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Political Connections and Gender Diversity: Exploring Corporate Risk

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ABSTRACT

Employing panel data of US firms (1992-2018), we examine total risk for politically connected firms, formed through campaign contributions, and whether these connections impact the negative association between female presence in the TMT and total risk. The results show that corporate political connections are related to lower total, systematic, and idiosyncratic risk. Their interaction with TMT gender diversity further reduces total risk, by lowering idiosyncratic risk. This suggests that political connections have more profound benefits by influencing asset prices, as a non-market strategy reducing stock returns volatility. They also strengthen and complement the negative association between TMT gender diversity and total risk.

Keywords: Corporate Political Connections, Gender Diversity, Corporate Risk, Systematic Risk, Idiosyncratic Risk
JEL Classifications: D72, G32, G38, J16

1. INTRODUCTION

The corporate political connections (CPCs hereafter) literature has predominantly focused on the advantages such connections offer to firms. These include preferential access to finance, increased bailout likelihood (Claessens et al., 2008; Faccio et al., 2006), and access to policy information (Grossman and Helpman, 1994), which are found to reduce financial/credit (Houston et al., 2014), and policy uncertainty risks (Bradley et al., 2016; Wellman, 2017; Pham, 2019). Others, however, argue that CPCs can increase agency risk (Den Hond et al., 2014; Torres-Spelliscy, 2016), and call for more awareness and oversite of the risks associated (Bagley et al., 2015). The "grabbing hands" hypothesis, for example, argues that politicians use CPCs to serve their political goals; even if it harms connected firm's value (Shleifer and Vishny, 1998). Despite existing research on the influence of CPCs on different risk types, their impact on firms' total (equity) risk (hereafter total risk) remains understudied.

The current paper's objective is to investigate the effect of CPCs, formed through hard-money contributions to politicians in their (re)election campaigns, by focusing on firms' total risk including its systematic and idiosyncratic components, an important channel of influence on asset pricing. Such investigation reflects arguments that CPCs can be a "helping hand" for firms to gain favours from politicians, influencing firms' outcomes positively (Shleifer and Vishny, 1998), and the use of these risk measures as an evaluation tool allows uncovering the impact of such investment in political capital in mitigating firm's sensitivity to market movements, as opposed to presenting a cost that results in greater firm risk.

High stock returns volatility (a common proxy for total risk) poses a major threat for corporations. Therefore, several studies are dedicated to identifying factors to managing total risk, including those in the corporate governance literature. Findings suggest that female representation in CEO and Top Management Team (hereafter TMT) tend to reduce firm's overall risk (Perryman et al., 2016; Jeong and Harrison 2017). Researchers call for further analysis on what factors might influence (strengthen or weaken) such an association. The current paper's second objective, therefore, is to examines whether CPCs impact the association between female presence in the TMT and firms' total risk, a dimension that has not yet been tackled, to the best of our knowledge.

In pursuing our empirical tests, we employ panel data of non-financial US firms listed in S&P1500 from 1992-2018 from the Federal Election Commission (FEC) datasets[1] and ExecuComp for TMT female proportion, consisting of 30,524 firm-year observations. Overall, the results show that CPCs are related to lower firm risk, whether total, systematic, or idiosyncratic. Furthermore, the interaction between CPCs and female proportion in the TMT results in a further reduction in firms' total risk, suggesting that CPCs strengthen and complement the negative association between the two. This further reduction in total risk is driven by lowering idiosyncratic risk. The results are robust to the use of alternative measures of political connectedness, females' representation, and risk. Our findings, hence, support the investment view and the "helping hand" hypothesis i.e., politically connected firms enjoy not only higher stock returns (Cooper et al., 2010) but also lower stock returns volatility (total risk). This also supports the view that such firms are generally considered as less risky, hence, have a lower cost of equity (Boubakri et al., 2012).

This study builds on previous findings that a combined index of political strategies interacts with reduced policy uncertainty, mitigating systematic but not idiosyncratic risk (Kim et al., 2019). The current paper, however, focuses on a single long-term political strategy (multi-period contributions to political campaigns) which is viewed as important for a successful corporate political strategy (Snyder, 1992). This approach is also considered more objective than individual-level measures, e.g., politician working in a firm (Hill et al., 2014), and measures CPCs at the firm-level, hence, captures a deliberate corporate policy. The current paper also considers the aggregate advantages of CPCs rather than a single favourable outcome (i.e., policy uncertainty reduction). Importantly, it contributes to the governance literature by examining the impact of CPCs on the relationship between gender diversity and firm total risk. This study also contributes to the CPCs literature. Our findings reconcile the contradictory views on the association between CPCs and a firm's outcomes (Shleifer and Vishny, 1998), by presenting evidence that political campaign contributions can have more profound benefits by influencing asset prices, as a non-market strategy reducing stock returns volatility. Hence, contributing also to the risk management literature that forecasts the outcomes of firms' market and non-market strategies (e.g., CSR) to mitigate firm's risk (Harjoto et al., 2015).

Overall, our findings would benefit corporations by highlighting the importance of considering the interaction between gender diversity strategies with other non-market strategies, i.e., political contributions, for risk mitigation. They also provide an additional screening technique for investors when selecting stocks. Policymakers, hence, may mandate the disclosure of political expenditures in the reports of public US firms to enhance transparency.

This reminder of this paper is organized as follows. Section 2 explores the background to this work using pertinent literature and presents the hypotheses development. Section 3 describes the data; Section 4 explains the methodology. Section 5 presents the results and Section 6 concludes.

2. BACKGROUND AND HYPOTHESIS DEVELOPMENT

Shleifer and Vishny (1998) proposed the "grabbing hands" hypothesis arguing that politicians use CPCs as channels to serve their political goals, even if these can harm the connected firm's value and outcome. The "helping hands" hypothesis, however, implies CPCs positively influence firms' outcomes because of favours obtained from politicians (Shleifer and Vishny, 1998). These two-sided hypotheses have been widely used in the Chinese context (Cheung et al., 2010; Wang, 2015; Chen et al., 2017). In the US, studies have focused on testing whether CPCs can pose an agency problem or investment for companies. The agency view focuses on how corporate's managers may seek these connections to serve their own interests, hence, similar to the "grabbing hands" hypothesis can harm the connected firms' outcomes and value. However, the investment view argues that CPCs can be an investment in political capital (Aggarwal et al., 2012), and similar to the "helping hands" hypothesis can result in positive firm outcomes.

While several studies have examined the economic consequences of CPCs generated by political campaign contributions (Cooper et al., 2010), little is known about whether such connections can be associated with firm risk. Findings from the Chinse context suggests that price crash risk reduces when listed privately controlled firms hire politicians as directors but is exacerbated when State-controlled firms do (Lee and Wang, 2016). Nevertheless, it is difficult to apply such findings to the US given the absence of State ownership classifications in the wider corporate sector. The current study, therefore, investigates whether CPCs have an association with firm total risk in the US context, and employs hard-money contributions to politicians in their (re)election campaigns as a proxy for CPCs. The direction of the association, however, is difficult to predict as two possible arguments exist. Under the agency view, firms' long-term connections to politicians may increase agency problems resulting in more fluctuations in stock returns. Hadani and Schuler (2013), for example, find that political investments by a set of 943 S&P 1500 firms are negatively associated with market performance. Such investments, particularly by those with political members on their boards, except in regulated industries, worsen their market and accounting performances. They attributed this to agency problems stemming from managers making risky decisions, prioritising personal interests including ideological beliefs, self-aggrandizement, and

1 The FEC requires that corporate political contributions should come from restricted individuals, namely firms' executive and administrative personnel and their families in addition to stockholders and their families. Notably, decisions regarding Political Action Committees (PACs) and distributing contributions typically come from firms' top executives (Federal Election Commission, 2018).

even their desire to vote. Otchere et al. (2020) find that CPCs encourage higher risk-taking, and that non-connected firms are forced to adopt more conservative strategies given their inability to exploit political rents. Furthermore, managers tend to overvalue political investments, with this being difficult for shareholders to monitor which also adversely impact firm's value. Supporting this, Unsal et al. (2016) find that lobbying expenditures, negatively impact firm value for those with Republican CEOs. Such firms spent much more on lobbying, leading to smaller increases in abnormal returns, lower Tobin's Q, and higher cash holding costs compared to Democratic and apolitical managers. They attributed this to weaker governance and higher agency costs in Republican-leaning firms. Similarly, the "grabbing hands" hypothesis argues that CPCs can result in over-investment problems to satisfy the political agenda, consequently higher firm total risk (Wang, 2015). In Pakistan, Khan (2024) finds evidence on firm's wealth exploitation by politically affiliated individuals. Such risk, however, is mitigated by robust corporate governance practices.

On the other hand, CPCs may support the investment view, where they are considered a "helping hand" in reducing several risk types. Under the resource dependency theory, firms that are reliant on important resources such as credit, information and subsidies controlled by politicians are more likely to form CPCs (Wei et al., 2023). In this, studies argue that building long-term connections to legislators and politicians reduces policy uncertainty risk i.e., better access to information (Wellman, 2017; Pham, 2019; Ovtchinnikov et al., 2020), and that the negative effect of such risk on fixed asset investment is lower for politically connected firms (Liu et al., 2021). Such preferential access to information and the likelihood to potentially shape the regulatory outcome was found to allow managers to adjust unutilised capacity more quickly, resulting in less cost stickiness for lobbying firms (Voshaar et al., 2024). Others show that CPCs reduce credit risk as such firms enjoy preferential access to external finance (Claessens et al., 2008). This is especially true for companies with CPCs as supporters of the government who benefit from government banks' loans and, hence, experience lower financial distress compared to firms with opposition status (Rijanto, 2022). Furthermore, CPCs can reduce bankruptcy risk, as politically connected firms are more likely to be bailed out during financial crisis (Faccio et al., 2006). The reduction of several risk types can, hence, result in lower firm's total risk. This is in line with the economic regulation theory which views CPCs as a means to gain favours from political candidates rather than to influence the election outcome per se (Stigler, 1971). Nevertheless, several studies provide that CPCs can lead to moral hazard problems, hence, increase rather than reduce corporate risk (Chaney et al., 2011; Kostovetsky, 2015; Kim and Zhang, 2016). Despite the opposite directions, the two views indicate an association between the two variables. Hence, we propose:

H1: CPCs are associated with firm total risk.

Firm total risk is commonly defined as the degree to which stock returns fluctuate over time and can be measured by their standard deviation (Jo and Na, 2012)[2]. Total risk is disaggregated into: systematic and idiosyncratic. The former is the sensitivity of a firm to the overall market movements/changes relevant to all industry stocks; the latter is specific to the firm and includes corporate operating strategy, financial policy, and investment strategy (Helfat and Teece, 1987). It is interesting, hence, to investigate whether CPCs are associated with either, or both risks.

As for systematic risk, Norton (1985) argues it is highly influenced by policies and regulations. Studies on CPCs argue that firms financially support legislators' election campaigns as strategy to influence policy outcomes (Hillman and Hitt, 1999). Moreover, firms contribute to political candidates to gain access to information about future government policies, i.e., policy uncertainty reduction (Wellman, 2017; Pham, 2019; Ovtchinnikov et al., 2020). It can be argued, thus, politically connected firms can reduce regulations' burden by influencing policy outcomes and/or alter their decisions according to information about upcoming policies, consequently reducing their sensitivity to systematic risk. However, if most firms within an industry are connected to the same politicians, their systematic risk might not be affected as changes in policies will be captured by the market. On the other hand, even if most firms within an industry are connected to the same politicians, this might not be the case in all industries. Indeed, it is quite difficult to predict the former assumption because politically connected firms are only 10% of the overall US listed firms (Cooper et al., 2010). Hence, when controlling for industry effect, CPCs are expected to be associated with the firm's systematic risk as:

H1a: CPCs are associated with the systematic risk of the firm.

CPCs might be associated with idiosyncratic risk in two possible ways. On the one hand, Kim et al. (2019) argue that a positive association between the two exists and attribute this to the reduced policy uncertainty risk which fosters risky investments i.e., innovation in such firms. In contrast, it can be argued that the advantages generated by CPCs are not limited to policy uncertainty risk reduction. For example, preferential access to external financing (Claessens et al., 2008), lower equity capital cost (Boubakri et al., 2012), and increased bailout likelihood (Faccio et al., 2006), all of which lower idiosyncratic risk. Importantly, not all kinds of innovation increase idiosyncratic risk, as some (e.g., green innovations) tend to reduce it (Lin et al., 2020). Indeed, several studies support the negative association between CPCs and idiosyncratic risk. For example, evidence suggests that CPCs allow banks to gain more profit without greater risk, and that they have less idiosyncratic risk (Braun and Raddatz, 2010). Shares of Chinese politically connected firms are argued to provide a less risky investment opportunity (lower idiosyncratic risk) due to the bailing out advantage (Francis et al., 2009). Such lower idiosyncratic risk was also found in shares of politically connected firms in Hong Kong (Lee and Wei, 2014). In their review, Preuss and Königsgruber (2021) argue that CPCs can have adverse capital market consequences if they are in the form of government ownership, but they appear to be beneficial during adverse circumstances. These positive vs. negative arguments might cancel each other out, resulting in no significant association between the two. However, one of the provided arguments might exist. Hence, we propose:

2 Some studies refer to stock return volatility as a market-based measure of firm total risk to differentiate it from accounting-based risk measures e.g., fluctuations in ROA.

H1b: CPCs are associated with the idiosyncratic risk of the firm.

Firm's total risk is an area of concern in the governance literature. Theories of workplace demographics and diversity suggest that female presence in the TMT generates many advantages (Joshi et al., 2011) such enhancing strategic decisions' quality (Milliken and Martins, 1996; Joshi and Roh, 2009). This is supported by the Upper Echelons Theory, which suggests that top executives' demographics are thought to reflect managers' values and attitudes, and consequently play an essential role in influencing corporate strategic decisions and choices (Hambrick and Mason, 1984).

Research on gender differences suggests that males are greater risk-takers, either because females are more risk-averse (e.g., Croson and Gneezy, 2009; Charness and Gneezy, 2012) or males are overconfident (e.g. Barber and Odean, 2001; Huang and Kisgen, 2013). Specifically, studies examining the impact of female executives on firms' riskiness suggest that they tend to reduce overall risk. For instance, Faccio et al. (2016) found that firms with female CEOs have lower earnings volatility, lower leverage ratio, and higher survival chance. Perryman et al. (2016) and Jeong and Harrison (2017) provided empirical evidence that female presence in the TMT reduces stock returns volatility. Perryman et al. (2016) call for further research into how specific factors influence the negative association observed in their findings. Notably, the effect of CPCs on this association has yet to be investigated.

Building on Perryman et al.'s (2016) and Jeong and Harrison's (2017) findings[3], the current study examines whether or not CPCs impact the association between females in the TMT and total risk. It is argued that the formation of CPCs can be affected by executives' traits; including their risk preference (Wei et al., 2023). One the one hand, due to the protection and reduction of several risk types generated by politically connected firms mentioned above, female executives may view their firms' connections to politicians as a buffer to reduce their risk-aversion and, hence, their over-conservative decisions. Accordingly, CPCs are expected to *weaken* the negative association between female presence in the TMT and firm total risk. On the other hand, Ozer and Alakent (2013) argue that a firm's long-term political contribution may not guarantee a favourable policy change despite significant resource commitments. Therefore, female executives may choose to maintain conservative risk-taking behavior, as they may view those connections as uncertain in securing favors and protections. Accordingly, CPCs are expected to strengthen and complement the effect of female presence in the TMT resulting in a further reduction in firm's total risk. Based on these two arguments, we propose:

H2: CPCs impact the negative association between female representation in the TMT and firm total risk.

3 We follow both studies in measuring female representation in the TMT and total risk. We assume a negative association exists between the two negating the need for a specific testable hypothesis. The multivariate analysis in Table 9 confirms the negative association, although at a lower statistical significance level.

3. DATA AND DESCRIPTIVE STATISTICS

3.1.Sample Selection

To obtain our sample on CPCs, we collect data on corporate hard-money contributions to politicians in their (re)election campaigns, through firms' Political Action Committees (PACs), from the FEC datasets. We use qualified PACs where 50 or more corporation members contributed, following (Pham, 2019). Firms with no political contributions are assigned a value of zero. The data is then merged and reduced to include the S&P1500 firms in ExecuComp for TMT female proportion data. This is then merged with the required financial variables from Compustat. Firms without financial data or classified as financial firms are excluded. The final sample consists of 30,524 firm-year observations of S&P1500 from 1992 to 2018 (Table 1). The unique number of politically connected firms is 653 while those with at least one female in their TMT is 1,605. Firm-year observations with CPCs represent 23% of the full sample, and observations of firms with females in the TMT is 35% (Table 2).

This table reports the number of observations and the unique number of firms based on the existence of CPCs, and females in the TMT. The sample consists of non-financial firms listed in S&P1500 without missing financials in the Compustat database (1992-2018).

3.2. Corporate Political Connections Measures (1st Explanatory Variable)

As mentioned, we use corporate hard-money contributions to political candidates to identify politically connected firms, similarly to Cooper et al. (2010); Pham (2019); Wellman (2017). This approach is considered more objective than individual-

Table 1: Sample screening process for the period of 1992-2018

Sample selection process	No. of observations
All S&P1500 firms available in ExecuComp (1992-2018)	53,006
Merged with political connections data (Observations with missing political contributions are given a value of zero)[4]	53,006
Excluding firms that are not available in Compustat	52,710
Excluding financial firms	43,562
Excluding firm-year observations with missing/zero value in total assets/sales	34,191
Excluding firm-year observations with missing value in (Closing Price, Book value of Equity, and Total Debt)	30,524
Final Sample	30,524

4 The number of firm-year observations with political contributions is 10,533. The remaining (42,473) firm-year observations do not have political contributions.

Table 2: Sample classification

Sample classifications	No. of observations	%	Unique no. of firms
CPC			
Firms with political contributions	6,882	23	653
Firms without political contributions	23,642	77	1,905
Females in the TMT			
Firms with Females in their TMT	10,610	35	1,605
Firms without Females in their TMT	19,914	65	953

level measures, such as a politician working in a firm, used by Faccio (2006) (Hill et al., 2014)[5]. Individual-level measures assume spillover effects into the corporate sphere, whereas firms' contributions are firm-level measures, hence, captures a deliberate corporate policy. Additionally, unlike lobbying, which primarily aim to influence legislative outcomes (Wellman, 2017), hard-money contributions are means to foster relationships with potential key decision-makers, enabling firms to influence legislation and extract information.

Our main measure of CPCs is firms' number of supported candidates via a multi-period time horizon, i.e., PC_Candidate, calculated as the natural logarithm of one plus the total number of political candidates a firm supports over a 6-year window, similarly to (Cooper et al., 2010; Wellman, 2017; Pham, 2019; Ovtchinnikov et al., 2020), and defined as in Appendix A. The total dollar contributions to each candidate over a 6-year window i.e., PC_Financial is a supplementary proxy and used for robustness checks defined as in Appendix A.

3.3. Proportion of Females in the TMT Measures (2nd Explanatory Variable)

Following the Upper Echelons Theory, this study measures the proportion of females in the TMT rather than CEO positions, which is argued to significantly influence corporate strategic decisions (Hambrick and Mason, 1984). Similarly to Baixauli-Soler et al. (2015); Perryman et al. (2016); Fernando et al. (2020), we use Pct_Female presenting female proportion of the TMT of firm i in year t, as reported in ExecuComp, and is alternated with Third_Female, a dummy equal to one if females represent 30% or more of the firm's TMT, for robustness checks.

3.4. Firm Risk Measures (Dependent Variables)

Firm *Total risk* is measured using the natural logarithm of the annualized standard deviation of monthly stock returns over a 5-year window. In the robustness checks, D_Total_Risk is used and calculated as the natural logarithm of the standard deviation of the daily stocks returns over the past 252 days.

Systematic risk is the beta coefficient of the stock market portfolio (β1) generated from regressing firm's monthly excess returns over the past 60 months (5 years) on the Fama and French (1993) three-factor (FF3) model as follows:

$$R_{it} - Rf_t = \alpha_{it} + \beta_1 (RM_t - Rf_t) + \beta_2 SMB_t + \beta_3 HML_t + \epsilon_{it}$$

Where R_{it} is the total return of a stock or portfolio at time *t*. Rf_t is the risk-free rate of return at time *t*. RM_t is the total market portfolio return at time *t*. $R_{it} – Rf_t$ is the expected excess return. $RM_t – Rf_t$ is the excess return on the market portfolio (index). SMB_t is the size premium (small minus big). HML_t is the value premium (high minus low). $\beta_{1,2,3}$ are the factor coefficients, and *t* is the monthly returns over a 5-year rolling window (60 months). Such frequency is argued to provide the most accurate volatility estimator when using historical data (Alford and Boatsman, 1995)[6] .

Idiosyncratic risk is measured as the annualized standard deviation of the residuals from the regression of monthly stock excess returns over the past 60 months on the FF3 model.

The FF3 model was selected given its extensive use in recent years (e.g., Milidonis et al., 2019), and is argued to explain much more of the variation observed in realised returns compared to the Capital Asset pricing Model (CAPM) (Bello, 2008). For robustness checks, the systematic and idiosyncratic risk are also calculated using the CAPM[7] and Fama and French five-factor (FF5) model (Fama and French, 2015).

The three risk measures are obtained from Beta Suite platform, similarly to recent studies (e.g., Bardos et al., 2021; Cheng et al., 2020). Following the literature (e.g., Bernile et al., 2018), total and idiosyncratic risk were then multiplied by the square root of 12 for annualization. The natural logarithm of their annualization is used in the regressions, similarly to Sila et al. (2016). The three measures of risk are defined as in Appendix A.

3.5. Control Variables

We follow the literature in controlling for firm-level variables (e.g., Perryman et al., 2016; Chandra et al., 2002), and some managerial-level ones that affect firm risk. Particularly, management tenure (Sila et al., 2016) and managerial ownership as it has been considered a substantial factor influencing firm risk (Chen and Steiner, 1999).

Overall, 13 control variables are used: *Firm Size, Level of Debt, Earnings Variability, Firm Age, Growth opportunities (MtB ratio), Investment Opportunities (Capex ratio), Actual Growth (Sales Growth), Free cashflow (Surplus Cash), Profitability (ROA), Intangible Capital (Intangible assets), Diversification (number of business segments),* and *two Managerial risk-related attributes (Average Management Tenure,* and *Average Managerial Ownership*). A summary of their definitions and calculations is provided in Appendix A.

Table 3 summarizes the current study's sample statistics, consisting of publicly traded non-financial US firms listed in S&P1500 from 1992 to 2018. All financial variables are winsorized at their 1st and 99th percentiles to mitigate outliers. Table 4 provides pair-wise correlation coefficients across variables. None of the variables exhibit extreme correlations, suggesting multicollinearity is not a major concern[8]. This is confirmed by Variance Inflation Factor (VIF) tests in regression analysis.

This table reports Pearson's correlation coefficients for all variables. The sample comprises all non-financial US firms listed in S&P1500 without missing financial controls (1992-2018). All financial

5 While Faccio's (2006) definition of CPCs is widely used, it is not the best for categorising US firms as top-level government officials are not allowed to be large shareholders/top officers (Hill et al., 2014).

6 See (Baixauli-Soler et al., 2015) for a similar application. this study aims to clarify the influence of executive stock options (ESOs

7 Some studies favour the CAPM when predicting the systematic and unsystematic risk of individual stocks (not a portfolio) (Cadman et al., 2010).

8 The correlation between the three risk measures is high. However, each measure will be used as a dependent variable in a separate model.

Table 3: Summary statistics

Variable	Mean	SD	P25	P50	P75	N
Dependent variables						
Total_Risk	0.445	0.208	0.297	0.396	0.544	28,749
Sys_Risk	1.182	0.704	0.737	1.099	1.523	28,749
Idio_Risk	0.368	0.174	0.242	0.331	0.457	28,749
Explanatory variables						
PC_Candidate	1.032	1.888	0.000	0.000	0.693	30,524
Pct_Female	0.079	0.125	0.000	0.000	0.167	30,524
Firm-level control variables						
Size	7.337	1.641	6.178	7.242	8.410	30,524
DBEQ	0.642	2.050	0.011	0.364	0.835	30,524
STD_EPS	0.996	1.479	0.257	0.502	1.046	29,479
Firm_Age	25.066	17.179	11.000	20.000	37.000	30,524
MtB	2.086	1.410	1.227	1.635	2.385	29,816
Capex_Ratio	0.048	0.050	0.017	0.033	0.060	30,524
Sales_Growth	0.114	0.288	-0.011	0.072	0.178	30,312
Surplus_Cash	0.087	0.099	0.031	0.077	0.136	30,512
ROA	0.031	0.123	0.010	0.049	0.087	30,524
Intang	0.211	0.204	0.032	0.153	0.337	29,479
Buss_Seg	2.919	2.091	1.000	3.000	4.000	30,376
Managerial-level control variables						
Avg_Tenure	5.928	4.194	3.000	5.000	7.800	30,524
TMT_Own	0.037	0.079	0.003	0.009	0.028	28,993

This table reports descriptive statistics for all variables. The sample comprises all non-financial US firms listed in S&P1500 without missing financial controls (1992-2018). All financial controls are winsorized at their 1st and 99th percentiles. DBEQ, Firm_Age, Sales_Growth, Avg_Tenure are not logged here for a better description, as the dependent variables (Total_Risk and Idio_Risk). All variables are defined in Appendix A

controls are winsorized at their 1st and 99th percentiles. All variables are defined in Appendix A. *Denotes significance at the 5% level.

4. METHODOLOGY

4.1.The Multivariate Analysis

The current paper's models are estimated using fixed effects OLS regressions on a large unbalanced panel dataset of 30,524 firm-year observations of publicly-listed US firms (in the S&P1500 index) from 1992-2018. A balanced panel analysis would result in an inappropriate sample size (Hillier et al., 2011).

Consistent with the literature on CPCs (Lee et al., 2014) and firm equity risk (Jo and Na, 2012), we control for the industry effect based on the SIC two-digit classification (Ferreira and Paul, 2007), and year fixed effects. Clustered standard errors at the firm-level are estimated to correct for heteroskedasticity and correlation within firms (Petersen, 2009).

The multivariate analysis is divided into two subsections: the first examines the relationship between CPCs and firms' total, systematic, and idiosyncratic risk. The Second examines the impact of CPCs on the association between female proportion of the TMT and firms' total risk.

4.2. Corporate Political Connections and Firm Risk Models

To investigate the relationship between CPCs and the three risk measures, three models are estimated. Each model employs the same set of controls and the explanatory variable is the CPCs proxy. Each model explores a different dependent variable: Total risk (Model 1), Systematic risk (Model 2), and Idiosyncratic risk (Model 3). The models test H1 and its constituents, H1a and H1b, using the following general OLS regression form:

$$Y_{it}=\alpha+\beta_1(CPCs\ Proxy)_{it}+\beta_2(Size)\_it+\beta_3(Ln\_DBEQ)_{it}+\beta_4(STD\_EPS)_{it}+\beta_5(Log\_Firm\_Age)_{it}\beta_6(MtB)_{it}+\beta_7(Capex\_Ratio)_{it}+\beta_8(Ln\_Sales\_Growth)_{it}+\beta_9(Surplus\_Cash)_{it}+\beta_{10}(ROA)_{it}+\beta_{11}(Intang)_{it}+\beta_{12}(Buss\_Seg)_{it}+\beta_{13}(Log\_avg\_Tenure)_{it}+\beta_{14}(TMT\_Own)_{it}+Industry\ and\ Year\ fixed\ effects+\varepsilon_{it}$$

(Model 1,2,3)

Where $CPCs\ Proxy_{it}$ is a measure of the firm's political connectedness to politicians. The remaining variables, in brackets, are control variables, and Y_{it} represents the different dependent variables for each model as follows:

Model 1 (Total risk):

$Y_{it} = Total\_Risk_{it}$ calculated as described in Appendix A.

Model 2 (Systematic risk):

$Y_{it} = Sys\_Risk_{it}$ measured as described in Appendix A.

Model 3 (Idiosyncratic risk):

$Y_{it} = Idio\_Risk_{it}$ calculated as described in Appendix A.

In all models, we focus on coefficient β_1 which measures the sensitivity of firm's risk to whether or not firms have CPCs.

Table 4: Pairwise Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Dependent Var:																		
(1) Total_ Risk	1.000																	
(2) Sys_Risk	0.517*	1.000																
(3) Idio_Risk	0.961*	0.374*	1.000															
Explanatory Var:																		
(4) PC_ Candidate	-0.291*	-0.067*	-0.306*	1.000														
(5) Pct_ Female	-0.036*	-0.035*	-0.026*	-0.004	1.000													
Control Var:																		
(6) Size	-0.469*	-0.030*	-0.521*	0.582*	-0.012*	1.000												
(7) Ln_DBEQ	-0.113*	0.033*	-0.120*	0.171*	-0.023*	0.322*	1.000											
(8) Std_EPS	0.154*	0.165*	0.126*	0.112*	-0.012*	0.168*	0.134*	1.000										
(9) Log_ Firm_Age	-0.380*	-0.084*	-0.406*	0.317*	-0.023*	0.362*	0.135*	0.076*	1.000									
(10) MtB	-0.021*	-0.101*	0.002	-0.079*	0.031*	- 0.175*	-0.243*	-0.147*	-0.201*	1.000								
(11) Capex_ Ratio	0.048*	-0.019*	0.077*	-0.008	-0.001	-0.004	-0.009	0.017*	-0.110*	0.053*	1.000							
(12) Ln_ Sales_ Growth	0.046*	-0.053*	0.064*	-0.073*	-0.029*	-0.051*	-0.072*-	-0.106*	-0.221*	0.267*_	0.125*	1.000						
(13) Surplus_ Cash	-0.126*	-0.107*	-0.117*	-0.039*	0.027*	-0.043*	-0.248*	-0.161*	-0.068*	0.461*	0.025*	0.126*	1.000					
(14) ROA	-0.341*	-0.220*	-0.324*	0.069*	0.036*	0.181*	-0.125*	-0.167*	0.076*	0.210*	0.049*	0.217*	0.478*	1.000				
(15) Intang	-0.256*	-0.110*	-0.260*	0.050*	0.028*	0.209*	0.150*	-0.070*	-0.011	-0.093*	-0.337*	0.061*	-0.045*	0.023*	1.000			
(16) Buss_ Seg	-0.192*	-0.008	-0.229*	0.245*	-0.058*	0.334*	0.110*	0.061*	0.281*	-0.170*	-0.106*	-0.083*	-0.099*	0.039*	0.141*	1.000		
(17) Log_ Avg_ Tenure	-0.239*	-0.090*	-0.248*	0.081*	-0.074*	0.166*	-0.005	-0.047*	0.358*	-0.024*	0.014*	-0.050*	0.059*	0.149*	-0.035*	0.082*	1.000	
(18) TMT_ Own	0.067*	-0.040*	0.095*	-0.116*	-0.029*	-0.192*	-0.105*	-0.056*	-0.107*	0.032*	0.045*	0.035*	-0.000	0.031*	-0.092*	-0.052*	0.131*	1.000

This table reports Pearson's correlation coefficients for all variables. The sample comprises all non-financial US firms listed in S&P1500 without missing financial controls (1992-2018).

All financial controls are winsorized at their 1st and 99th percentiles. All variables are defined in Appendix A.

*Denotes significance at the 5% level.

4.3. Corporate Political Connections and the Association between Females in the TMT and Firm Total Risk Models

To test H2 which predicts that CPCs impact the association between female representation in the TMT and total risk, two models are employed: Model (4) tests the association of each of the explanatory variables (CPCs and Female representation in the TMT) and total risk, with no interaction variable. This is to validate if earlier findings by Perryman et al. (2016) and Jeong and Harrison (2017) are replicated in our sample. Model (5) includes an interaction variable between the two to test its association with total risk. Model (4) and (5) are presented as:

$$Total\_Risk_{it}=\alpha+\beta_1(CPCsProxy)_{it}+\beta_2(Pct\_Female)_{it}+\beta_3(Size)t+\beta_4(Ln\_DBEQ)_{it}+\beta_5(STD\_EPS)_{it}+\beta_6(Log\_Firm\_Age)_{it}+\beta_7(MtB)_{it}+\beta_8(Capex\_Ratio)_{it}+\beta_9(Ln\_Sales\_Growth)_{it}+\beta_{10}(Surplus\_Cash)_{it}+\beta_{11}(ROA)_{it}+\beta_{12}(Intang)_{it}+\beta_{13}(Buss\_Seg)_{it}+\beta_{14}(Log\_avg\_Tenure)_{it}+\beta_{15}(TMT\_Own)_{it}+Industry\ and\ Year\ fixed\ effects+\varepsilon_{it}$$

(Model 4)[9]

$$Total\_Risk_{it}=\alpha+\beta_1(CPCs\ Proxy)_{it}+\beta_2(Pct\_Female)_{it}+\beta_3(CPCs\ Proxy\ X\ Pct\_Female)_{it}+\beta_4(Size)_{it}+\beta_5(Ln\_DBEQ)_{it}+\beta_6(STD\_EPS)_{it}+\beta_7(Log\_Firm\_Age)_{it}+\beta_8(MtB)_{it}+\beta_9(Capex\_Ratio)_{it}+\beta_{10}(Ln\_Sales\_Growth)_{it}+\beta_{11}(Surplus\_Cash)_{it}+\beta_{12}(ROA)_{it}+\beta_{13}(Intang)_{it}+\beta_{14}(Buss\_Seg)_{it}+\beta_{15}(Log\_avg\_Tenure)_{it}+\beta_{16}(TMT\_Own)_{it}+Industry\ and\ Year\ fixed\ effects+\varepsilon_{it}$$

(Model 5)

where the dependent variable in both models is $Total\_Risk_{it}$, and $CPCs\_Proxy_{it}$ is a measure of the firm's political connectedness. In both models, Pct_Female_{it} is the female proportion in the TMT proxy, and the remaining variables, in brackets, are controls. $CPCs\ Proxy\ X\ Pct\_Female_{it}$ is interaction variable used only in Model 5.

5. EMPIRICAL RESULTS

5.1. Main Results on Corporate Political Connections and Firm Risk (H1)

We estimate the relationship between CPCs and firm equity risk after conditioning on key firm- and managerial- level determinants reported in previous studies. Table 5 reports the multivariate regression results from estimating the three models described above. As shown, these factors together explain about 53% of the variability in firm's total risk (R^2 = 52.7%) and over 53% in idiosyncratic risk (R^2= 53.9%). Unsurprisingly, they explain only 18% of the variability in systematic risk, as market-wide risks are beyond the firm's control.

As shown in Table 5, in all three models, the coefficient for CPCs is statistically significant at the 1% level, thereby supporting H1 and its two constituents H1a and H1b. Also, the coefficient in all three models is negative, indicating that those connections are negatively associated with firm total, systematic, and idiosyncratic risk. That is, in Model (1), which examines the existence of an association between CPCs and total risk (H1), the results reject the null hypothesis and further add that the association between the two is negative. This suggests that the intensity of CPCs is related to lower firm total risk. Such results build on previous findings by demonstrating that US firms with CPCs not only enjoy higher stock returns (Cooper et al., 2010), but also lower stock returns volatility (total risk).

Similarly, when examining the relationship between CPCs and systematic risk in Model (2), the coefficient for *PC_Candidate* is significant at the 1% level, supporting H1a. The negative sign indicates that a higher intensity of CPCs is also associated with lower systematic risk for politically connected firms. Based on the notion that systematic risk is highly influenced by policies and regulations (Norton, 1985), we conjecture that it is because such firms have better access to information about future government policies (Wellman, 2017; Pham, 2019), they can tailor their decisions accordingly, making them less vulnerable to market movements (systematic risk). Our results align with those of Kim et al. (2019), who found that employing various political strategies hedges away firms' systematic risk. The current paper, however, emphasises the significance of multi-period contributions to political campaigns, which are viewed as important for a successful corporate political strategy allowing firms to cultivate relationships with key policymakers (Snyder, 1992).

In model (3), we assess the association between CPCs and idiosyncratic risk. The coefficient for *PC_Candidate* is also statistically significant at the 1% level, supporting H1b. The negative sign suggests that firms with strong political ties tend to experience lower idiosyncratic risk. The results align with studies, in contexts other than the US (e.g., Lee and Wei, 2014). However, they contradict those of Kim et al. (2019), who reported that various corporate political strategies increase firm's idiosyncratic risk. This can be attributed to methodological differences, including our focus on contributions to political campaigns using a long-term frequency (6-year window), while Kim et al. (2019) used various corporate political strategies. Furthermore, we consider a broader perspective on favours from CPCs, whereas Kim et al. (2019) focused on a single favour (i.e., policy uncertainty reduction) and used an interaction effect between the two (CPCs and policy uncertainty) on idiosyncratic risk.

Altogether, the findings provide support to the "helping hands" hypothesis and the investment view, suggesting that long-term connections through continuous support to politicians can help firms in reducing equity risk. That is, CPCs can influence asset prices, as a non-market strategy reducing firm total, systematic and idiosyncratic risk.

5.1.1. Robustness checks - Corporate political connections and firm risk

Several sensitivity tests are performed to ensure the robustness of the above results and are reported in Tables 6-8, respectively.

9 When the model was replicated where only the female proportion of the TMT was the explanatory variable, the results were almost the same.

Table 5: Corporate political connections and firm risk

Variables	DV: Total_Risk	DV: Sys_Risk	DV: Idio_ Risk
	Model (1)	Model (2)	Model (3)
PC_Candidate	−0.0114***	−0.0200***	−0.0112***
	(0.0039)	(0.0055)	(0.0041)
Size	−0.0848***	0.0282***	−0.1048***
	(0.0063)	(0.0086)	(0.0063)
Ln_DBEQ	0.0064***	0.0195***	0.0068***
	(0.0024)	(0.0053)	(0.0024)
STD_EPS	0.0421***	0.0407***	0.0401***
	(0.0029)	(0.0073)	(0.0030)
Log_Firm_Age	−0.1121***	−0.0839***	−0.0859***
	(0.0104)	(0.0152)	(0.0104)
MtB	−0.0092***	−0.0293***	−0.0134***
	(0.0036)	(0.0078)	(0.0035)
Capex_Ratio	−0.4161***	−0.7586***	−0.4105***
	(0.0814)	(0.2160)	(0.0772)
Ln_Sales_Growth	0.0595***	0.0070	0.0580***
	(0.0079)	(0.0258)	(0.0079)
Surplus_Cash	−0.3462***	−0.2712**	−0.2822***
	(0.0374)	(0.1101)	(0.0375)
ROA	−0.2778***	−0.9330***	−0.2268***
	(0.0265)	(0.0972)	(0.0268)
Intang	−0.1886***	−0.4792***	−0.1665***
	(0.0323)	(0.0565)	(0.0323)
Buss_Seg	−0.0008	0.0020	−0.0037
	(0.0022)	(0.0044)	(0.0023)
Log_Avg_Tenure	−0.0205***	−0.0187	−0.0218***
	(0.0062)	(0.0133)	(0.0062)
TMT_Own	0.0783	−0.1767	0.0948
	(0.0704)	(0.1265)	(0.0731)
Constant	0.1233	1.2082***	0.1489*
	(0.0830)	(0.1891)	(0.0785)
Observations	22,115	22,115	22,115
R-squared	0.5272	0.1784	0.539
Number of Firms	2,283	2,283	2,283
Firm FE	No	No	No
Year FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes

The dependent variables in this table are *Total Risk* (Model 1), *Systematic Risk* (Model 2) and *Idiosyncratic Risk* (Model 3), Each model reports OLS regression results estimating the association between CPCs and the relevant dependent variable. The sample comprises all non-financial US firms listed in S&P1500 without missing financial controls (1992-2018). In all models, the explanatory variable is *PC_Candidate*. All others are control variables. All variables are defined in Appendix A. The models include industry (SIC two digits) and year fixed effects. Standard errors (reported in parentheses) are clustered by firm. VIF test for Models (1), (2), and (3) do not exceed 5, with maximum values of 2.2, 2.3, and 2.3, respectively. ***, **, *Denote significance at the 1%, 5%, and 10% levels, respectively

5.1.1.1. Reverse causality

One potential concern in the regressions in Table 5 is the existence of reverse causality. To mitigate this, each dependent variable is regressed on the 1-year lagged values of the explanatory variable (CPCs) and the controls. The results on the dependent variables Total_Risk, Sys_Risk, and Idio_Risk are reported in the first column of Tables 6-8, respectively. We find that the coefficient for PC_Candidate is negative and significant, consistent with the main results. Nevertheless, using lagged controls alone might not fully mitigate reverse causality concerns because they assume a unidirectional relationship between variables, overlooking the dynamic nature of such interactions and the possibility that less risk-taking firms may endogenously choose to make political contributions to a greater number of political candidates to diversify political risk.

5.1.1.2. Firm-specific unobserved effect

In the main regressions, we control for industry fixed effect as corporate risk is highly industry specific. Yet, unobservable firm characteristics can influence the results. For robustness checks, the industry fixed effect is substituted by firm fixed effect for each model in Table 5, while holding all other conditions. The results for Total_Risk and Idio_Risk are presented in column (2) of Tables 6 and 8, respectively. We report that our main results remain robust. Unsurprisingly, the significant negative association between PC_Candidate and Sys_Risk disappears when using firm fixed effect (Table 7, column 2). This outcome is anticipated as CPCs are unique to a company and firm fixed effect is, by definition, unique to that company. The change in the coefficient's sign and magnitude under firm fixed effects suggests potential omitted variable bias or endogeneity, further emphasizing the reverse causality concern mentioned above.

5.1.1.3. Alternative proxy of political connections

We assess the sensitivity of the main results to the proxy for CPCs (*PC_Candidate*), defined by the number of supported political candidates. Since the FEC imposes no limit on the number of candidates supported by corporate PACs but does limit the dollar amount of contributions to each candidate, firms may maximize political capital by supporting more candidates, potentially creating sensitivity issues in the results. As robustness checks, we follow Cooper et al. (2010); Wellman (2017); Pham (2019); Ovtchinnikov et al. (2020) and supplement (*PC_Candidate*) by the dollar amount of political contributions (*PC_Financial*) in each model in Table 5. The results show that our main findings are not sensitive to the CPCs proxy. The negative and significant association between CPCs and total, systematic, and idiosyncratic risk still exists (column (3) in Tables 6-8, respectively).

5.1.1.4. Alternative measurements of dependent variables

The three risk measures in the main regressions are re-estimated using different measurements to validate the results. The dependent variable *Total_Risk*, calculated based on monthly stock returns is alternated with *D_Total_Risk,* calculated as based on daily stock returns, following Cadman et al.'s (2010) specifications. We find that our main predictions related to CPCs remain unaffected (Table 6, column 4).

The main analysis uses the FF3 model to calculate both systematic risk (*Sys_Risk*) and idiosyncratic risk (*Idio_Risk*). We re-estimate these risks using alternative models i.e., the CAPM and the FF5 model to validate the results. The coefficient for *PC_Candidate* remains negative and significant in the re-estimation of both systematic risk (Table 7, columns 4 and 5) and idiosyncratic risk (Table 8, columns 4 and 5), indicating that our results are not sensitive to the measures of total, systematic, and idiosyncratic risk.

5.2. Main Results on Corporate Political Connections and the Association between Females in the TMT and Total Risk (H2)

In Table 9, we present the results from estimating Model (4) and Model (5) (Columns 1 and 2, respectively) which test H2 that predicts CPCs impact the association between female representation in the TMT and total risk.

Table 6: Robustness tests, corporate political connections and total risk

Variables	Robustness Checks, Model (1)			
	Column (1)	Column (2)	Column (3)	Column (4)
	Lag (1Y)	FE	Alternative CPCs_Proxy PC_Financial	Alternative Total_Risk Proxy D_Total_Risk
PC_Candidate	−0.0112***	−0.0140***	−0.0029**	−0.0069**
	(0.0039)	(0.0051)	(0.0013)	(0.0030)
Size	−0.0752***	−0.0828***	−0.0866***	−0.0808***
	(0.0062)	(0.0110)	(0.0062)	(0.0046)
Ln_DBEQ	0.0106***	0.0071***	0.0064***	0.0091***
	(0.0024)	(0.0027)	(0.0024)	(0.0020)
STD_EPS	0.0433***	0.0420***	0.0420***	0.0390***
	(0.0030)	(0.0030)	(0.0029)	(0.0027)
Log_Firm_Age	−0.0990***	−0.1346***	−0.1131***	−0.0811***
	(0.0101)	(0.0241)	(0.0104)	(0.0071)
MtB	−0.0008	−0.0099**	−0.0093***	−0.0010
	(0.0035)	(0.0040)	(0.0035)	(0.0031)
Capex_Ratio	−0.2561***	−0.4450***	−0.4141***	−0.1885***
	(0.0813)	(0.0881)	(0.0815)	(0.0720)
Ln_Sales_Growth	0.0525***	0.0423***	0.0601***	0.0474***
	(0.0084)	(0.0080)	(0.0080)	(0.0090)
Surplus_Cash	−0.3974***	−0.3402***	−0.3471***	−0.3615***
	(0.0397)	(0.0400)	(0.0374)	(0.0418)
ROA	−0.4391***	−0.1882***	−0.2773***	−0.5912***
	(0.0279)	(0.0276)	(0.0265)	(0.0307)
Intang	−0.1822***	−0.1468***	−0.1866***	−0.1816***
	(0.0338)	(0.0410)	(0.0323)	(0.0260)
Buss_Seg	0.0018	0.0014	−0.0009	−0.0010
	(0.0023)	(0.0026)	(0.0022)	(0.0019)
Log_Avg_Tenure	−0.0211***	−0.0137**	−0.0203***	−0.0149***
	(0.0063)	(0.0070)	(0.0062)	(0.0051)
TMT_Own	0.1082	0.1039	0.0784	0.0744
	(0.0663)	(0.0823)	(0.0702)	(0.0570)
Constant	0.0699	0.0611	0.1358*	0.2290***
	(0.0839)	(0.0899)	(0.0824)	(0.0756)
Observations	20,367	22,115	22,115	22,283
R-squared	0.5447	0.4612	0.5279	0.6347
Number of Firms	2,152	2,283	2,283	2,293
Firm FE	No	Yes	No	No
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	No	Yes	Yes
1Y lag	Yes	No	No	No

This table reports four robustness tests to validate the results in Model (1), Table 5. The first re-estimates Model (1), but a 1-year lag of the explanatory and all control variables is applied. The second re-estimates Model (1), but the industry fixed effect is alternated with firm fixed effect. In the third, the CPCs proxy PC_Candidate is supplemented with PC_Financial. In the fourth, the dependent variable Total_Risk is alternated with D_Total_Risk. All others are control variables. All variables are defined in Appendix A. All tests include year and industry (SIC two digits) fixed effects, except column (2). Standard errors (reported in parentheses) are clustered by firm. VIF test for each column does not exceed 5 (max is 2.2). ***, **, *Denote significance at the 1%, 5%, and 10% levels, respectively

In Model (4), with no interaction variable, the coefficient for *Pct_Female* is negative and statistically significant at the 10% level. This validates the results of Perryman et al. (2016) and Jeong and Harrison (2017), although at a lower statistical significance level. Additionally, the coefficient for *PC_Candidate* is negative and highly statistically significant, similar to that from Model (1) in Table 5, supporting the earlier finding that CPCs is related to lower firm total risk. When including the interaction variable in Model (5), the coefficient for *PC_Candidate X Pct_Female* is statistically significant at the 5% level, supporting H2 (Table 9, Column 2). The negative sign suggests that CPCs strengthen and complement the negative association between female representation in the TMT and firm total risk.[10]

10 One possible limitation is that 23% of firms are politically connected (*PC_Candidate* > 0), and 35% have females in their TMT (*Pct_Female* > 0), which makes the interaction between the two variables non-zero for only about 17% of the observations in the sample.

Indeed, and supporting the above results, when using a linear prediction margins plot to show how the association between the two varies for certain levels of CPCs over a 6-year window, Figure 1 shows that for firms with no political connections (i.e., do not support any political candidates), a higher female proportion of the TMT is associated with lower total risk (blue line). When firms support one candidate, the negative association between the two becomes stronger as the lower slope indicates (maroon line). Firms with an average number of supported candidates i.e., 1.82 candidates[11] (green line) or a large number i.e., 93 candidates

11 This number is calculated using the reverse of the ln (1.032), where 1.032 is the mean of *PC_Candidate* in the descriptive statistics. So, -1 = 1.82 political candidates. The untabulated variable that calculates the number of supported candidates over a six-year window without the ln (1+x) cannot be used in the marginal plots because those plots need to come right after the regression in the statistical software used (Stata), and the CPCs proxy used in the regression is ln (1+number of supported candidates over a six-year window).

Table 7: Robustness tests, corporate political connections and systematic risk

Variables	Robustness Checks, Model (2)				
	Column (1)	Column (2)	Column (3)	Column (4)	Column (5)
	Lag (1Y)	FE	Alternative CPCsProxy PC_Financial	Alternative Sys_Risk Proxy (Using CAPM Model)	Alternative Sys_Risk Proxy (Using FF5 Model)
PC_Candidate	−0.0232***	0.0154	−0.0063***	−0.0274***	−0.0201***
	(0.0057)	(0.0096)	(0.0019)	(0.0061)	(0.0059)
Size	0.0337***	−0.0154	0.0254***	−0.0063	0.0272***
	(0.0086)	(0.0205)	(0.0083)	(0.0096)	(0.0094)
Ln_DBEQ	0.0179***	0.0165***	0.0198***	0.0088	0.0164***
	(0.0052)	(0.0061)	(0.0053)	(0.0057)	(0.0055)
STD_EPS	0.0450***	0.0413***	0.0408***	0.0641***	0.0511***
	(0.0078)	(0.0065)	(0.0072)	(0.0087)	(0.0085)
Log_Firm_Age	−0.0772***	−0.1391***	−0.0845***	−0.1086***	−0.0442**
	(0.0150)	(0.0479)	(0.0152)	(0.0164)	(0.0172)
MtB	−0.0188**	−0.0204**	−0.0297***	0.0021	−0.0240**
	(0.0081)	(0.0093)	(0.0078)	(0.0088)	(0.0114)
Capex_Ratio	−0.4771**	−0.7652***	−0.7531***	−0.7238***	−0.3841
	(0.2125)	(0.2208)	(0.2162)	(0.2230)	(0.2430)
Ln_Sales_Growth	0.0126	−0.0122	0.0074	0.1016***	0.0278
	(0.0268)	(0.0212)	(0.0258)	(0.0287)	(0.0381)
Surplus_Cash	−0.4447***	−0.2816***	−0.2742**	−0.4872***	−0.4718***
	(0.1163)	(0.0940)	(0.1102)	(0.1252)	(0.1269)
ROA	−1.0445***	−0.2680***	−0.9279***	−1.4219***	−0.2048*
	(0.1024)	(0.0721)	(0.0971)	(0.1092)	(0.1104)
Intang	−0.4387***	−0.1399*	−0.4758***	−0.5217***	−0.4046***
	(0.0562)	(0.0843)	(0.0564)	(0.0616)	(0.0592)
Buss_Seg	0.0025	0.0025	0.0019	−0.0000	0.0075
	(0.0045)	(0.0049)	(0.0044)	(0.0048)	(0.0047)
Log_Avg_Tenure	−0.0243*	0.0016	−0.0182	−0.0307**	−0.0330**
	(0.0138)	(0.0144)	(0.0133)	(0.0144)	(0.0142)
TMT_Own	−0.2021	0.0919	−0.1772	−0.2594*	−0.2474*
	(0.1296)	(0.1561)	(0.1264)	(0.1381)	(0.1367)
Constant	1.1850***	1.5491***	1.2286***	1.4178***	0.9112***
	(0.2066)	(0.1730)	(0.1873)	(0.1822)	(0.2117)
Observations	20,367	22,115	22,115	21,214	21,359
R-squared	0.1964	0.0565	0.1780	0.2704	0.1097
Number of Firms	2,152	2,283	2,283	2,265	2,220
Firm FE	No	Yes	No	No	No
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	No	Yes	Yes	Yes
1Y lag	Yes	No	No	No	No

This table reports five robustness tests to validate the results in Model (2), Table 5. The first re-estimates Model (2), but a 1-year lag of the explanatory and all control variables is applied. The second re-estimates Model (2), but the industry fixed effect is alternated with firm fixed effect. In the third, PC_Candidate is supplemented with PC_Financial. In the fourth, the dependent variable Sys_Risk is alternated with Alt_Sys_Risk_CAPM. In the fifth, Alt_Sys_Risk_FF5 is used. All others are control variables. All variables are defined in Appendix A. All tests include year and industry (SIC two digits) fixed effects, except column (2). Standard errors (reported in parentheses) are clustered by firm. VIF test for each column does not exceed 5 (max is 2.3). ***, **, *Denote significance at the 1%, 5%, and 10% levels, respectively

(yellow line, 90th percentile)[12] or very large number i.e., 184 candidates (grey line, 95th percentile) exhibit a further strengthening of the negative association between female proportion of the TMT and total risk. This suggests that the high intensity of CPCs tends to reduce the total risk further when a firm has females in their TMT.[11]

In Columns (3) and (4) of Table 9, we extend our analysis to examine the interaction between CPCs and female representation in the TMT on the two sub-divisions of total risk: systematic and idiosyncratic. We re-estimate Model (5) after replacing *Total_Risk* with *Sys_Risk* (Column 3) and with *Idio_Risk* (Column 4). Each risk measure is calculated using the FF3, CAPM, and FF5 models, respectively. We find that the interaction variable *PC_Candidate X Pct_Female* is negative and significant only when *Idio_Risk* is used. This is supported by the three asset pricing models, and suggests that CPCs have a further reduction impact on the negative association between females in the TMT and firm total risk, which is mainly driven by the reduction in idiosyncratic risk. Overall, that the presence of both CPCs and gender diversity strategies results in a further reduction in total risk.

5.2.1. Robustness checks - Corporate political connections and the association between females in the TMT and total risk

Table 10 presents five robustness checks to validate the results of Model (5). The first is applied to mitigate the possible existence of reverse causality. The dependent variable *Total_Risk* is regressed on a 1-year lagged values of the explanatory and the control variables. In Column 1, the coefficient for *PC_Candidate*

12 The choice of the 90th percentile is because more than 75% of the firms in the sample support only one political candidate (0.69 in the *PC_Candidate* proxy). The reverse of the ln (1+0.69) is almost 1 shown in the maroon line of Figure 1.

Table 8: Robustness tests, corporate political connections and idiosyncratic risk

Variables	Robustness Checks, Model (3)				
	Column (1)	Column (2)	Column (3)	Column (4)	Column (5)
	Lag (1Y)	FE	Alternative CPCsProxy PC_Financial	Alternative Idio_Risk Proxy (Using CAPM Model)	Alternative Idio_Risk Proxy (Using FF5 Model)
PC_Candidate	−0.0109***	−0.0139***	−0.0030**	−0.0111***	−0.0107**
	(0.0042)	(0.0053)	(0.0014)	(0.0041)	(0.0048)
Size	−0.0973***	−0.1013***	−0.1065***	−0.1036***	−0.1143***
	(0.0062)	(0.0108)	(0.0062)	(0.0064)	(0.0074)
Ln_DBEQ	0.0116***	0.0071***	0.0068***	0.0066***	0.0005
	(0.0024)	(0.0027)	(0.0024)	(0.0024)	(0.0028)
STD_EPS	0.0414***	0.0398***	0.0400***	0.0409***	0.0524***
	(0.0031)	(0.0031)	(0.0030)	(0.0030)	(0.0038)
Log_Firm_Age	−0.0810***	−0.0470*	−0.0868***	−0.0947***	−0.0431***
	(0.0100)	(0.0240)	(0.0104)	(0.0102)	(0.0109)
MtB	−0.0082**	−0.0129***	−0.0134***	−0.0114***	0.0113***
	(0.0033)	(0.0040)	(0.0035)	(0.0035)	(0.0041)
Capex_Ratio	−0.2789***	−−0.4418***	−0.4085***	−0.4199***	−0.3393***
	(0.0770)	(0.0828)	(0.0774)	(0.0761)	(0.0854)
Ln_Sales_Growth	0.0519***	0.0425***	0.0586***	0.0597***	0.0632***
	(0.0081)	(0.0079)	(0.0079)	(0.0081)	(0.0103)
Surplus_Cash	−0.3204***	−0.2834***	−0.2830***	−0.3092***	−0.3287***
	(0.0392)	(0.0401)	(0.0375)	(0.0368)	(0.0454)
ROA	−0.3898***	−0.1435***	−0.2263***	−0.2432***	−0.0967***
	(0.0283)	(0.0279)	(0.0268)	(0.0268)	(0.0316)
Intang	−0.1650***	−0.1272***	−0.1646***	−0.1817***	−0.1160***
	(0.0338)	(0.0405)	(0.0323)	(0.0332)	(0.0357)
Buss_Seg	−0.0006	−0.0014	−0.0038	−0.0022	−0.0055**
	(0.0024)	(0.0026)	(0.0023)	(0.0023)	(0.0026)
Log_Avg_Tenure	−0.0237***	−0.0182***	−0.0217***	−0.0206***	−0.0187**
	(0.0062)	(0.0069)	(0.0062)	(0.0062)	(0.0075)
TMT_Own	0.1256*	0.1170	0.0948	0.0959	0.0333
	(0.0692)	(0.0856)	(0.0729)	(0.0745)	(0.0786)
Constant	0.1497*	−0.1671*	0.1605**	0.1756**	0.0511
	(0.0793)	(0.0892)	(0.0780)	(0.0783)	(0.0944)
Observations	20,367	22,115	22,115	21,214	21,247
R−squared	0.5549	0.4734	0.5399	0.5532	0.4664
Number of Firms	2,152	2,283	2,283	2,265	2,207
Firm FE	No	Yes	No	No	No
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	No	Yes	Yes	Yes
1Y lag	Yes	No	No	No	No

This table reports five robustness tests to validate the results in Model (3), Table 5. The first test re-estimates Model (3), but a 1-year lag of the explanatory and all control variables is applied. The second re-estimates Model (3), but the industry fixed effect is alternated with firm fixed effect. In the third, PC_Candidate is supplemented with PC_Financial. In the fourth, the dependent variable Idio_Risk is alternated with Alt_Idio_Risk_CAPM. In the fifth, Alt_Idio_Risk_FF5 is used. All others are control variables. All variables are defined in Appendix A. All tests include year and industry (SIC two digits) fixed effects, except column (2). Standard errors (reported in parentheses) are clustered by firm. VIF test for each column does not exceed 5 (max is 2.3). ***, **, *Denote significance at the 1%, 5%, and 10% levels, respectively.

X Pct_Female is significant (negative), consistent with the main results. The second tests the results' sensitivity to firm-specific unobserved effects. The industry fixed effect is substituted by firm fixed effect while holding all other conditions in Model (5). The interaction variable remains negative and significant (Column 2). The third tests the results' sensitivity to the CPCs proxy. Following the literature, *PC_Candidate* is substituted with *PC_Financial.* The results show that the obtained findings are not sensitive to the CPCs proxy i.e., the coefficient for *PC_Financial X Pct_Female* remains negative and significant (Column 3). The fourth investigates the results' sensitivity to the measurements of *Total_Risk.* The dependent variable *Total_Risk*, is alternated with *D_Total_Risk*. We report that the interaction variable remains significant (negative) (Column 4). To examine the results' sensitivity to our female representation proxy, we replace *Pct_Female* with a dummy variable *Third_Female* equal to 1 if females comprise 30% or more of the firm's TMT. This follows the "critical mass" theory, which posits that a critical percentage of female (20 - 40%) is necessary to influence group dynamics (Kanter, 1977a, 1977b). We use 30% as the threshold, as Joecks et al. (2013) found this percentage is associated with higher performance compared to all-male boards. The results, in Column 5, show that even when one-third or more of the TMT are female, the interaction variable remains significant and negative.

Overall, the robustness checks validate our main results from Model (5).

6. CONCLUSIONS

CPCs have garnered growing academic attention. However, the association between CPCs and firm's total risk has been less investigated. The current paper's objective, therefore,

Table 9: Corporate political connections and the association between females in the TMT and firm risk

Variables	DV: Total_Risk		Further Analysis on Model (5)					
	Column (1)	Column (2)	Column (3)			Column (4)		
	Model 4	Model 5	DV: Sys_Risk			DV: Idio_Risk		
			FF3	*CAPM*	*FF5*	*FF3*	*CAPM*	*FF5*
PC_Candidate	−0.0114***	−0.0094**	−0.0221***	−0.0291***	−0.0214***	−0.0090**	−0.0083**	−0.0076
	(0.0039)	(0.0041)	(0.0060)	(0.0066)	(0.0063)	(0.0042)	(0.0042)	(0.0050)
Pct_Female	−0.0608*	−0.0239	−0.1140	−0.0943	−0.1394*	−0.0040	−0.0067	−0.0071
	(0.0318)	(0.0383)	(0.0805)	(0.0881)	(0.0841)	(0.0380)	(0.0390)	(0.0443)
PC_CandidateX Pct_Female	_	−0.0265**	0.0290	0.0245	0.0174	−0.0297**	−0.0382***	−0.0397**
	_	(0.0131)	(0.0257)	(0.0291)	(0.0275)	(0.0131)	(0.0137)	(0.0173)
Size	−0.0847***	−0.0847***	0.0281***	−0.0064	0.0273***	−0.1047***	−0.1034***	−0.1142***
	(0.0063)	(0.0063)	(0.0086)	(0.0096)	(0.0094)	(0.0063)	(0.0063)	(0.0074)
Ln_DBEQ	0.0062**	0.0063***	0.0192***	0.0086	0.0162***	0.0068***	0.0067***	0.0005
	(0.0024)	(0.0024)	(0.0053)	(0.0057)	(0.0055)	(0.0024)	(0.0024)	(0.0028)
STD_EPS	0.0421***	0.0422***	0.0408***	0.0641***	0.0512***	0.0402***	0.0411***	0.0525***
	(0.0029)	(0.0029)	(0.0073)	(0.0087)	(0.0085)	(0.0030)	(0.0030)	(0.0038)
Log_Firm_Age	−0.1120***	−0.1125***	−0.0840***	−0.1087***	−0.0442**	−0.0864***	−0.0954***	−0.0437***
	(0.0104)	(0.0104)	(0.0152)	(0.0164)	(0.0172)	(0.0104)	(0.0102)	(0.0109)
MtB	−0.0092***	−0.0092**	−0.0294***	0.0020	−0.0242**	−0.0133***	−0.0114***	0.0113***
	(0.0036)	(0.0036)	(0.0078)	(0.0088)	(0.0114)	(0.0035)	(0.0035)	(0.0041)
Capex_Ratio	−0.4163***	−0.4155***	−0.7580***	−0.7236***	−0.3850	−0.4098***	−0.4192***	−0.3394***
	(0.0814)	(0.0811)	(0.2160)	(0.2230)	(0.2428)	(0.0770)	(0.0758)	(0.0851)
Ln_Sales_Growth	0.0592***	0.0591***	0.0062	0.1011***	0.0262	0.0577***	0.0594***	0.0627***
	(0.0079)	(0.0079)	(0.0258)	(0.0287)	(0.0382)	(0.0078)	(0.0081)	(0.0103)
Surplus_Cash	−0.3456***	−0.3468***	−0.2703**	−0.4865***	−0.4706***	−0.2831***	−0.3105***	−0.3299***
	(0.0373)	(0.0374)	(0.1101)	(0.1252)	(0.1269)	(0.0374)	(0.0368)	(0.0453)
ROA	−0.2772***	−0.2767***	−0.9316***	−1.4210***	−0.2015*	−0.2258***	−0.2417***	−0.0949***
	(0.0265)	(0.0265)	(0.0971)	(0.1092)	(0.1103)	(0.0267)	(0.0267)	(0.0315)
Intang	−0.1898***	−0.1907***	−0.4798***	−0.5221***	−0.4061***	−0.1684***	−0.1843***	−0.1187***
	(0.0323)	(0.0323)	(0.0565)	(0.0616)	(0.0591)	(0.0323)	(0.0332)	(0.0357)
Buss_Seg	−0.0009	−0.0010	0.0020	−0.0000	0.0074	−0.0039*	−0.0024	−0.0058**
	(0.0022)	(0.0023)	(0.0044)	(0.0048)	(0.0047)	(0.0023)	(0.0023)	(0.0026)
Log_Avg_Tenure	−0.0215***	−0.0217***	−0.0192	−0.0311**	−0.0343**	−0.0228***	−0.0218***	−0.0200***
	(0.0062)	(0.0062)	(0.0134)	(0.0145)	(0.0142)	(0.0062)	(0.0063)	(0.0075)
TMT_Own	0.0769	0.0794	−0.1782	−0.2607*	-0.2486*	0.0965	0.0985	0.0358
	(0.0704)	(0.0706)	(0.1263)	(0.1380)	(0.1363)	(0.0733)	(0.0747)	(0.0787)
Constant	0.1251	0.1244	1.2122***	1.4212***	0.9141***	0.1495*	0.1762**	0.0504
	(0.0833)	(0.0833)	(0.1892)	(0.1823)	(0.2119)	(0.0786)	(0.0785)	(0.0942)
Observations	22,115	22,115	22,115	21,214	21,359	22,115	21,214	21,247
R-squared	0.5272	0.5272	0.1787	0.2706	0.1101	0.5392	0.5533	0.4672
Number of Firms	2,283	2,283	2,283	2,265	2,220	2,283	2,265	2,207
Firm FE	No	No	No	No	No	No	No	No
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

This table reports OLS regression results from estimating Model (4) and Model (5), in Column (1) and Column (2), respectively. In both models, Total_Risk is the dependent variable. The CPCs proxy is PC_Candidate. The female representation in the TMT proxy is Pct_Female. The interaction variable PC_CandidateX Pct_Female is only included in Model (5). Column (3) and Column (4) report OLS regression results of re-estimating Model (5), where the dependent variable Total_Risk is substituted with: Sys_Risk and Idio_Risk, calculated using the FF3, CAPM, and FF5 models, respectively. The sample comprises all non-financial US firms listed in S&P1500 without missing financial controls (1992-2018). All models include industry (SIC two digits) and year fixed effects. Standard errors (reported in parentheses) are clustered by firm. All variables are defined in Appendix A. VIF test for each model does not exceed 5 (max is 2.3). ***, **, *Denote significance at the 1%, 5%, and 10% levels, respectively

is to examine the effect of CPCs, formed through campaign contributions, by focusing on firms' total risk including its systematic and idiosyncratic components. Such approach allows uncovering the impact of CPCs in mitigating firm's sensitivity to market movements, an important channel of influence on asset pricing. The study also examines whether CPCs impact factors identified in the literature to help firms mitigate total risk, particularly, the influence of female proportion of the TMT. While higher female presence in the TMT was found to reduce firms' total risk (Jeong and Harrison, 2017; Perryman et al., 2016), little is known about whether non-market strategies (i.e., contributions to politicians) can influence such negative association.

Using panel data of non-financial US firms listed in S&P1500 from 1992-2018, consisting of 30,524 firm-year observations, we find that CPCs are related to lower firm risk, whether total, systematic, or idiosyncratic. Our findings support

Table 10: Robustness tests, corporate political connections and the association between females in the TMT and firm total risk

Variables	Robustness Checks, Model 5				
	Column (1)	Column (2)	Column (3)	Column (4)	Column (5)
	Lag (1Y)	FE	Alternative CPCs Proxy PC_Financial	Alternative Total_Risk Proxy D_Total_Risk	Alternative Female Proxy Third_Female
PC_Candidate	−0.0094**	−0.0119**	−0.0022	−0.0051	−0.0110***
	(0.0040)	(0.0052)	(0.0014)	(0.0031)	(0.0040)
Pct_Female	−0.0332	−0.0303	−0.0226	−0.0322	−0.0206
	(0.0402)	(0.0429)	(0.0385)	(0.0315)	(0.0149)
PC_Candidate X Pct_Female	-0.0255*	−0.0292**	−0.0094**	−0.0237**	−0.0097**
	(0.0133)	(0.0141)	(0.0047)	(0.0114)	(0.0047)
Size	−0.0751***	−0.0828***	−0.0865***	−0.0807***	−0.0850***
	(0.0062)	(0.0109)	(0.0062)	(0.0046)	(0.0063)
Ln_DBEQ	0.0106***	0.0071***	0.0064***	0.0091***	0.0064***
	(0.0024)	(0.0027)	(0.0024)	(0.0020)	(0.0024)
STD_EPS	0.0434***	0.0420***	0.0421***	0.0390***	0.0421***
	(0.0030)	(0.0030)	(0.0029)	(0.0027)	(0.0029)
Log_Firm_Age	−0.0993***	−0.1368***	−0.1135***	−0.0813***	−0.1120***
	(0.0101)	(0.0242)	(0.0104)	(0.0070)	(0.0104)
MtB	−0.0008	−0.0100**	−0.0093***	−0.0009	−0.0092***
	(0.0035)	(0.0040)	(0.0036)	(0.0031)	(0.0035)
Capex_Ratio	−0.2552***	−0.4441***	−0.4137***	−0.1882***	−0.4172***
	(0.0810)	(0.0878)	(0.0813)	(0.0719)	(0.0813)
Ln_Sales_Growth	0.0521***	0.0419***	0.0597***	0.0469***	0.0594***
	(0.0084)	(0.0079)	(0.0079)	(0.0090)	(0.0079)
Surplus_Cash	−0.3984***	−0.3407***	−0.3478***	−0.3619***	−0.3466***
	(0.0397)	(0.0400)	(0.0375)	(0.0418)	(0.0373)
ROA	−0.4374***	−0.1873***	−0.2761***	−0.5900***	−0.2770***
	(0.0279)	(0.0276)	(0.0265)	(0.0307)	(0.0265)
Intang	−0.1846***	−0.1494***	−0.1885***	−0.1834***	−0.1899***
	(0.0337)	(0.0410)	(0.0323)	(0.0260)	(0.0323)
Buss_Seg	0.0016	0.0012	−0.0011	−0.0012	−0.0009
	(0.0023)	(0.0026)	(0.0023)	(0.0019)	(0.0022)
Log_Avg_Tenure	−0.0223***	−0.0150**	−0.0214***	−0.0161***	−0.0209***
	(0.0063)	(0.0070)	(0.0062)	(0.0051)	(0.0062)
TMT_Own	0.1094*	0.1054	0.0794	0.0746	0.0775
	(0.0664)	(0.0824)	(0.0704)	(0.0570)	(0.0706)
Constant	0.0713	0.0693	0.1367*	0.2294***	0.1237
	(0.0843)	(0.0899)	(0.0827)	(0.0760)	(0.0830)
Observations	20,367	22,115	22,115	22,283	22,115
R-squared	0.5447	0.4615	0.5279	0.6349	0.5274
Number of Firms	2,152	2,283	2,283	2,293	2,283
Firm FE	No	Yes	No	No	No
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	No	Yes	Yes	Yes
1Y lag	Yes	No	No	No	No

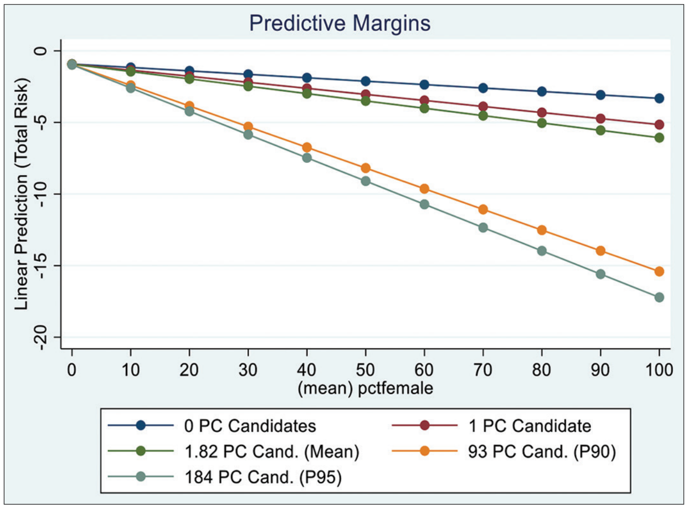
This table reports five robustness tests to validate the results in Model (5), Table 9. The first re-estimates Model (5), but a 1-year lag of all the explanatory and control variables is applied. The second re-estimates Model (5), but the industry fixed effect is alternated with the firm fixed effect. In the third, *PC_Candidate* is supplemented with *PC_Financia*. In the fourth, the dependent variable *Total_Risk* is alternated with *D_Total_Risk*. The fifth alternates *Pct_Female*, with *Third_Female*. All others are control variables. All variables are defined in Appendix A. All tests include time and industry (SIC two digits) fixed effects, except column (2). Standard errors (reported in parentheses) are clustered by firm. VIF test for each model does not exceed 5 (max is 2.2). ***, **, *Denote significance at the 1%, 5%, and 10% levels, respectively

the "helping hands" hypothesis and the investment view, suggesting that CPCs can have more profound benefits as a non-market strategy reducing stock returns volatility, hence, influencing asset prices. Furthermore, the findings suggest that CPCs strengthen and complement the negative association between females in the TMT and firm total risk. The presence of both CPCs and gender diversity strategies results in a further reduction in firms' total risk, primarily by reducing idiosyncratic risk. These results are robust to alternative measures of firm risk and alternative proxies for CPCs and females' representation in the TMT.

The findings, thus, offer corporate managers new insights for considering the interaction between gender diversity strategies with other non-market strategies, i.e., political contributions, for risk mitigation. They also offer an additional screening technique for investors when constructing stock portfolios. Policymakers, therefore, may consider mandating disclosure of corporate political expenditures in public firms' reports to enhance transparency.

While such findings provide valuable evidence linking CPCs and risk, they highlight the complexity of disentangling causality.

Figure 1: Predictive margins (CPCs, Female proportion of the TMT, and total risk). This graph shows a linear prediction, where the relationship between the Female Proportion of the TMT and Total Risk is shown for certain levels of CPCs. The sample presents non-financial US firms listed in S&P1500 without missing financial controls (1992-2018)



Although robustness checks have been conducted, addressing reverse causality with more advanced techniques such as instrumental variables (IV) remains a fruitful avenue for future work. Furthermore, we focused on corporate hard-money political campaign contributions. Future studies could investigate the effect of other single strategies, e.g. lobbying, on these risks and examine the effects of shared political ideology and geographical location between firms and supported candidates. Incorporating candidates' party affiliation is also an area that can explain how CPCs benefit firms if the opposing party wins, given the rise in political polarization in the US. Importantly, our findings and those by Cooper et al. (2010) suggest that politically connected firms are mispriced in the US market. While such finding is puzzling, it is intriguing to explore the reasons that prevents arbitragers from exploiting such mispricing. Finally, we do not imply that the benefits of CPCs to contributing firms necessarily contribute to the social good; optimal social outcomes may not be observed if politicians favor the "wrong" corporations due to their contributions. Future research could explore this broader aspect.

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Appendix A

Variable	Definition	Source
Political connections variables		
$PC\_Candidate_{it}$	The natural logarithm of one plus the total number of candidates supported by a firm over a six-year window. $PC\_Financial_{it} = Ln\left(1+\sum_{j=1}^{J} Amount_{jt,t-5}\right)$ where $Candidate_{jt,t-5}$ is an indicator that equals one if the firm contributed to $Candidate_j$ over the years t-5 to t.	Federal Election Commiss-ion (FEC)
$PC\_Financial_{it}$	The natural logarithm of one plus the total amount of dollar contributions to candidates by a firm over a six-year window. $PC\_Financial_{it} = Ln\left(1+\sum_{j=1}^{J} Amount_{jt,t-5}\right)$ where $Amount_{jt,t-5}$ is the sum of total dollar contributions provided by a firm to $Candidate_j$ over the years t-5 to t.	FEC
Risk variables		
	The natural logarithm of (the standard deviation of the monthly stocks returns over the past 60 months, with a minimum requirement of 12 months) X (the square root of 12).	Beta Suite (WRDS)
Sys_Risk_{it}	The beta coefficient of the market excess monthly returns ($\beta 1$) generated from regressing the monthly excess returns on the FF3 model, over the past 60 months (with a minimum requirement of 12 months).	Beta Suite (WRDS)
$Idio\_Risk_{it}$	The natural logarithm of (the standard deviation of the residuals from the regression of monthly stock excess returns over the past 60 months on the FF3, with a minimum requirement of 12 months) X (the square root of 12).	Beta Suite (WRDS)
$D\_Total\_Risk_{it}$	The natural logarithm of (the standard deviation of the daily stocks returns over the past 252 days, with a minimum requirement of 126 days) X (the square root of 252).	Beta Suite (WRDS)
$Alt\_Sys\_Risk\_CAPM_{it}$	The beta coefficient of the market excess monthly returns ($\beta 1$) generated from regressing the monthly excess returns on the market model (CAPM), over the past 60 months (with a minimum requirement of 12 months).	Beta Suite (WRDS)
$Alt\_Idio\_Risk\_CAPM_{it}$	The natural logarithm of (the standard deviation of the residuals from the regression of monthly stock excess returns over the past 60 months on the market model (CAPM), with a minimum requirement of 12 months) X (the square root of 12).	Beta Suite (WRDS)
$Alt\_Sys\_Risk\_FF5_{it}$	The beta coefficient of the market excess monthly returns ($\beta 1$) generated from regressing the monthly excess returns on the FF5, over the past 60 months (with a minimum requirement of 12 months).	Kenneth R. French Data Library+Compustat
$Alt\_Sys\_Risk\_FF5_{it}$	The natural logarithm of (the standard deviation of the residuals from the regression of monthly stock excess returns over the past 60 months on the FF5, with a minimum requirement of 12 months) X (the square root of 12).	Kenneth R. French Data Library+Compustat
Female proportion variables		
Pct_Female_{it}	Percentage of female executives to total number of executives available in the database.	ExecuComp
$Third\_Female_{it}$	A dummy equal to one if females represent 30% or more of the firm's TMT.	ExecuComp
Control variables		
Size	The natural logarithm of the book value of total assets.	Compustat
Ln_DBEQ	The natural logarithm of the ratio of total debt to the book value of equity.	Compustat
Std_EPS	The standard deviation of earnings (EPS) over the previous three years.	Compustat
Log_Firm_Age	The natural logarithm of firm age, which is the time between the observation and the year when the firm was first listed on Compustat.	Compustat
MtB	The book value of assets (AT) plus the market value of equity (CSHO*PRCC) minus the book value of equity (CEQ) all scaled by total assets.	Compustat
Capex_Ratio	Capex minus sale of property divided by total assets. Such a variable is recorded as zero if Capex value is missing.	Compustat
Ln_Sales_Growth	The natural logarithm of one plus the growth in sales from year t-1 to year t.	Compustat
Surplus_Cash	The net cashflow from operating activities less depreciation and amortization plus R&D expenditure divided by the book value of total assets.	Compustat
ROA	Income before (IB) extraordinary items divided by the book value of total assets (AT).	Compustat
Intang	Intangible assets scaled by total assets.	Compustat
Buss_Seg	The number of business segments.	Compustat
Log_Avg_Tenure	The natural logarithm of the average tenure of all TMT members.	ExecuComp
TMT_OWN	The sum of overall shares owned by the executives, excluding options, divided by the number of common shares outstanding as reported by the company.	ExecuComp