GENDER IN THE C-SUITE AND INFORMATIONAL TRANSPARENCY

Trang Doan [*], Mai Iskandar-Datta [**]

* School of Business, Eastern Illinois University, USA
** *Corresponding author* Faculty Fellow of Entrepreneurship and Innovation, Wayne State University, USA
Contact details: Wayne State University, 2771 Woodward Ave., Detroit, MI 48201, USA

How to cite this paper: Doan, T., & Iskandar-Datta, M. (2018). Gender in the C-Suite and informational transparency. *Corporate Ownership & Control, 15(4-1),* 149-157.
http://doi.org/10.22495/cocv15i4c1p2

ISSN Online: 1810-3057
ISSN Print: 1727-9232

Received: 11.03.2018
Accepted: 21.05.2018

JEL Classification: G3, G4
DOI: 10.22495/cocv15i4c1p2

Abstract

This study explicates and empirically tests the implication of gender in the C-Suite for corporate governance. In particular, we investigate the impact of the Chief Financial Officer's (CFO) gender on informational asymmetry. The results document that firms hiring female CFOs experience an improvement in the level of transparency, represented by a reduction in the bid-ask spread and an increase in share turnover, relative to those hiring male CFOs. Additionally, the evidence shows that the impact of female CFO representation is more pronounced among firms with high agency costs. The results are robust to a series of robustness tests and even after including gender diversity of the board and of the C-Suite.

Keywords: Agency Costs, CFO Gender, Ethics, Information Asymmetry, Risk-Aversion

1. INTRODUCTION

Alongside the increase in the number of women in the upper echelons of public corporations, which are conventionally dominated by men, researchers are increasingly examining the implications of gender in business organizations. Considering the systematic behavioral differences in gender and the crucial role of top management, the increased female participation in the upper echelons may reflect not only a trend towards gender equality but also a growing recognition of specific benefits uniquely associated with female executives (e.g., Huang & Kisgen, 2013; Liu, Wei, & Xie, 2016). For example, the literature has documented the influence of gender on firm strategy and performance (e.g., Amore, Garofalo, & Minichilli, 2014; Bigelow, Lundmark, Parks, & Wuebker, 2014), and on corporate governance (Campbell & Vera, 2010). However, much of the literature that examines corporate governance has focused on the gender diversity in boards of directors (e.g., Adams & Ferreira, 2009; Adams & Funk, 2012; Campbell & Vera, 2010) and in the Top Management Team (TMT) (Jurkus, Park, & Woodard, 2011) rather than the gender of a single top executive. To the extent that men and women are fairly distinct in terms of perceptions and behaviors, which have been demonstrated as determinants of governance choice (Goel & Thakor, 2008), the increased female participation in the upper echelons may lead to a significant change in corporate governance.

Information transparency in organizations has increasingly attracted attention from academics and policymakers, especially after several serious financial scandals that have weakened the credibility of corporate accounting and reporting systems since 2001 (e.g., Enron, WorldCom) (see Albaum & Peterson, 2006; Chavent, Ding, Fu, Stolowy, & Wang, 2006). The effort to improve the quality and quantity of information in capital markets is demonstrated, for example, by the changes in segment disclosures, employee stock option reporting, and the passage of the Sarbanes-Oxley Act (Lehavy, Li, & Merkley, 2011). Given the inherent information asymmetry between shareholders and managers due to separation of ownership from managerial function, managers play a critical role in the degree to which information asymmetry is ameliorated or exacerbated. Particularly, a firm's level of information asymmetry can be ameliorated by undertaking greater transparency, which is heavily dependent on managers' characteristics and behavior, i.e., their willingness to provide timely, informative, and credible information to the public. Given the impact of managers' attributes on informational asymmetry and in turn on corporate governance, we address the following question: What are the differential effects of appointing a female chief financial officer (CFO) versus a male CFO on information asymmetry?

Among all C-suit members, we study the CFO for several reasons. First, since CFOs are believed to assume full responsibility for the financial and treasury functions of the organization, as well as for preparing internal and external reports, they are in a good position to exert influence on cash holdings (Campello, Graham, & Harvey, 2010) and reporting policies (Rehbein, 2010). Second, the overwhelming majority of firms have a CFO (Nath & Mahajan, 2008) and the number of female CFOs in S&P 1500 companies has been on an upward trend over the last three decades (Francis, Hasan, & Wu, 2013) allowing for strong statistical tests. Third, of all the upper echelon members, the Sarbanes-Oxley Act of 2002 requests the CFO along with the Chief Executive Officer (CEO) to certify the firm's financial statements and to be responsible for the accuracy of the reports.

It has been argued that firms with greater information asymmetry are more likely to have higher cost of external capital, causing a decrease in investment efficiency (Opler, Pinkowitz, Stulz, & Williamson, 1999), and higher probability of financial fraud (Ndofor, Wesley, & Priem, 2015). Financial reporting is one of the main mechanisms to mitigate this problem (Cuadrado-Ballesteros, Garcia-Sanchez, & Ferrero, 2016). On the other hand, females are frequently perceived as being more risk-averse and/or more sensitive to ethical issues than males (Barsky, Juster, Kimball, & Shapiro, 1997; Larkin, 2000; Tyson, 1990). Accordingly, they tend to have a conservative mind-set and a low propensity to commit fraud (Ho, Li, Tam, & Zhang, 2015). Prior work finds that female CFOs tend to pursue a more informative and credible reporting policy (Francis, Hasan, Park, & Wu, 2015; Liu et al., 2016; Peni & Vähämaa, 2010) which is attributed to their higher ethical standards and higher risk-aversion. We argue that if female CFOs' reporting standards are less opaque than those of their male counterparts, then we should observe a more transparent information environment among firms hiring female CFOs.

We employ bid-ask spread and share turnover to proxy for the firm's degree of transparency. Theoretical models and prior empirical evidence on bid-ask spread suggests that dealers would widen the spread when they believe the information asymmetry is high (Krinsky & Lee, 1996; Muller III, Riedl, & Sellhorn, 2011). On the other hand, high information asymmetry also discourages investors from trading, thereby lowering the share turnover (Chang, D'Anna, Watson, & Wee, 2008; Kim & Verrecchia, 1994).

Our proprietary sample is composed of 1,105 CFO appointments during the period 1994-2007. An important feature of this study is that we control for cognitive abilities and professional experience. To the extent that education and experience may affect the ethical sensitivities (Chidambaran, Kedia, & Prabhala, 2012; Deshpande, 1997), controlling for these factors is critical to the investigation of gender differences. We therefore hand-collected data on the CFO's educational qualifications (including graduate degrees earned and the quality of the educational institutions) and professional experience prior to the appointment.

To our knowledge, this study is the first to examine whether and how an executive' gender affects information asymmetry as reflected in stock prices and trading volume. We document that female CFOs promote a more transparent business environment, as evidenced by a relative reduction in the bid-ask spread and an increase in share turnover. Our evidence is robust to the inclusion of CFO attributes and firm characteristics and are corrected for endogeneity problem by employing the propensity score technique. We contribute to the literature on upper echelons and corporate governance by demonstrating the impact of a top executive's gender on information asymmetry. Previous literature on CFO gender suggests a positive relation between female CFO representation and high-quality financial reports (Francis et al., 2015; Liu et al., 2016; Peni & Vähämaa, 2010). Our work complements and extends this literature by showing that, by increasing report quality, female CFOs indeed help improve the level of firm transparency.

The remainder of this paper is structured as follows. We first review the current literature on gender differences and information asymmetry and develop hypotheses. Then we describe the data and methodology. Next, we present the results and analyses. The final section provides a conclusion of the results and the study's contribution.

2. LITERATURE REVIEW AND HYPOTHESE

Information asymmetry arises when shareholders lack sufficient information to monitor managers' behavior (Myers & Majluf, 1984). This problem can be attenuated if firms are able to provide informative financial reports (e.g., Cuadrado-Ballesteros et al., 2016). To the extent that female CFOs have greater risk-aversion and/or stronger ethical attitudes as evidenced by more conservative and higher quality earnings than male CFOs (Francis et al., 2015; Ho et al., 2015), their representation in the C-Suite should have a positive effect on firms' financial and operational transparency.

To ascertain whether there is a gender-driven change in information asymmetry, we utilize the measure of the bid-ask spread, which has been well developed in the management and finance literatures (Muller III et al., 2011). Accordingly, a large bid-ask spread usually represents greater information asymmetry between managers and investors (or between informed and uninformed traders). The rationale behind this relationship is that informed traders (with private information) tend to exploit uninformed traders when information asymmetry is high. Dealers usually sustain losses from trading with informed traders, which leads them to increase the bid-ask spread to recover losses and to protect themselves from informed traders (Krinsky & Lee, 1996). Given that female CFOs can alleviate information asymmetry by enhancing the credibility of released information (Francis et al., 2015; Liu et al., 2016; Peni & Vähämaa, 2010), the bid-ask spread should correspondingly become smaller at firms hiring female CFOs compared to those hiring male CFOs.

Another observable variable that is also commonly used to proxy for the firm's information environment is share turnover. When uninformed traders recognize their relative disadvantage in the securities market due to high information asymmetry, they tend to be discouraged from trading (Kim & Verrecchia, 1994). In other words, higher information asymmetry usually leads to a lower share turnover. Thus far, share turnover has been found to be positively associated with the level

of information transparency (Chang et al., 2008). Though most evidence indicates that female executives improve financial reporting quality, some researchers attribute this enhancement to risk-averse decisions (Francis et al., 2015; Liu et al., 2016), while others argue that it derives from ethical decisions (Labelle, Gargouri, & Francoeur, 2010), or from both (Cumming, Leung, & Rui, 2015; Ho et al., 2015). Based on the aforementioned arguments, we propose the following hypothesis.

Hypothesis 1a: To the extent that women are more sensitive to ethical issues and/or more risk-averse, firms hiring female CFOs will experience a relative narrowing (increase) of the bid-ask spread (share turnover) following the appointment when compared to firms with male CFOs.

In contrast, another branch of the literature suggests that gender differences among top executives are small or even non-existent. Because only outstanding women can break the glass ceiling, female executives are thus not representative of the female population at large (Kumar, 2010). Some empirical studies document no differences in risk-taking behavior, decision quality, or ethical attitude between male and female managers and show that gender is not the determining factor in selecting top executives (Jordan, Clark, & Waldron, 2007). Based on this we propose the following alternative hypothesis.

Hypothesis 1b: To the extent that there are no gender behavioral differences among top executives, the subsequent change in the bid-ask spread (share turnover) of firms hiring female CFOs will be similar to that of firms hiring male CFOs.

Next, we examine the bid-ask spread within the context of corporate cash policy. The benefits from lower information asymmetry is likely to be more pronounced in situations of greater agency costs. Evidence in the literature suggests a positive relation between corporate cash holdings and agency motives as entrenched managers increase their discretion by stockpiling cash (Myers & Rajan, 1998; Opler et al.,1999), allowing them to avoid the discipline of capital markets at the expense of shareholders (Eisenhardt, 1989).Given that cash is the most liquid and fungible asset that can be easily converted into private benefits, accumulating excess cash can lead to an adverse impact on the firm due to entrenched managers' ability to engage in opportunistic behavior such as increasing investments, even if these investments reduce firm value, rather than distributing it to shareholders. If female CFOs are more likely to alleviate the agency problems of free cash flow by lowering surplus cash (Doan & Iskandar-Datta, 2018), the attendant reduction in agency costs, in turn, is expected to attenuate the information asymmetry between managers and investors (Chung, Elder, & Kim, 2010). Thus, among sample firms, we expect the impact of female CFO representation on information asymmetry to be stronger in firms with excess cash.

Hypothesis 2: The impact of female CFOs on the changes in the bid-ask spread and share turnover following the appointment relative to their male counterparts will be more pronounced among firms with excess cash.

3. SAMPLE, DATA, AND RESEARCH METHOD

3.1. Sample formation and data sources

We begin the data collection process with the universe of S&P 1500 firms in ExecuComp during the period 1994 - 2009 (including two years following the appointment to examine the change in informational transparency). A manager is classified as a CFO if his/her title in ExecuComp includes phrases such as "chief of finance" "chief financial officer," "chief finance officer," "CFO", and other similar titles. We then verify from various sources the first year an executive became the CFO for a specific company. All interim or acting CFOs are eliminated. In addition, CFOs for whom the information available from public sources contradicted that available in ExecuComp are removed from the sample. Finally, to be in the sample, the new CFO must stay with the firm at least two years subsequent to the appointment.

We collect CFOs' educational profiles, including the name of the degree-granting educational institution, from multiple sources such as Businessweek.com, Zoominfo.com, Forbes.com, firm's annual reports, and other publicly available information. Our recording procedure differentiates between the various campuses of a university, which generally are not of similar ranking. Using these same sources, we also identify the gender of the executives.

We gather information about the job experiences of each executive prior to the appointment as a CFO by sourcing executives' experience from Bloomberg.com and other online sources. CFOs are recorded as having broad managerial experience if they previously served as CEO, chief operating officer, or general manager of a division, oversaw international operations. We also collect information on whether the executive held a CFO position prior to joining the current firm, and the age of the executive at the time of appointment. Finally, firm financial information and stock trading data are obtained from the COMPUSTAT database and the Center for Research in Security Prices (CRSP) files, respectively. The final sample is composed of 1,105 CFO appointments, representing 1,076 different CFOs.

3.2. Information asymmetry method

The following specifications are applied to investigate the relation between female CFO and the change in the level of information transparency:

$$\Delta Spread_{it} = \beta_0 + \beta_1(Female\ CFO)_{it} + \beta_2 Insider_{it} + \beta_{3\text{-}4}(CFO\ Credentials)_{it} + \beta_{5\text{-}6}(CFO\ Experience)_{it} + \beta_7(CFO\ Age)_{it} + \beta_8 Assets_{it\text{-}1} + \beta_9 Price_{it\text{-}1} + \beta_{10} SharesOuts_{it\text{-}1} + \beta_{11} Total\_Vol_{it\text{-}1} + \beta_{12} SharesTurnover_{it\text{-}1} + \varepsilon_{it} \quad (1)$$

$$\Delta ShareTurnover_{it} = \beta_0 + \beta_1(Female\ CFO)_{it} + \beta_2 Insider_{it} + \beta_{3\text{-}4}(CFO\ Credentials)_{it} + \beta_{5\text{-}6}(CFO\ Experience)_{it} + \beta_7(CFO\ Age)_{it} + \beta_8 Assets_{it\text{-}1} + \beta_9 Price_{it\text{-}1} + \beta_{10} SharesOuts_{it\text{-}1} + \beta_{11} Spread_{it\text{-}1} + \varepsilon_{it} \quad (2)$$

The dependent variable. For Eq. (1), the dependent variable is the change in bid-ask spread (*ΔSpread*) from the year prior to the appointment of the CFO (*t*-1) to two years subsequent to the appointment (*t*+2). We measure spread by taking the natural logarithm of the annual mean of daily absolute spread divided by the average of bid and ask (Atkins & Dyl, 1997). In Eq. (2), we use the change in share turnover (*ΔShareTurnover*) from year (*t*-1) to year (*t*+2) as a secondary measure for information transparency. Share turnover is defined as the natural logarithm of the annual mean of daily trading volume scaled by shares outstanding (Iskandar-Datta & Jia, 2013).

Key Independent Variables. The main test variable is *Female CFO*, which equals one if the gender of the new CFO is female, and zero otherwise. To control for the CFO's educational credentials, we create two independent variables which employ the 2011 rankings of the influential US News & World Report (USNWR) of the top 100 MBA programs. Specifically, each CFO's MBA credential is classified as to whether the degree is from a top 25 institution. Following Datta and Iskandar-Datta (2014), the variable *MBA-Top* takes the value of one if the CFO received an MBA degree from a top 25 institution, and zero otherwise. *MBA-not-Top* takes the value of one if the CFO received an MBA degree from an institution not ranked in the top 25 institutions, and zero otherwise[1]. It is key to distinguish executives based on the quality of their education because superior credentials can impact corporate decision making as well as ethical behavior. Previous studies suggest a relation between education and ethical orientation in which people with high-level or high-quality education tend to be more conservative in decision making to preserve their reputation. For instance, Browning and Zabriskie (1983) document that industry buyers with more education have a greater concern for ethical issues related to taking gifts and favors while Chidambaran et al. (2012) show that CEOs with high quality education are less likely to commit fraud. In addition, executives with an MBA degree are shown to have a stronger preference for risk-taking than those without an MBA (Chevalier & Ellison, 1999).

We also create three variables to represent the CFO's previous experience – (i) *MGT-EXP* – denotes the presence or absence of top managerial experience that would require strategic decision-making (such as serving in the role of chief operating officer, chief executive officer, division manager, manager of global operations, etc.), (ii) *Was-CFO* to indicate whether the executive held a CFO position previously, and (iii) *CFO Age* proxies for the years of experience. The *CFO Age* variable is also relevant to ethical behavior as studies show that older people are more ethical in their intentions not only because they are more mindful of the damaging consequences of unethical behavior but also because they have more to lose in terms of wealth and reputation (Deshpande, 1997). Additionally, we control for whether the CFO comes from inside the firm or not utilizing the variable *Insider*, which takes the value of one if the new CFO is an insider, and zero otherwise.

Firm control variables. We control for firm characteristics that may influence the change in bid-ask spread and/or share turnover such as firm size and stock price, the number of shares outstanding, stock return variability. *Assets* measures firm size, calculated as the natural logarithm of total assets. Stock return variability (*Total_Vol)* is positively (negatively) related to bid-ask spread (share turnover) and is calculated as the annual standard deviation of stock returns. We include daily closing stock price (*Price*) to control for the mechanical relationship between stock price and bid-ask spread since firms with lower stock prices generally have higher relative bid-ask spreads. *SharesOuts* is calculated as the logarithm of the number of shares outstanding. Since firms with larger amount of shares outstanding have higher trading volume, the relation between the number of shares outstanding and share turnover should be positive.

Fixed year effects are included in all models to control for macroeconomic effects. To limit the influence of outliers, the variables are winsorized at the one percent cutoff at both tails. We industry-adjust all firm variables to control for industry effects by subtracting the industry-median (three-digit SIC codes) from the sample firm's value.

4. RESULTS AND DISCUSSION

4.1. Descriptive statistics

Table 1 displays descriptive statistics and the correlations between key variables. We focus on the CFO's gender, CFO's characteristics (such as education and experience), and firm's characteristics as of the fiscal year end prior to the appointment. For our sample of CFOs, we find that approximately 9.0% are female, which is similar to Barua, Lin, and Sbaraglia (2010) who document that the proportions of female CFOs are 8.7% and 9.5% in 2004 and 2005, respectively. Female CFOs tend to be younger than male CFOs, akin to findings in Huang and Kisgen's (2013) sample.

4.2. CFO gender and information asymmetry

Table 2 exhibits the multivariate analyses of the association between the female CFO representation and information asymmetry, measured by the change in the bid-ask spread (Eq. (1)). Evidence shows that female CFO appointments lead to attenuation of information asymmetry by relatively narrowing the bid-ask spread. The coefficient on *Female CFO* is negative and significant for all firms in the full sample (p-value of 0.07) (Model 1), supporting Hypothesis 1a. In Model 2 we present the results from a robustness test that utilizes the propensity score sample. The coefficient on *Female CFO* (p-value of 0.00) is highly significant in this model, strengthening our finding.

1 Our results are invariant to using other measures for top universities – for example when employing the top 10 universities to represent MBA-Top.

Table 1. Descriptive statistics and correlation matrix

Variables	*Mean*	*Standard deviation*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*
1. Female CFO	0.09	0.29	1														
2. MBA-Top	0.24	0.43	0.00	1													
3. MBA-not-Top	0.23	0.42	0.02	-0.30	1												
4. Was-CFO	0.53	0.50	-0.02	0.07	0.02	1											
5. MGT-EXP	0.17	0.38	-0.04	0.02	-0.01	0.12	1										
6. CFO Age	0.46	6.45	-0.12	-0.05	0.10	0.17	0.07	1									
7. Insider	0.47	0.50	0.01	-0.12	-0.02	-0.31	-0.07	-0.12	1								
8. Assets	7,294	20,048	0.03	0.06	-0.04	-0.01	0.09	0.08	0.08	1							
9. Price	29.53	19.24	0.03	0.05	-0.04	-0.08	-0.03	0.03	0.09	0.25	1						
10. Shares-Outs	166.84	365.96	0.05	0.10	0.00	-0.01	0.09	0.05	0.09	0.65	0.18	1					
11. Total_Vol	12.37	7.54	-0.02	-0.06	0.07	0.06	0.01	-0.06	-0.13	-0.18	-0.32	-0.16	1				
12. Spread	0.0024	0.0029	-0.03	-0.05	-0.02	-0.15	-0.03	0.00	-0.02	-0.12	-0.31	-0.15	0.21	1			
13. Shares-Turnover	8.73	7.88	0.06	-0.01	0.02	0.16	-0.01	-0.05	-0.07	-0.14	-0.03	-0.09	0.51	-0.25	1		
14. ΔSpread	-0.0002	0.5832	-0.07	0.02	0.03	0.02	-0.01	0.02	0.03	0.01	0.08	0.05	0.01	-0.15	0.07	1	
15. ΔShare-Turnover	0.02	0.53	0.04	0.05	-0.01	-0.03	0.03	-0.03	-0.02	0.03	-0.06	0.03	-0.14	0.12	-0.26	-0.40	1

Notes: All variables (except Female CFO, MBA-Top, MBA-not-Top, Insider, Was-CFO, MGT-EXP, and CFO Age) are measured as of the fiscal year end prior to the CFO appointment.

Table 2. CFO gender and the change in bid-ask spread

	ΔSpread	
Independent variables	***Full sample***	***Propensity score sample***
	(1)	***(2)***
Female CFO	-0.12*	-0.27***
	(0.07)	(0.00)
CFO control variables		
Insider	0.04	0.13
	(0.31)	(0.15)
MBA-Top	0.06	0.14
	(0.20)	(0.19)
MBA-not-Top	0.05	0.12
	(0.28)	(0.25)
Was-CFO	-0.02	0.12
	(0.70)	(0.20)
MGT-EXP	-0.01	0.07
	(0.76)	(0.62)
CFO Age	0.00	0.01*
	(0.60)	(0.10)
Firm controls		
Assets	0.03	-0.02
	(0.25)	(0.78)
Price	0.07*	0.10
	(0.08)	(0.18)
SharesOuts	-0.02	0.02
	(0.60)	(0.78)
Total_Vol	0.00	0.02*
	(0.65)	(0.08)
SharesTurnover	0.21***	0.17**
	(0.00)	(0.03)
Intercept	-0.73	-0.83**
	(0.12)	(0.05)
Year fixed effects	Yes	Yes
R^2	0.09	0.23
N	1,024	200

Next, we utilize another proxy for information transparency, namely, the change in share turnover subsequent to the appointment. The results based on Eq. (2) are presented in Table 3. While the findings from the full sample (Model 1) indicate an increase in share turnover at firms with female CFOs, the coefficient is not statistically significant (p-value of 0.34); however, for the propensity score sample (Model 2), the coefficient on *Female CFO* is positive and significant (p-values of 0.01). This evidence implies that firms hiring female CFOs experience a relative increase in share turnover compared to those hiring male CFOs and is in supportive of Hypothesis 1b. Overall, our findings from Tables 2 and 3 demonstrate that female CFOs alleviate the information asymmetry problem and are in support of Hypothesis 1a.

Table 3. CFO gender and the change in share turnover

	ΔShareTurnover	
Independent variables	***Full sample***	***Propensity score sample***
	(1)	***(2)***
Female CFO	0.05	0.18***
	(0.34)	(0.01)
CFO control variables		
Insider	-0.02	-0.07
	(0.50)	(0.34)
MBA-Top	0.09**	0.04
	(0.03)	(0.68)
MBA-not-Top	0.03	0.10
	(0.37)	(0.31)
Was-CFO	-0.04	-0.15*
	(0.24)	(0.08)
MGT-EXP	0.06	0.15
	(0.15)	(0.17)
CFO Age	0.00	0.00
	(0.50)	(0.81)
Firm controls		
Assets	-0.05*	-0.07
	(0.07)	(0.29)
Price	0.07**	0.14**
	(0.05)	(0.03)
SharesOuts	0.06**	0.15**
	(0.04)	(0.03)
Bid-Ask	0.20***	0.27***
	(0.00)	(0.00)
Intercept	0.35*	-0.49
	(0.06)	(0.14)
Year fixed effects	Yes	Yes
R^2	0.07	0.19
N	1,105	206

To test Hypothesis 2, regarding the effect of female CFO appointment on the bid-ask spread is largely at firms with greater agency problems, proxied by surplus cash, we estimate the multivariate regressions on two subsamples – firms with excess cash (high cash) and firms without excess cash holdings (low cash). We define firms with (without) excess cash as those whose cash holdings for the year prior to CFO hiring are above (below) the industry median (three-digit SIC code). The results are presented in Table 4. In Models 1 and 2, the coefficients on *Female CFO* are significantly negative for the excess cash subsample (p-value of 0.02) but insignificant for other firms (p-value of 0.73), suggesting that cash policies adopted by female CFOs lead to a narrowing of the bid-ask spread. Robustness tests on the propensity score sample in Models 3 and 4 confirm our findings and are consistent with Hypothesis 2.

Similarly, we examine the effect of female CFO appointment on share turnover at firms with excess cash and those without excess cash. The results of the full sample in Table 5 show that a female CFO appointment leads to an increase in share turnover of firms with excess cash as shown in Model 1, though the coefficient is not statistically significant (p-value of 0.25); however, for the propensity score sample in Model 3, the coefficient on *Female CFO* is positive and significant (p-values of 0.06). Overall, the evidence in Tables 4 and 5 is supportive of Hypothesis 2, showing that female CFOs improve the level of transparency, especially among those with higher agency costs.

Additionally, we conduct another set of tests for robustness. First, we conduct a two-stage Heckman's (1979) model to tackle potential self-selection endogeneity. Our findings hold when utilizing this methodology (unreported). Second, we also control for gender diversity in the TMT, gender diversity in the board of directors, board size, and CEO tenure. Our test results are invariant to the inclusion of these additional variables, confirming that our findings are not driven by the representation of other female managers in the TMT or the board. Third, in another set of regressions, we replace *Female CFO* with a dummy variable, *Male_to_Female*, which takes the value of one if the CFO appointment is a transition from a male to a female executive, and zero otherwise. All the results (unreported) hold with this new variable. Interestingly, in unreported regressions for the propensity score sample, the coefficients on *CEO Tenure* are positively associated with the change in the bid-ask spread (coefficient of 0.01 and p-value of 0.02) and negatively associated with the change in share turnover (coefficient of -0.01 and p-value of 0.10), unambiguously suggesting that long-tenured CEOs tend to exacerbate the information asymmetry problem by weakening the board's monitoring effectiveness. This finding corroborates results in Kanagaretnam, Lobo, and Whalen (2007). Since the coefficients on *Female CFO* are also significant but with larger magnitudes in both the bid-ask spread (coefficient of -0.28 and p-value of 0.001) and share turnover (coefficient of 0.19 and p-value of 0.01) regressions, we can conclude that female CFOs help counteract the negative impact of CEO entrenchment on the firm's information environment.

Table 4. CFO gender and the change in bid-ask spread in high and low agency contexts

	ΔSpread			
	Full sample		*Propensity score sample*	
Independent variables	*High cash*	*Low cash*	*High cash*	*Low cash*
	(1)	*(2)*	*(3)*	*(4)*
Female CFO	-0.22**	-0.03	-0.23*	-0.12
	(0.02)	(0.73)	(0.07)	(0.30)
CFO control variables				
Insider	0.06	0.02	0.20*	-0.17
	(0.31)	(0.72)	(0.10)	(0.17)
MBA-Top	0.07	0.04	-0.01	0.03
	(0.39)	(0.44)	(0.96)	(0.76)
MBA-not-Top	0.05	0.06	0.10	0.24
	(0.45)	(0.33)	(0.48)	(0.11)
Was-CFO	0.04	-0.07	-0.01	-0.12
	(0.58)	(0.16)	(0.94)	(0.32)
MGT-EXP	0.02	-0.08	0.10	0.14
	(0.80)	(0.18)	(0.55)	(0.49)
CFO Age	0.00	0.00	0.01	-0.01
	(0.67)	(0.78)	(0.53)	(0.39)
Firm controls				
Assets	0.04	0.05	0.17*	-0.02
	(0.29)	(0.20)	(0.06)	(0.83)
Price	0.07	0.04	0.22***	-0.16
	(0.18)	(0.40)	(0.01)	(0.18)
SharesOuts	-0.05	-0.02	-0.02	-0.03
	(0.34)	(0.70)	(0.85)	(0.76)
Total_Vol	-0.01	0.01	0.01	-0.02
	(0.50)	(0.11)	(0.44)	(0.32)
SharesTurnover	0.19***	0.20***	0.22*	0.29***
	(0.00)	(0.00)	(0.08)	(0.01)
Intercept	-1.46***	-0.01	-0.32	1.19*
	(0.00)	(0.97)	(0.70)	(0.08)
Year fixed effects	Yes	Yes	Yes	Yes
R^2	0.13	0.12	0.47	0.36
N	451	573	104	96

Table 5. CFO gender and the change in share turnover in high and low agency contexts

	ΔShareTurnover			
	Full sample		*Propensity score sample*	
Independent variables	*High cash*	*Low cash*	*High cash*	*Low cash*
	(1)	*(2)*	*(3)*	*(4)*
Female CFO	0.10	-0.04	0.15*	0.04
	(0.25)	(0.54)	(0.06)	(0.65)
CFO control variables				
Insider	-0.04	0.01	-0.39***	0.10
	(0.43)	(0.82)	(0.00)	(0.36)
MBA-Top	0.11	0.06	0.03	0.12
	(0.11)	(0.22)	(0.77)	(0.28)
MBA-not-Top	0.09	-0.01	0.16	0.07
	(0.15)	(0.77)	(0.13)	(0.45)
Was-CFO	-0.03	-0.05	-0.11	-0.11
	(0.55)	(0.33)	(0.31)	(0.36)
MGT-EXP	0.11	0.03	0.45***	0.24
	(0.16)	(0.53)	(0.00)	(0.15)
CFO Age	0.00	0.00	0.02**	0.02**
	(0.34)	(0.88)	(0.07)	(0.03)
Firm controls				
Assets	-0.10***	-0.03	-0.16**	0.01
	(0.01)	(0.50)	(0.02)	(0.96)
Price	0.09*	0.05	0.08	0.01
	(0.10)	(0.19)	(0.30)	(0.94)
SharesOuts	0.10**	0.04	0.20***	0.07
	(0.04)	(0.36)	(0.01)	(0.48)
Bid-Ask	0.22***	0.19***	0.29***	0.32***
	(0.00)	(0.00)	(0.01)	(0.00)
Intercept	0.53*	0.09	-1.28**	-1.26**
	(0.06)	(0.59)	(0.03)	(0.02)
Year fixed effects	Yes	Yes	Yes	Yes
R^2	0.12	0.06	0.50	0.25
N	485	620	104	102

Overall, the results indicate that female executives tend to increase the informational transparency of the firm, thereby reducing the agency conflicts between managers and shareholders. Our findings thus add to the literature documenting that female representation on the board improves corporate governance. The evidence is also consistent with the notion that female executives differ from their male counterparts in terms of risk aversion and/or ethical sensitivities.

5. CONCLUSION AND LIMITATION

This study highlights gender differences in managerial decision-making that significantly impacts the informational transparency of the firm. Using hand-collected data for a large cross-section of newly-appointed CFOs over a period of 14 years, we investigate whether female CFO representation can improve corporate governance by reducing the agency cost arising from information asymmetry between managers and shareholders. To do that, we study the impact of the CFO's gender on the changes in firm's post-hiring bid-ask spread and share turnover. We document that firms hiring female CFOs experience an improvement in the level of transparency, represented by a relative reduction in the bid-ask spread and an increase in share turnover compared to those hiring male CFOs. Our multivariate regressions control for key variables that have a bearing on ethical sensitivities such as the quality of educational qualifications and age (Chidambaran et al., 2012; Deshpande, 1997). We conduct a number of robustness checks, including a propensity score matching technique and a Heckman two-stage model, and the results are maintained.

We also document that the impact of female CFO representation on information asymmetry is more pronounced in firms that suffer greater agency costs, specifically, firms with excess cash. Doan and Iskandar-Datta (2018) find that CFO gender influences corporate cash policy. We complement their study by showing that the reduction in agency costs leads to an alleviation in the information asymmetry between managers and shareholders.

Our findings extend the literature on upper echelons and corporate governance by examining the impact of top executive's gender, an attribute which is not new but has not been recognized before, on information asymmetry. Prior studies document a positive association between female CFOs and reporting quality (Francis et al., 2015; Liu et al., 2016; Peni & Vähämaa, 2010). We complement and extend those studies by showing that the improvement in reporting actually translates into mitigating the information asymmetry problem.

A limitation in our work is that we are not able to separately identify the CFO fixed effects and firm fixed effects by studying only CFOs who have switched firms due to the small sample of such female CFOs. This issue can be revisited and resolved at a later date when more data is accumulated over time.

REFERENCES

1. Adams, R. B., & Ferreira, D. (2009). Women in the boardroom and their impact on governance and performance. *Journal of Financial Economics, 94(2),* 291-309. https://doi.org/10.1016/j.jfineco.2008.10.007
2. Adams, R. B., & Funk, P. (2012). Beyond the glass ceiling: Does gender matter? *Management Science, 58(2),* 219-235. https://doi.org/10.1287/mnsc.1110.1452
3. Albaum, G., & Peterson, R. A. (2006). Ethical attitudes of future business leaders: Do they vary by gender and religiosity? *Business & Society, 45(3),* 300-321. https://doi.org/10.1177/0007650306289388
4. Amore, M. D., Garofalo, O., & Minichilli, A. (2014). Gender interactions within the family firm. *Management Science, 60(5),* 1083-1097. https://doi.org/10.1287/mnsc.2013.1824
5. Atkins, A. B., & Dyl, E. A. (1997). Transactions costs and holding periods of common stocks. *Journal of Finance, 52(1),* 309-325. https://doi.org/10.1111/j.1540-6261.1997.tb03817.x
6. Barsky, R. B., Juster, F. T., Kimball, M. S., & Shapiro, M. D. (1997). Preference parameters and behavioral heterogeneity: An experimental approach in the health and retirement study. *Quarterly Journal of Economics, 112(2),* 537-579. https://doi.org/10.1162/003355397555280
7. Barua, A., Lin S., & Sbaraglia, A. M. (2010). Earnings management using discontinued operations. *The Accounting Review, 85(5),* 1485-1509. https://doi.org/10.2308/accr.2010.85.5.1485
8. Bigelow, L., Lundmark, L., Parks, J. M. L., & Wuebker, R. (2014). Skirting the issues: Experimental evidence of gender bias in IPO prospectus evaluations. *Journal of Management, 40(6),* 1732-1759. https://doi.org/10.1177/0149206312441624
9. Browning, J., & Zabriskie, N. B. (1983). How ethical are industrial buyers? *Industrial Marketing Management, 12(4),* 219-224. https://doi.org/10.1016/S0019-8501(83)80001-7
10. Campbell, K., & Vera, A. M. (2010). Female board appointments and firm valuation: Short and long-term effects. *Journal of Management & Governance, 14(1),* 37-59. https://doi.org/10.1007/s10997-009-9092-y
11. Campello, M., Graham, J. R., & Harvey, C. R. (2010). The real effects of financial constraints: Evidence from a financial crisis. *Journal of Financial Economics, 97(3),* 470-487. https://doi.org/10.1016/j.jfineco.2010.02.009
12. Chang, M., D'Anna, G., Watson, I., & Wee, M. (2008). Does disclosure quality via investor relations affect information asymmetry? *Australian Journal of Management, 33(2),* 375-390. https://doi.org/10.1177/0312896208033002 08
13. Chavent, M., Ding, Y., Fu, L., Stolowy, H., & Wang, H. (2006). Disclosure and determinants studies: An extension using the divisive clustering method (DIV). *European Accounting Review, 15(2),* 181-218. https://doi.org/10.1080/09638180500253092
14. Chevalier, J., & Ellison, G. (1999). Are some mutual fund managers better than others? Cross-sectional patterns in behavior and performance. *Journal of Finance, 54(3),* 875-899. https://doi.org/10.1111/0022-1082.00130
15. Chidambaran, N. K., Kedia, S., & Prabhala, N. R. (2012). *CEO-director connections and corporate fraud: Not just whether you are connected but how* (Working paper, Fordham University).
16. Chung, K. H., Elder, J., & Kim, J.-C. (2010). Corporate governance and liquidity. *Journal of Financial and Quantitative Analysis, 45(2),* 265-291. https://doi.org/10.1017/S0022109010000104
17. Cuadrado-Ballesteros, B., Garcia-Sanchez, I. M., & Ferrero, J. M. (2016). How are corporate disclosures related to the cost of capital? The fundamental role of information asymmetry. *Management Decision, 54(7),* 1669-1701.

https://doi.org/10.1108/MD-10-2015-0454
18. Cumming, D., Leung, T. Y., & Rui, O. (2015). Gender diversity and securities fraud. *Academy of Management Journal, 58(5),* 1572-1593. https://doi.org/10.5465/amj.2013.0750
19. Datta, S., & Iskandar-Datta, M. (2014). Upper-Echelon Executive Characteristics and Compensation: Generalists vs Specialists. *Strategic Management Journal, 35(12),* 1853-1866. https://doi.org/10.1002/smj.2267
20. Deshpande, S. P. (1997). Managers' perception of proper ethical conduct: The effect of sex, age, and level of education. *Journal of Business Ethics, 16(1),* 79-85. https://doi.org/10.1023/A:1017917420433
21. Doan, T., & Iskandar-Datta, M. (2018). *CFO's gender and its impact on corporate cash policy* (Working paper, Wayne State University).
22. Eisenhardt, K. M. (1989). Agency theory: An assessment and review. *Academy of Management Review, 14(1),* 57-74. https://doi.org/10.5465/amr.1989.4279003
23. Francis, B., Hasan, I., & Wu, Q. (2013). The impact of CFO gender on bank loan contracting. *Journal of Accounting, Auditing & Finance, 28(1),* 53-78. https://doi.org/10.1177/0148558X12452399
24. Francis, B., Hasan, I., Park, J. C., & Wu, Q. (2015). Gender differences in financial reporting decision-making: Evidence from accounting conservatism. *Contemporary Accounting Research, 32(3),* 1285-1318. https://doi.org/10.1111/1911-3846.12098
25. Goel, A. M., & Thakor, A. V. (2008). Overconfidence, CEO selection, and corporate governance. *Journal of Finance, 63(6),* 2737-2784. https://doi.org/10.1111/j.1540-6261.2008.01412.x
26. Heckman, J. J. (1979). Sample selection bias as a specification error. *Econometrica, 47(1),* 153-161. https://doi.org/10.2307/1912352
27. Ho, S. S. M., Li, A. Y., Tam, K., & Zhang, F. (2015). CEO gender, ethical leadership, and accounting conservatism. *Journal of Business Ethics, 127(2),* 351-370. https://doi.org/10.1007/s10551-013-2044-0
28. Huang, J., & Kisgen, D. J. (2013). Gender and corporate finance: Are male executives over confident relative to female executives? *Journal of Financial Economics, 108(3),* 822-839. https://doi.org/10.1016/j.jfineco.2012.12.005
29. Iskandar-Datta, M., & Jia, Y. (2013). Valuation consequences of clawback provisions. *The Accounting Review, 88(1),* 171-198. https://doi.org/10.2308/accr-50262
30. Jordan, C. E., Clark, S., & Waldron, M. (2007). Gender bias and compensation in the executive suite of the Fortune 100. *Journal of Organizational Culture, Communication and Conflict, 11(1),* 19-29.
31. Jurkus, A. F., Park, J. C., & Woodard, L. S. (2011). Women in top management and agency costs. *Journal of Business Research, 64(2),* 180-186. https://doi.org/10.1016/j.jbusres.2009.12.010
32. Kanagaretnam, K., Lobo, G. J., & Whalen, D. J. (2007). Does good corporate governance reduce information asymmetry around quarterly earnings announcements? *Journal of Accounting and Public Policy, 26(4),* 497-522. https://doi.org/10.1016/j.jaccpubpol.2007.05.003
33. Kim, O., & Verrecchia, R. E. (1994). Market liquidity and volume around earnings announcements. *Journal of Accounting and Economics, 17(1-2),* 41-67. https://doi.org/10.1016/0165-4101(94)90004-3
34. Krinsky, I., & Lee, J. Earnings announcements and the components of the bid-ask spread. *Journal of Finance, 51(4),* 1523-1535. https://doi.org/10.1111/j.1540-6261.1996.tb04078.x
35. Labelle, R., Gargouri, R. M., & Francoeur, C. (2010). Ethics, diversity management, and financial reporting quality. *Journal of Business Ethics, 93(2),* 335-353. https://doi.org/10.1007/s10551-009-0225-7
36. Larkin, J. M. (2000). The ability of internal auditors to identify ethical dilemmas. *Journal of Business Ethics, 23(4),* 401-409. https://doi.org/10.1023/A:1006150718834
37. Lehavy, R., Li, F., & Merkley, K. (2011). The effect of annual report readability on analyst following and the properties of their earnings forecasts. *The Accounting Review, 86(3),* 1087-1115. https://doi.org/10.2308/accr.00000043
38. Liu, Y., Wei, Z., & Xie, F. (2016). CFO gender and earnings management: Evidence from China. *Review of Quantitative Finance and Accounting, 46(4),* 881-905. https://doi.org/10.1007/s11156-014-0490-0
39. Muller, III K. A., Riedl, E. J., & Sellhorn, T. (2011). Mandatory fair value accounting and information asymmetry: Evidence from the European real estate industry. *Management Science, 57(6),* 1138-1153. https://doi.org/10.1287/mnsc.1110.1339
40. Myers, S. C., & Majluf, N. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics, 13(2),* 187-221. https://doi.org/10.1016/0304-405X(84)90023-0
41. Myers, S. C., & Rajan, R. G. (1998). The paradox of liquidity. *Quarterly Journal of Economics, 113(3),* 733-771. https://doi.org/10.1162/003355398555739
42. Nath, P., & Mahajan, V. (2008). Chief marketing officers: A study of their presence in firms' top management teams. *Journal of Marketing, 72(1),* 65-81. https://doi.org/10.1509/jmkg.72.1.65
43. Ndofor, H. A., Wesley, C., & Priem, R. L. (2015). Providing CEOs with opportunities to cheat. *Journal of Management, 41(6),* 1774-1797. https://doi.org/10.1177/0149206312471395
44. Opler, T., Pinkowitz, L., Stulz, R., & Williamson, R. (1999). The determinants and implications of corporate cash holdings. *Journal of Financial Economics, 52(1),* 3-46. https://doi.org/10.1016/S0304-405X(99)00003-3
45. Peni, E., & Vähämaa, S. (2010). Female executives and earnings management. *Managerial Finance, 36(7),* 629-645. https://doi.org/10.1108/03074351011050343
46. Rehbein, K. (2010). Sarbanes-Oxley: Does it help to distinguish good CFOs from bad ones? *Academy of Management Perspectives, 24(4),* 90-92. https://doi.org/10.5465/amp.2010.24.4.3652111a.a
47. Tyson, T. (1990). Believing that everyone else is less ethical: Implications for work behavior and ethics instruction. *Journal of Business Ethics, 9(9),* 715-721. https://doi.org/10.1007/BF00386354
48. Zeidan, M. J. (2013). Effects of illegal behavior on the financial performance of US banking institutions. *Journal of Business Ethics, 112(2),* 313-324. https://doi.org/10.1007/s10551-012-1253-2