yes	Yes	Yes
Firm	No	No	Yes	No
Industry	Yes	Yes	No	Yes
Year	Yes	Yes	Yes	Yes
N	3,314	20,512	23,379	21,188
adj. R^2	0.253		0.535	0.181

Table IA.2. Alternative Measures of Firm Performance

This table shows the results of the robustness tests with alternative measurements of firm performance. In columns (1), the dependent variable is ROE growth rate (*ROE growth*), in columns (2), the dependent variable is return on invested capital (*ROIC*), and in columns (3), the dependent variable is the return on sales (*ROS*). All regressions control for year fixed effects and industry fixed effects. Detailed definitions for the variables are provided in the Appendix. Standard errors (in parentheses) are adjusted for potential heteroskedasticity and clustered by firm and year. *, **, *** indicate statistical significance level at 10%, 5%, and 1%, respectively.

	ROE growth	ROIC	ROS
	(1)	(2)	(3)
Female CEO	6.600*	0.006**	0.023**
	(3.901)	(0.003)	(0.012)
Control	Yes	Yes	Yes
Industry	Yes	Yes	Yes
Year	Yes	Yes	Yes
N	16,162	23,426	23,416
adj. R^2	0.004	0.125	0.069

Table IA.3. Instrumental Variable Approach

This table presents the control function method for instrumental variable estimation results. Panel A reports the results from the Probit regressions with the female CEO dummy (*Female CEO*) as the dependent variable and Wald test statistics from the first-stage regressions. Panel B report the results for the second-stage regressions with *ROE* and *EPS* as the dependent variables. The instrumental variable is the ratio of female to male employment in the industry. All regressions include year fixed effects and industry fixed effects. Detailed definitions for the variables are provided in the Appendix. Standard errors (in parentheses) are adjusted for potential heteroskedasticity and clustered by firm and year. *, **, *** indicate statistical significance level at 10%, 5%, and 1%, respectively.

Panel A: First step

	Female CEO
IndGenderRatio	0.363***
	(0.105)
Control	Yes
Industry	Yes
Year	Yes
Cragg-Donald Wald F statistic (chi2)	17.8558>10
N	23,840
Pseudo R^2	0.401

Panel B: Second stage of instrumented Female CEO

	ROE	EPS
	（1）	（2）
Female CEO	0.015***	0.085***
	(0.005)	(0.021)
Residual	−0.020*	−0.048
	(0.010)	(0.046)
Control	Yes	Yes
Industry	Yes	Yes
Year	Yes	Yes
N	23,426	23,379
Adj. R^2	0.078	0.296