

# **Obstacles Beyond Glass Ceiling: The Impact of Women's Leadership on Earnings Management**

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September 22, 2020

## **Abstract**

This paper studies whether discrimination against women following their elevation to positions of power impacts the quality of financial reporting. We extend the literature by using the glass cliff hypothesis and role congruity theory to examine the earnings management behavior of women chief executive officers (CEOs), conditional on the power they hold. We find that women CEOs do not necessarily reduce earnings management. For CEOs with limited power, female CEOs demonstrate lower earnings management than male CEOs. However, with increased power, men and women CEOs exhibit similar earnings management behaviors. This suggests that the observable differences in financial reporting behaviors between male and female CEOs are not necessarily because female CEOs are more risk-averse and ethically sensitive, but because of the existence of glass cliffs which impose high demands on women CEOs to conform to gender roles. Consequently, we find little evidence that the gender of the CEO mitigates the propensity to manipulate earnings.

Keywords: Gender, Glass Ceiling, Role Congruity CEO Power, Earnings Management

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## 1. Introduction

For decades, research in gender and leadership has focused on lower visibility of women within the highest echelons of corporate sector and on impediments to their career advancements. Women traditionally encounter ‘glass ceiling’, the subtle and transparent barriers that prevent their advancement to the upper ranks of workplace hierarchy (Wright, Baxter, and Birkelund 1995). However, the last 15 years have seen an increase in the number of women occupying top executive and leadership roles. Part of this shift is attributed to the changing national laws and governance reforms aimed explicitly towards gender-diverse boardrooms (Adams 2016; Srinidhi, Gul, and Tsui 2011). For instance, Norway, Italy and UK have implemented gender quotas for corporate boardroom memberships which have paved way for women to participate and manage top executive roles. These corporate and societal changes have also mirrored research diversification towards the impact of women’s presence in boardrooms on various corporate outcomes (Adams and Ferreira 2009; Kim and Starks 2016; Levi, Li, and Zhang 2014). Consequently, presence of women executives is not only attracting ethical, moral and social fairness theories (Zalata, Tauringana, and Tingbani 2018) but also the unique skills, talents and experiences of female leaders are found to be valuable for the corporate growth and sustainability (Huang and Kisgen 2013; Francis et al. 2015). For instance, firms headed by women are found to perform better and have higher value (Carter, Simkins, and Simpson 2003; Carter, D’Souza, et al. 2010). Similarly, firms with higher percentage of women directors are associated with reduction in bid premiums and enhanced decision making (Gul, Srinidhi, and Ng 2011; Yu Liu, Wei, and Xie 2014)

However, surprisingly the prior literature provides a varied and conflicting evidence regarding the impact of women leaders on corporate wrongdoing and financial reporting quality (Yu et al. 2010; Sun et al. 2019). Major empirical evidence exhibits that the presence of women on boards reduces the probability of corporate frauds and enhances the quality of financial statements (Cumming, Leung, and Rui 2015; Srinidhi, Gul, and Tsui 2011; Abbott, Parker, and Presley 2012; Capezio and Mavisakalyan 2016; Ho et al. 2015). However, a growing body of recent evidence suggests that there may be no difference between men and women towards board monitoring and earnings management behaviors (Sila, Gonzalez, and Hagendorff 2016; Lakhali et al. 2015)

The reason for the conflicting empirical evidence regarding the impact of gender-diverse boardrooms on monitoring and advising functions is that most of the research is driven towards understanding the ways in which fundamental differences between men and women dictate management styles and leadership effectiveness (Cumming, Leung, and Rui 2015; Yu et al. 2010; Ho et al. 2015). Also, women directors are found to be better candidates for active monitors as they are not a part of “old boys’ network” and are less tolerant about the opportunistic behaviors including earnings management (Fan et al. 2019; Adams and Ferreira 2009; Adams and Funk 2012)

However, the previous studies do not take into consideration the circumstances surrounding top executive positions and the relative difference in the type of leadership roles men and women hold that impacts their leadership attitudes, styles, and decision-making processes. Theoretical studies find that women leaders face significant constraints following promotion to key leadership positions (Bowles 2012; Cook and Glass 2014). This form of discrimination is called the ‘glass cliff’, whereby women, more than men, are assigned to riskier leadership positions and experience heightened scrutiny and exaggerated stereotypes (Ryan and Haslam 2005; Ryan and Haslam 2007; Bruckmüller et al. 2014).

In this paper, we contend that gender biases in leadership roles impact the quality of financial reporting. Specifically, we examine the relationship between the gender of the CEO and earnings management. Coupled with glass cliffs, role congruity theory (Eagly and Karau 2002) shows that women engaging in leadership activities creates incongruence between feminine stereotypes and masculine leadership roles. This leads to negative evaluations and expectations regarding the performance of women CEOs irrespective of their qualification or achievements (Eagly and Johnson 1990; Eagly and Karau 2002; Powell, Butterfield, and Bartol 2008). We bridge this gap in the existing literature by examining if gender differences in leadership discriminations in the form of glass cliffs and role incongruence impact earnings management behavior of women CEOs. We also investigate if the power a CEO holds distorts the relation between the CEO’s gender and earnings management. Prior studies document that the success of CEOs in manipulating performance critically depends on their power to influence decisions (Morck, Shleifer, and Vishny 1988; Adams, Almeida, and Ferreira 2005). Powerful CEOs are also subject to weaker board monitoring, reduced scrutiny, and higher incentives to withhold information from shareholders (Fracassi and Tate 2012). Given that power can act as a stimulus that reduces gender biases faced by women CEOs, we examine if the relation between the CEO’s gender and earnings management persists with increased CEO power.

To empirically answer these research questions, we employ a panel of over 1400 listed firms for the period 2000-2016. We find that the magnitude of earnings management is significantly lower for firms headed by women CEOs. However, jointly testing the effect of CEO power and gender on earnings management, we find that as the power with CEOs increases, no significant relation between the gender of the CEO and earnings management exists. We partition the sample based on CEO power and find women CEOs to engage in less earnings management only in the absence of power. Further, for the sub-sample of powerful CEOs, no significant difference in earnings management is found in firms headed by women and men CEOs. Our results show that differences in type of leadership positions and expectations towards women and men CEOs influence the actions undertaken by women CEOs. Female leaders are seen to violate gender standards if they manifest male-stereotypical attributes and are unfavorably evaluated for this violation.

To overcome these prejudices, women CEOs avoid indulging in earnings management behavior. However, increased power with women CEOs helps in revoking some of the overt and subtle resistances and evaluations. Within the environment of reduced scrutiny and more power to influence the decision-making process, the negative relation between women CEOs and earnings management fades. Consequently, we also find that power in the hands of women executives gives them the opportunity to overcome the “second wave” of gender discrimination after the glass ceiling (Ryan and Haslam 2007)

Consistent with prior gender research, our study faces the challenges of small female CEO sample size, selection bias, and omitted variable concerns (Huang and Kisgen 2013; Adams and Ferreira 2009; Adhikari 2012). We conduct two tests to alleviate the endogeneity concerns. First, we create control samples of male CEOs based on propensity score matching and find robust results. Second, we use a two stage least square (SLS) instrument variable estimation. We use exogenous gender equality index (Sugarman and Straus 1988) considering the economic, legal and political policies towards women in each of the 50 US states (Huang and Kisgen 2013) ) as the instrument variable and conjecture that women are more likely to occupy CEO positions prioritizing women’s equality. The 2SLS regression results affirm our earlier findings that no significant relation between the gender of the CEO and earnings management exists if the women CEOs have high power. To further understand how power distorts the CEO gender and earnings management relationship, we identify CEO turnovers that replace female CEOs with male CEOs and examine the earnings management changes following the turnovers. Interestingly, we find a significant decline in earnings management after a female CEO replaces a male CEO only if the incoming woman CEO holds low managerial power. CEO turnovers when the incoming women CEOs also resides over as chairman witness insignificant decline in earnings management affirming our earlier results.

We believe this study contributes the literature in several ways. First, while the extant gender research focusses on how the fundamental differences between male and female leaders influence various corporate outcomes, our paper seeks to consider the structural and cultural biases rooting the corporate echelons influencing the differences in financial reporting quality of firms headed by male and female CEOs. Our paper contributes to the growing gender literature by offering evidence that discriminations faced by women after occupying leadership roles dictate their earnings management behavior. We show that that the earnings quality proxies including discretionary accruals and real earnings management do not display significant differences for firms headed by men and women with high power. This suggests that women may lead differently than men and avoid engaging in earnings management behavior only when faced with tokenism, stereotypes, intense scrutiny and negative evaluations. However, substantial power grants women CEOs the inherent authority to exert their will, influence the selection of board members and make strategic choices.

Under these circumstances, we do not find significant difference in earnings management behaviors of men and women CEOs. Secondly, our study contributes to two complementary theoretical perspectives. Drawing on glass cliff hypothesis and role congruity to explain the differences in earnings management behavior of men and women CEOs, we also use CEO power to identify the need of women to attain power while in leadership roles. Power with female executives weakens the walls of negative evaluations and behavioral double-blinds, thus provides the liberty to influence the decision-making process (Malmendier and Tate 2005; Frye and Pham 2018; Fracassi and Tate 2012). Finally, this study adds to the current literature of accounting and ethical literature by examining the ethical and conservative inclination of female leaders towards financial reporting. While most of the prior gender and ethics literature suggest that females are relatively risk averse and morally sensitive than their male counterparts, our findings suggest that female leaders do not necessarily reduce earnings management. We find women CEOs to enhance financial reporting quality only if she holds less power over the decision-making process. However, difference between earnings management behavior of men and women CEOs fades as power with the CEO increases. Our results therefore support the claim that organizations should provide women leaders with equal opportunities and platform to lead which shall establish objective standards to evaluate the impact of female leaders on various corporate outcomes. This paper is organized across six sections. We discuss the relevant literature and develop testable hypotheses in Sections 2 and 3. Section 4 discusses the data, sample collection, and the methodology employed and Section 5 proposes the results. Section 6 presents the additional model specifications with concluding observations.

## **2. Theory, Literature and Hypothesis Development**

### **2.1. Earnings Management Overview**

Earnings management refers to the distortion of reported firm financial performance and is one of the salient self-serving behaviors. A large body of literature suggests that to pursue short term objectives, managers manipulate earnings that have a detrimental impact on shareholder wealth (Farooqi, Harris, and Ngo 2014; Graham, Harvey, and Rajgopal 2005). According to the long-established stream of finance literature, agency conflict between managers and shareholders lead managers to extract private benefits at the cost of shareholder wealth. These managers, despite no longer being competent, inflate earnings to secure their positions and avoid dismissal under poor performance. Consequently, such managerial self-serving behaviors mislead shareholders about corporate performance and its outcomes (Cheng and Warfield 2005; Bergstresser and Philippon 2006). Extant literature documents the existence of earnings management to meet and beat short term targets and avoid documenting earning declines and losses (Degeorge, Patel, and Zeckhauser

1999; Brown and Higgins 2001; Burgstahler and Eames 2003; Daske, Gebhardt, and McLeay 2006; Myers, Myers, and Skinner 2007).

Multiple studies demonstrate that earnings management can be of two types, the opportunistic use of accruals to inflate earnings and manipulation of real activities to increase current earnings (Schipper 1989; Healy and Wahlen 1999). Accrual based earnings management obscures the true financial performance by changing the accounting methods or estimates and have become easy to detect considering tighter regulations and accounting regimes (Jones 1991; Dechow and Dichev 2002). Real earnings management, on the other hand, alters the execution of real business transactions. As the manipulation of real transactions (discretionary expenses and production costs) are harder to detect, more and more managers have greater willingness to resort to real earnings management (Roychowdhury 2006; Cohen, Dey, and Lys 2008). (Graham, Harvey, and Rajgopal 2005) report that 78% of the managers surveyed use real activities to manipulate earnings while only 7.9% use accrual-based earnings management.

## **2.2. Behavioral biases beyond Glass Ceiling: Role Congruity Theory**

Glass ceiling, concrete walls, sticky floors, and career labyrinths are often used as metaphors to describe transparent barriers that prevent women from progressing on the corporate ladder beyond a certain point (Morrison et al. 1987). While most academic research investigates the mechanisms by which gender diversity in boardroom adds corporate value, a relatively small body of work seeks to examine the challenges female leaders experience following promotion to key executive roles. The novelty of the glass cliff model suggests that women are appointed to precarious boardroom positions and heightened to intense scrutiny (Ryan and Haslam 2007; Cook and Glass 2014). Research further finds that workers prefer men supervisors to women ones and remain unconvinced about the effectiveness of women leaders (Bowen, Swim, and Jacobs 2000; Eagly and Karau 2002; Sczesny 2003). Role congruity also finds that prejudice occurs based on incongruity between leadership roles and women's normative gender roles (Eagly and Karau 2002; Heilman 2001). The incongruity and glass cliffs present challenges for women leaders in two forms. First, women are evaluated less favorably than men as potential leaders because leadership qualities are considered stereotypically to belong to and be demonstrated by men (Schein 1973; Koenig et al. 2011; Gorman 2005; Britton 2001; Schein 2001). Second, leadership behavior enacted by women is evaluated less favorably than equivalent behavior in men because it is perceived as a less desirable trait in women (Eagly and Karau 2002; Schock et al. 2019). These biases lead to negative evaluations for female leaders irrespective of their abilities, qualifications, and performance (Eagly and Karau 2002; Eagly 2007). For instance, women leaders are negatively evaluated for being voluble when in power, while men are appreciated for the same when in leadership positions (Brescoll et al. 2012). Shareholders' response to the announcement of women CEOs is significantly negative as

compared to the announcement of appointments of men CEOs (Lee and James 2007). Indeed, unlike men, women face a threat of negative evaluation if they engage in authoritarian behavior despite it often being necessary for effective leadership (Rudman 1998; Livingston, Rosette, and Washington 2012).

### **2.2.1. CEO Gender and Earnings Management**

There has been increased pressure from across the world towards gender equality in C-suites (Ahern and Dittmar 2012). The issue of correctly reporting financial numbers is a monetary and ethical dilemma and the existing literature finds women's representation on boards to be an important factor (Levi, Li, and Zhang 2014; Huang and Kisgen 2013; Francis et al. 2015). However, the literature does not show a clear consensus on whether women in leadership positions benefit or detriment reporting quality. Extant empirical evidence shows that women executives are more diligent monitors than the men counterparts, thus enhancing the quality of financial reporting (Betz, O'Connell, and Shepard 1989; Gul, Fung, and Jaggi 2009; Krishnan and Parsons 2008). Women executives are different than their men counterparts in background, skills and talents. They are more independent and better monitors as they are not the part of old boys' school network. This makes them less tolerant towards opportunistic behavior. The presence of women on corporate boards is also associated with reduced corporate scandals and frauds (Gul, Srinidhi, and Ng 2011; Cumming, Leung, and Rui 2015). In addition, women executives are found to be more cautious which helps improve the overall quality of board decisions (Luo, Xiang, and Huang 2017). In contrast, (Lakhali et al. 2015), studying a sample of French-listed firms, document that women CEOs and CFOs do not reduce earnings management in firms. (Yu et al. 2010; Barua et al. 2010) report that although women CFOs are associated with lower earnings management, women CEOs are not. In addition, (Harris, Karl, and Lawrence 2019) find that the differences in the gender of CEOs in earning management behavior cease to exist at high levels of equity-based compensation. Other studies further find no evidence of influences of the gender of the CEO on earnings management (Ye, Zhang, and Rezaee 2010; Yu et al. 2010)

## **3. Hypothesis Development**

As mentioned in the previous sections, prior studies have not sufficiently taken into consideration the challenges women leaders face following promotion to key executive roles, which impacts their behavior and attitude towards earnings management. This lack of engagement can help explain the conflicting results in the existing literature. The evidence regarding restricted access for women to boardrooms and their appointment to precarious positions is well established and it is observed that women CEOs are less likely to engage in earnings management. This is not only because

women leaders are perceived as less capable and qualified, but also because it does not conform to the normative gender roles (Bakan 1966; Wood and Eagly 2012; Eagly, Wood, and Diekmann 2000). We therefore propose the following hypothesis:

*Hypothesis 1: Firms headed by women CEOs engage in less earnings management than firms headed by Men CEOs.*

### **3.1. The moderating role of CEO power**

The upper echelons literature has emphasized the role of CEOs in firm strategy and decision-making processes with mixed arguments pertaining to positive and negative repercussions of CEO power (Hambrick and Mason 1984; Sturm and Antonakis 2015). Being an architect of the firm's overall strategy, a powerful CEO can exert significant influence on the board and the decision-making process detrimental to overall firm performance. Extant literature suggests that CEO power can largely negatively impact profitability and shareholder wealth (Daily and Johnson 1997). Based on an agency cost perspective, (Adams, Almeida, and Ferreira 2005) find that powerful CEOs exert their will and influence financial reporting significantly more than less powerful CEOs. The Managerial Power theory (Bebchuk, Fried, and Walker 2002; Bebchuk and Fried 2004; Ntim et al. 2019) contends that powerful CEOs exert their power over the board in the compensation setting process, which allows them to extract rents from the firm. Powerful CEOs are found to exert greater pressure on CFOs to involve in material accounting manipulations (Feng et al. 2011). Also, greater CEO power leads to lower quality of earnings (Adams, Almeida, and Ferreira 2005; Efendi, Srivastava, and Swanson 2007).

While women CEOs may be less inclined towards earnings management, increased CEO power is likely to have a mitigating effect on the relation. Increased CEO power can lead to reduced scrutiny and increased influence over the decision making. Specifically, in the absence of power, the CEO's ability to effective leadership may be hampered, especially if there is a conflict between the board and top management. On the other hand, increased CEO power provides a platform to align the firm's strategic vision with the board (Alexander, Fennell, and Halpern 1993; Anderson and Anthony 1986). Further, CEOs can influence the tone of earnings management by the appointment of CFO and other board members who share their preferences (Bishop, DeZoort, and Hermanson 2017; Carcello et al. 2011). Previous studies provide evidence of increased earnings management as well as managers' preferences for reporting qualitative financial reporting with higher CEO stock-based compensation (Burns and Kedia 2006; Yermack 1997). Extending this line of research, higher CEO power is likely to induce a stronger incentive to portray an overly optimistic picture of the firm's earnings. In other words, CEO power will lead to reduced scrutiny and more decision-making capability for women CEOs. Hence, we theorize that while women CEOs engage in less earnings management than men CEOs, gender differences in earnings management



decline with increased CEO power. Thus, we hypothesize:

*Hypothesis 2: Firms led by powerful women CEOs exhibit similar earnings management as firms headed by powerful men CEOs.*

## **4. Data and Variable Construction**

### **4.1. Data and sample selection**

We begin constructing our sample using Institutional Shareholder Services (ISS) directors and ExecuComp database, which provides time series data for top executives in SP 1500 firms. We define CEO as a person identified as CEO by the ISS database (*Employment title- CEO*), collect the name and gender of all CEOs (*Woman and Director-Full Name*) and board level variables from years 2000 to 2016. We refine the sample by eliminating firms in the financial services (SIC 6000-6999) and utilities industry (SIC 4900-4999) because of regulatory requirements. We collect executive salaries and ownership using the ExecuComp database and obtain accounting data from Compustat to construct earnings management and control variables (see Appendix for definition of all variables used in the study). Our final sample contains 11,207 firm-year observations from 2000-2016, including 496 female CEO firm-year observations. For each firm-year observation, we create an indicator variable *CEO Fem* that equals one if the firm is headed by a woman, and zero otherwise.

### **4.2. CEO Power**

Prior studies have used a wide variety of measures for executive power (Adams, Almeida, and Ferreira 2005; Hill and Phan 1991). We use the two most relevant and comprehensive variables based on the construct of duality and centrality (Grinstein and Hribar 2004). For CEOs, duality is determined by whether the CEO is also the chairman of the board. Duality captures the CEO's ability to influence policy and decision making by having formal authority over the board and management. (Bebchuk, Cremers, and Peyer 2011) point out that CEO Pay Slice (CPS) is useful to measure the centrality of the CEO in the top management team. Centrality measures the relative importance (ability, contribution, and power) of the CEO. Unlike other objective measures, CPS captures the dimensions of CEO's role beyond merely holding the position of chair. Also, because CPS is based on compensation information of executives in the same firms, it controls for any firm specific characteristics that affect the average level of power held by the CEO (Yixin Liu and Jiraporn 2010). Hence, for robustness, we followed (Bebchuk, Cremers, and Peyer 2011) and used CPS as the second measure of CEO power. CPS, calculated as "the ratio of CEO total compensation (salary, bonus and equity-based, reported as *tdc1* in ExecuComp) to the combined total compensation of top five executives (including CEO) in a firm", represents the relative value

assigned to the CEO by the board and the power of the CEO within the management team (Choe, Tian, and Yin 2014; Baker et al. 2019)

We report the distribution of female CEO led firms and CEO power by year in Panel A of Table 1, and by Fama-French 12 industry classification in Panel B (Table 1). 1 shows the number and percentage of firm-year observations headed by women CEOs as well as the number and percentage of CEOs holding the dual position of CEO and chairman depicting CEO power. Panel A of Table 1 shows that no single year dominates the sample. Across the sample period, it is notable that the percentage of firms with female CEOs increases steadily from 3.34% in 2000 to 7.69% in 2004 followed by a decline during the financial crisis of 2007-2009. For the latter part of the sample period, the percentage of firms headed by women CEOs increases from 3.55% in 2010 to 5.56% in 2016. In contrast, the percentage of CEO-duality firms has decreased over the sample period for both women and men CEOs. The decline in CEO-duality firms over time is the result of stricter regulations and enhanced scrutiny, especially following the crisis of 2007-2009. Panel B (Table 1) presents statistics across 10 Fama-French Industries (Financial Industry and Utilities excluded). There is a notable difference across industries in terms of women leadership. Specifically, the percentage of firm-year observations with women CEOs ranges from a low of 0.035% in Consumer Durables to a high of 1.00% in Wholesale, Retail, and some Services. The percentage of firm-year observations with women CEOs varies across industries, ranging from 0.62% in Business Equipment to 0.24% in Chemicals and Allied Products.

### 4.3. Earnings Management

Following previous literature, we estimate two earnings management practices as a proxy for earnings management: the opportunistic use of accruals, measured by current discretionary accruals and real activities manipulation. To calculate real earnings manipulation, we use abnormal production costs and abnormal discretionary expenses. (Farooqi, Harris, and Ngo 2014) and (Roychowdhury 2006) find that these two measures effectively capture real earnings manipulation. Myopic corporate managers may resort to cutting advertising expenses and RD expenditures to boost short term earnings at the expense of long term goals (Gupta, Pevzner, and Seethamraju 2010; Kothari, Mizik, and Roychowdhury 2016). Overproduction entails higher production leading to a decrease in per unit cost of the product and lowers the cost of sales. This improves the corporate gross profit margin and attainable earning thresholds. Hence, following existing empirical evidence, abnormal discretionary expenses and production costs are measured using the following equations:

$$\frac{Dis_{it}}{Assets_{(it-1)}} = \beta_0 + \beta_1 \frac{1}{Assets_{(it-1)}} + \beta_2 \frac{S_{it}}{Assets_{(it-1)}} + \varepsilon_{(Dis)} \quad (1)$$

Where  $Dis_{it}$  is the discretionary expenditure, which is the sum of firm's advertising expenses and R&D expenses in year t.  $Assets_{(it-1)}$  is the total assets in year t-1 and  $S_{it}$  denotes net sales for the firm in year t.

$$\frac{Prod_{it}}{Assets_{(it-1)}} = \gamma_0 + \gamma_1 \frac{1}{Assets_{(it-1)}} + \gamma_2 \frac{S_{it}}{Assets_{(it-1)}} + \gamma_3 \frac{\Delta S_{it}}{Assets_{(it-1)}} + \gamma_4 \frac{\Delta S_{(it-1)}}{Assets_{(it-1)}} + \varepsilon_{(Prod)} \quad (2)$$

Where  $Prod_{it}$  is the sum of firm's cost of goods sold and change in inventory in year t.  $Assets_{(it-1)}$  are the assets of the firm in year t-1,  $S_{it}$  are the net sales in year t.  $\Delta S_{it}$  denotes the change in net sales from year t-1 to t and  $\Delta S_{(it-1)}$  is the change in net sales from year t-2 to year t-1.

Abnormal discretionary expenses and production costs are the residuals from the aforementioned estimation models. Higher abnormal production expenses and lower abnormal discretionary expenses are consistent with income increasing real earnings manipulation. Hence, a proxy for real earnings management is computed by the sum of abnormal discretionary expenses (multiplied by -1) and abnormal production expenditures.

To estimate current discretionary accruals, we use a cross-sectional version of the modified Jones Model (Dechow, Sloan, and Sweeney 1995; Jones 1991) because of its superior classification and less restrictive data requirements (DeFond and Subramanyam 1998; Cai et al. 2019). The following cross-sectional regression equation is used to estimate current accruals:

$$\frac{TA_{it}}{Assets_{(it-1)}} = \alpha_{0t} + \alpha_{1t} \frac{1}{Assets_{(it-1)}} + \alpha_{2t} \frac{\Delta S_{it}}{Assets_{(it-1)}} + \alpha_{3t} \frac{PPE_{it}}{Assets_{(it-1)}} + \varepsilon_{(it)} \quad (3)$$

Where for firm i and year t,  $TA_{it}$  is total accruals of firm i in year t, which are equal to change in non-cash current assets minus change in current liabilities excluding the current portion of long-term debt, minus depreciation and amortization.  $Assets_{(it-1)}$  are the total assets of the firm i in year t-1,  $\Delta S_{it}$  is the change in net sales of firm i from year t-1 to t,  $PPE_{it}$  is the property, plant and equipment of firm i for year t.

According to (Jones 1991), total accruals can be categorized into discretionary and non-discretionary accruals. Non-Discretionary accruals are assumed to be affected by economic consequences and discretionary accruals are a result of the manager's perspective for reporting earnings (Hsieh et al. 2018). Equation 3 is estimated cross-sectional each year within the same industry (Fama-French 12 industry classification) to obtain the fitted value of accruals. The fitted value captures the non-discretionary accruals and the difference between the observed value and the fitted value that is the estimated residuals capture the current discretionary accruals, the absolute value of which is proxied for earnings management.

#### 4.4. Other Variables

The models employed in our analysis include a number of firms, board, and CEO characteristics that have been found to influence earnings management. Following (Bergstresser and Philippon 2006), we use current return on assets (ROA), measured as the ratio of income before extraordinary items to beginning total assets, to control for a firm's current performance that can determine the current earnings management. To account for a firm's growth opportunities, we follow (Minton and Schrand 1999) and use market to book ratio, computed as the ratio of market value of a firm to its book value at the beginning of the year. We control for revenue growth from year t-1 to year t to account for actual sales growth. We also control for firm size, measured as logarithm of total assets, as larger firms face larger political costs (Watts and Zimmerman 1990) that can enhance earnings management but also face enhanced scrutiny that can limit earnings management. As a proxy for risk, we use standard deviation of operating cash flows scaled by beginning total assets and computed over a three-year rolling period. Riskier firms are expected to engage in higher earnings management to curb volatility. Altman's Z-score is used to proxy financial health (Zang 2012) while E-index (Entrenchment Index) is used as a proxy for corporate governance. We further control for a set of demographic information of CEO including age ( $\ln(\text{CEO age})$ ), tenure ( $\ln(\text{CEO tenure})$ ) as well as board characteristics to control for management quality. We control for board size ( $\ln(\text{board size})$ ), percentage of independent directors as well as the percentage of women directors on board. Panel A of Table 2 provides summary statistics on the earnings management variables, CEO power variables and other key CEO, board, and firm characteristics. To minimize the impact of extreme outliers, we winsorize all continuous variables at top and bottom 1%. The variable absolute current discretionary accruals (*AbsDA*) has a mean value of 0.032. The findings indicate on average a decline in earnings management using discretionary accruals. The study by (Cai et al. 2019) found the mean absolute current discretionary accruals of 0.062 for the sample period 2000-2010. Real earnings manipulation (*Real EM*), on the other hand, has a mean and median of 0.438 and 0.316 consistent with (Z. F. Li and Thibodeau 2019). Approximately 4.47% of the CEOs in the sample are women and 60.6% of the CEOs hold the position of the chair in addition to CEO. The average CEO pay slice is 0.34. The average corporate board consists of 8 members of which nearly 75% are independent directors and 12% are female directors. On average, CEOs are 58.3 years old with 11.17 years of tenure at the CEO position. Table 2, Panel B reports the Spearman correlation coefficients for main variables of interest. We find that women CEOs are negatively related to Real EM and AbsDA providing preliminary evidence that women CEOs engage in lesser earnings management. CEO duality and CEO pay slice are positively and significantly correlated to real earnings management.

## 5. Results

### 5.1. Univariate results

Table 3 provides the univariate test results. It compares the firms headed by women CEOs to those by men CEOs. It also compares the difference in firms led by women and men CEOs based on CEO duality. The mean absolute value of Real EM is 0.441 for firms with men CEOs and 0.356 for firms with women CEOs, and the difference is significant at 5% level suggesting that firms headed by women CEOs engage in less earnings management. However, in Panel B of Table 3, the mean difference in Real EM between firms headed by women and men CEOs also serving the position of chairman (*CEO Dual*) is 0.048 and is no longer significant. This indicates that increase in CEO power reduces the gap in earnings management between women and men CEOs, which supports our second hypothesis. Similar results are obtained using AbsDA as a proxy for earnings management. Further, relative to men CEOs, women CEOs are younger, have shorter tenure, and receive lesser compensation. The fraction of independent and women directors on boards is higher for women CEOs. Firms with women CEOs tend to be bigger, more profitable, and are riskier (StdDev Sales) compared to firms headed by men CEOs consistent with (Faccio, Marchica, and Mura 2016)

### 5.2. Regression Analysis

In this section, we jointly test the effect of CEO gender and power on earnings management in a multivariate setting by controlling for a set of firm and executive characteristics. The dependent variables are earnings management proxies measured by real activities manipulation (*Real EM*) and absolute value of current discretionary accruals (*AbsDA*) for each firm-year. The variables of interest are CEO gender and CEO power. The indicator variable, CEO Fem, equals one if the firm-year has a woman CEO and zero otherwise. CEO power is measured by an indicator, CEO Dual, which equals to one if the CEO holds the position of chair for a firm-year, zero otherwise. We also use CEO pay slice (CPS) as a proxy of CEO power for robustness. We start by running the following OLS model:

$$RealEM_{it}/AbsDA_{it} = \left( \begin{array}{l} \beta_0 + \beta_1 CEOFem + \beta_2 CEOpower + \beta_3 CEOFem \times CEOpower \\ + \sum \beta_4 Firm\ level\ Controls + \sum \beta_5 Board\ level\ Controls \\ + \sum \beta_6 CEO\ level\ Controls + \varepsilon_{it} \end{array} \right) \quad (4)$$

We include Fama-French 12 industry, year, and CEO fixed effects to control for variations in economic operations for our sample firms across industries, years, and CEOs. We report test

statistics and significance levels based on standard errors clustered by firm and year levels (Petersen 2009)

Table 4 and Table 5 presents the regression results from Equation 3.4, which tests our two hypotheses. Real Earnings Management (*Real EM*) is the dependent variable for Table 4 and absolute value of current discretionary accruals (*AbsDA*) is the dependent variable for Table 5. In Table 4 column (1), the coefficient of *CEO Fem* is negative and significant (-0.448) at 1% level. This finding provides support for the first hypothesis that female CEOs, ceteris paribus, are less likely to engage in earnings management relative to their male counterparts. This difference in earnings management could be the result of fundamental differences between genders in terms of risk-taking attitudes, overconfidence and ethical behaviors (Marianne 2011; Malmendier and Tate 2008). However, it could also be attributed to the differences in incentive structures, unemployment risk, as well as incongruity between the role of women in society and leadership roles (Akerlof and Kranton 2000; Booth and Nolen 2012; Guiso et al. 2008). In column (2) of Table 4, we control for CEO power measured by CEO duality. Consistent with (Feng et al. 2011), we find that the coefficient of *CEO Dual* is positive and significant at 5% level, suggesting that the existence of CEO who is also the chairman reduces board effectiveness in monitoring the quality of financial reporting (Kamarudin, Ismail, and Mustapha 2012). Moreover, there is a positive and significant coefficient on the interaction term between gender variable denoting female CEOs and CEO duality (*CEO Fem\*Dual*) shown in column (3). This result indicates that with increased power, the propensity of female CEOs to engage in earnings management increases, consistent with our second hypothesis. Similar results are obtained when CEO pay slice (*CPS*) is used as a proxy for CEO power in columns (6) and (7). In column (7), the coefficient of the interaction term (*CEO Fem\*CPS*) is positive but is insignificant. This provides evidence that women CEOs engage in less earnings management only in the absence of power over the management team. In the presence of increased power, no significant relation between CEO gender and earnings management is found. The results also show that fundamental differences in risk-taking and ethical behaviors between genders do not drive the decision-making process at top leadership positions consistent with (Cook and Glass 2013). We further find that larger firms, more profitable firms, more volatile firms engage in higher earnings management consistent with prior literature on earnings management (Arun, Almahrog, and Aribi 2015; Harris, Karl, and Lawrence 2019). We also find the presence of female directors leads to reduced earnings management.

In columns (4) and (5) of Table 4, we partition the sample into two groups: firm-years with high CEO power (*CEO Dual = 1*) and firm-years with low CEO power (*CEO Dual = 0*). The coefficient of *CEO Fem* is negative and statistically significant (-0.806) at 1% for firm-years with low CEO power (*CEO Dual = 0*), depicted in column (5). However, for the sample of firm years with high CEO power, the coefficient of *CEO Fem* is negative (-0.298) but loses significance relative to low

CEO power sample significant at 10% level). This suggests that with increased power, there is no statistical difference in earnings management behavior between male and female CEOs exists, consistent with the previous result.

Table 5 presents the regression results of the joint impact of CEO gender and power on accruals-based earnings management. The dependent variable is absolute value of current discretionary accruals (*AbsDA*). Consistent with previous results column (1) shows that women CEOs are less likely to engage in earnings management with a coefficient of -0.003, significant at 5% level. However, the coefficient on the interaction term (*CEO Fem\*Dual*) in column (3) is negative but insignificant (-0.008). This suggests that in the presence of power, no significant relation between CEO gender and earnings management exists. Similar to Table 4, we also partition the sample based on CEO power and find the results to hold. For the firm-year observations with low CEO power (*CEO Dual=0*), the coefficient of *CEO Fem* is negative and significant (-0.037) at 5% level depicted in column (5). However, column (4) shows that for the sample of high CEO power (*CEO Dual=1*) the coefficient of *CEO Fem* is negative but loses significance. This affirms that women CEOs engage in less earnings management relative to their male counterparts only when she has less power over the board and management.

Overall, the result is consistent with role congruity theory which underlines that women leaders engaging in earnings management are perceived as less capable and quickly replaced as engaging in earnings manipulations are not in line with their ‘expected’ gender roles associated with cooperation, welfare, honesty, and sustainability. Thus, increased scrutiny and fear of losing leadership roles lead women CEOs to engage in significantly less earnings management relative to their male counterparts. However, increased CEO power moderates the relationship between CEO gender and earnings quality. The women CEO who is also the chairman has the freedom to manage the company and exert her will towards financial reporting. The above results show that in an increased power environment, gender differences towards earnings management are not significant.

## 6. Endogeneity Concerns

Our results suggest that lack of CEO power engenders the negative relation between female CEOs and earnings management. However, concerns in the prior literature suggest a self-selection bias in the CEO hiring process violating the randomization assumption. Women leaders may choose to work in certain types of firms or certain boards could be more inclined to hire women leaders (Huang and Kisgen 2013; Adams and Ferreira 2009). Further, our results could be driven by omitted firm characteristics that affect both earnings management and CEO gender. For example, (Adhikari 2012) finds that in firms with higher inherent risk, women are excluded from top executive positions. In this section we adopt a propensity matched sample approach, instrumental

variable approach as well as a difference-in-differences analysis with CEO turnovers to rule out any potential endogeneity concerns.

### 6.1. Evidence from matched samples

To address biased estimation because of the large disparity in the number of male and female CEO firm-year observations and potential omitted variables concern, we analyze the difference in earnings management behavior for male and female CEOs using a propensity matched sample approach. Following (Huang and Kisgen 2013), firm-years with female CEOs are matched with those without, based on observable firm, board and CEO characteristics. Specifically, to employ propensity score matching, we start by running a logit model that regresses the CEO gender variable (*CEO Fem*) on a set of characteristics including total assets ( $\ln(\text{Assets})$ ), ROA (*ROA*), Leverage (*Leverage*), Market-to-book ratio (*MTB*), revenue growth (*Rev Growth*), Board size (*Board size*) and Logarithm of CEO age (*CEO age*), year and industry dummies. We then use propensity score to perform a nearest neighbor match without replacement. We compare female CEO firm-year observations with their corresponding propensity score matched male CEO firm-year observations to re-examine the earnings management behavior of male and female CEOs, and the moderating role of CEO power in this relation. Panel A of Table 6 provides the descriptive statistics for the matched sample partitioned into firm years with high CEO power (*CEO Dual=1*) and low CEO power (*CEO Dual=0*). We find that after propensity score matching, boards headed by female CEOs have a larger board size and a greater fraction of independent and female directors. Further, male CEOs earn higher compensation than female CEOs. In the PSM sample, we continue to find that real earnings management and absolute value of discretionary accruals to be higher for female CEOs than male CEOs but are significant only for the low power CEOs (*CEO dual=1*).

Panel B of Table 6 reports the regression results based on propensity score matched samples. We consistently find a negative coefficient on *CEO Fem* indicating that female CEOs engage in less earnings management. We also find a positive coefficient on the interaction term (*CEO Fem\*Dual*) in column (3), significant at 10% level showing the moderating role of CEO power in the relation between CEO gender and earnings management. We also partition the PSM sample into firm-year observations based on CEO power. OLS regression results in columns (4) and (5) find that the coefficient of *CEO Fem* to be negative for both columns but is statistically significant only for firm-years with low CEO power. Overall, the results indicate that with increased power, there is no statistical difference between earnings management behavior of male and female CEOs, consistent with our two hypotheses.



## 6.2. Evidence from Instrumental Variable Approach

In order to further investigate the self-selection bias that might explain the above results, we re-examine the relation between CEO gender, CEO power and earnings management using instrumental variable approach. Pursuant to previous studies, our IV approach is based on the exogenous gender equality index developed by (Sugarman and Straus 1988). They constructed a gender equality index considering economic, political and legal policies towards women in each of the 50 U.S. states. The score of the overall gender-equality index ranges from 19.2 (Mississippi) to 59.9 (Oregon). The index has been widely used as an instrument in the prior finance, accounting, management and gender studies literature (Huang and Kisgen 2013; Baixauli-Soler, Belda-Ruiz, and Sanchez-Marin 2015; Frye and Pham 2018; Harris, Karl, and Lawrence 2019). However, post development of this index in 1988, progress, innovation and outlook towards women has immensely changed. Hence, for robustness, we also use the 2019 Bloomberg Gender-Equality Index (GEI) as the instrument variable<sup>2</sup>. The index developed by Bloomberg takes into consideration economic and legal policies towards gender equality including median pay ratio, female labor force participation health coverage for women and college degree attainment. The score of the gender-equality index ranges between 0 and 100, with Vermont attaining the highest score of 86.40 and Mississippi with the lowest score of 11.20. Following (Huang and Kisgen 2013), we posit that women are more likely to occupy CEO positions in the states friendly towards women's equality. We use the headquarter location of the firm, the information about which is obtained from Compustat and assign a gender equality index to each state calculated by (Sugarman and Straus 1988) and by Bloomberg. We find the mean of (Sugarman and Straus 1988) gender equality index (*GenEqual Old*) to be 43.70 for our sample with a standard deviation of 8.04 while the mean of Bloomberg gender equality index (*GenEqual New*) is 51.66 with a standard deviation of 17.42.

Using a two-stage IV approach, we first regress the endogenous variable *CEO Fem* on each of the instrument variables (*GenEqual Old*; *GenEqual New*) and the set of firm characteristics (Ln(Assets), ROA, Leverage, Market-to-book ratio (MTB), cash, Z score, board size, fraction of independent directors and Ln(CEO age)). For the second stage regression, the predicted values of the endogenous variable from the first stage are used to study the relation between CEO gender, power and earnings management.

Table 7 provides the results for the first stage and second stage regressions. Panel A of Table 7 shows the pairwise correlation between two gender equality indices (*Gen Equality Old*; *Gen Equality New*), CEO gender indicator variable (*CEO Fem*) and earnings management proxies (*Real EM*; *AbsDA*). We find that two gender equality indices to be positively and significantly

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<sup>2</sup>Bloomberg Gender-Equality Index (GEI) tracks the financial performance of companies committed towards gender equality. It also ranks the countries based on their adaptability to gender equality. The GEI for US states is obtained from Bloomberg terminal

correlated to each other. We also find the CEO female dummy (*CEO Fem*) to be positively and significantly correlated to the instrument variables. This shows that women CEOs have a higher tendency to occupy executive roles in states that promote equal opportunity for women. The correlation between real earnings management proxies and the two instrument variables is low and insignificant. This validates the instrument variable as it induces changes in the explanatory variable (*CEO Fem*) but has no independent effect on the dependent variables (*Real EM and AbsDA*)

Panel B and Panel C of Table 7 shows the results from first-stage and second-stage regressions using (Sugarman and Straus 1988) gender equality index (*GenEqual Old*) and Bloomberg gender equality index (*GenEqual New*) as the instrument variables respectively. Consistent with (Huang and Kisgen 2013) and (Harris, Karl, and Lawrence 2019), we find the coefficient on the instrument variable in the first stage regression is positive and significant at 5%. This confirms the strong relation between gender equality index and having a women CEO. The F-statistic from the first stage regressions using instrument variables are 14.157 and 11.148, significant at 1% level. Further, female CEOs hired are young, have lower tenures and have a higher fraction of independent directors.

For the second stage regression, we use *Real EM* as the dependent variable<sup>3</sup>. Consistent with previous results, Panel B of Table 7 shows the coefficient of interaction variable (*CEO Fem\*Dual*) is positive but insignificant suggesting that with increased power, the relation between female CEOs and earnings management is positive but insignificant. The coefficient of the interaction variable (*CEO Fem\*CPS*) is negative but also insignificant. The propensity of female CEOs to engage in significantly less earnings management is only in the absence of CEO power as suggested by a negative and significant coefficient of *CEO Fem* in the sub-sample of firms with low CEO power. Thus, the results overall affirm that earnings management behavior of women CEOs is not driven by their risk-taking abilities or ethical attitudes but is governed by the discrimination they face after occupying top executive roles. Consistent results are found using Bloomberg gender equality index (*GenEqual New*) reported in Panel C of Table 7. This relationship affirms our previous finding that as the power increases, the propensity to engage in earnings management for women CEOs also increases. Further, significant differences in earnings management behavior is found between male and female CEOs only within low CEO power subgroup.

### 6.3. Evidence from CEO turnovers

In addition to propensity score matching and instrumental variable approach to address the endogenous concern, we examine CEO turnovers and the associated changes in earnings management. This analysis compares the difference in earnings management for the same firm due to changes in CEOs. Therefore, if any trends in earnings management followed by the firm prior to change in

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<sup>3</sup>Ran the regression using *AbsDA* as the dependent variable and obtained similar results.

CEO impact the results, this difference-in-difference analysis using CEO turnovers should alleviate the bias.

In this analysis, we identify firm-year observations when a change in CEO appears in the ISS database. We differentiate CEO transitions into two types depending on the gender of incoming and outgoing CEOs: male-to-female (M-F) and female-to-male (F-M) CEO transitions. For comparison, we also consider male-to-male (M-M) CEO transitions. We construct a sample of CEO turnovers following (Huang and Kisgen 2013). Panel A of Table 8 reports the change in earnings management for the sample of executive turnovers. Our CEO transitions sample contains 142 male-to-female transitions, 192 female-to-male transitions and 796 male-to-male transitions for the sample period 2000-2016. We find that in around 87% of male-to-female transitions (124 transitions), firms experience a decline in earnings management when a woman CEO replaces a male CEO. However, the maximum change is experienced when the transition to women CEOs is also accompanied by a decline in CEO power, significant at 1% level. The decline in earnings management when the incoming women CEOs also resides over as chairman while the outgoing male CEOs have low power is only significant at 10% level. Female-to-male CEO transitions on the other hand experience an increase in earnings management following the transition. The increase is largest when the incoming male CEO also presides over as chairman while the outgoing women CEO had low power. This again shows that CEO power measured by duality impacts the relation between CEO gender and earnings management.

Panel B of Table 8 examines the change in earnings management around each of the CEO turnovers in terms of gender and power using regression analysis. We calculate the change in real Earnings Management (*Change in Real EM*) as the difference between the real earnings management one year after the transition (t+1) and one year prior to the transition (t-1), where t is the year of CEO transition. To run the regression analysis, we partition the CEO transitions based on duality. As per our hypothesis, we expect CEO power to weaken the negative relation between CEO gender and earnings management. This is indeed what we find. In Model (2), we find that for CEO transitions from duality to non-duality, firms with women CEOs replacing male CEOs experience the largest decline, significant at 1% level, followed by male CEOs replacing female CEOs. Model (1) on the other hand, shows that a male CEO replacing a women CEO experience the greatest increase, significant at 1% level. The transition in male-to-male CEOs experience increase in earnings management but is not statistically significant.

Overall, the CEO turnover analysis affirms that women CEOs engage in lesser earnings management relative to male CEOs. However, CEO power acts as a moderator and weakens the relation between CEO gender and earnings. The decline in earnings management is not statistically significant when the incoming women CEOs hold power by occupying the dual position of CEO and chairman. The results also suggest that this relation is unlikely to be driven by endogeneity.

## 7. Additional Analysis

### 7.1. Alternate Model Specifications

Thus far, we have shown that power has a significant influence on the relation between CEO gender and earnings quality. In this section we use an alternate model specification to compare earnings management behavior of male and female CEOs in the presence of power. The analysis of covariance (ANCOVA) is a statistical procedure for looking at group effects on the outcome variable controlling for continuous explanatory variables. Developed and popularized by (Fisher 1954), ANCOVA generates prediction equations for various levels of the categorical variable of interest and is widely used in biological clinical experiments to evaluate the difference in treatment effect between treated and non-treated groups (Rosenbaum and Rubin 1984; Miller and Chapman 2001). Hence, in addition to the OLS model, we also run the ANCOVA model to compare the differences in earnings management practices by male and female CEOs moderated by power. We generate a categorical variable (*CEO Gen Power*), which takes the value of one if the CEO is female (*CEO Fem=1*) and is also the chairman (*CEO Dual=1*), two if the CEO is female (*CEO Fem=1*) but does not preside over the board as chairman (*CEO Dual=0*) and three if the CEO is male (*CEO Fem=0*) and does not occupy the position of chairman (*CEO Dual=0*). The ANCOVA model is a conditional model that will test the differences for each of the three groups of the categorical variable (*CEO Gen Power*) with the base category. In this setting, we use the base category as the male CEO who is also the chairman of the board. The ANCOVA model is described as:

$$RealEM_{it}/AbsDA_{it} = \alpha_0 + \alpha_1 G_{it} + \sum \alpha_3 ControlVariables_{it} + \epsilon_{it} \quad (5)$$

Where  $G_{it}$  is the difference in CEO gender and power and coefficient captures the impact of difference in CEO gender and power on outcome variable (*Real EM and AbsDA*). Specifically, it captures the average change in earnings management dependent on difference in female and male CEOs as well as power. One advantage of the ANCOVA model of relevance is, it allows to control for baseline differences, that is, differences in firms and management that can impact earnings management practices.

Table 9 provides the results for the ANCOVA models for the full sample and the matched samples. We use *Real EM* and *AbsDA* as the dependent variables. The coefficient on *CEO Dual Female*, which captures the difference in earnings management between powerful female and male CEOs (*CEO Gen Power=1 – CEO Gen power=0*) is positive but insignificant for the full sample as well as matched sample, depicted in columns (1) and (3). This confirms that in the presence of power, no significant difference in real earnings management behavior is found between male and female CEOs. However, for women CEOs without power, the coefficient on *CEO Non-Dual*

*Female* in columns (1) and (3) (CEO Gen Power=2 – CEO Gen Power=0) is negative and significant at 1% level for full as well as matched samples. Hence, in the absence of power, women CEOs engage in significantly lower real earnings management than their male counterparts with power. Further, we find low-power male CEOs also engage in significantly lower earnings management as the coefficient on *CEO Non-Dual Male* is negative and significant at 1% for the full sample and 10% for the matched sample. Similar results are obtained using absolute discretionary accruals (*AbsDA*) as the dependent variable. These results bring out the moderating role of power in the relation between CEO gender and earnings management and support our principal argument that gender differences in earnings management do not remain robust given the power CEOs hold.

## 8. Conclusion

In recent years, research in the area of behavioral finance has stressed on the impact of personal traits like gender on various firm outcomes. The regulatory and legal reforms in the past three decades have helped women to break the stringent glass ceiling and occupy senior and executive roles.(Adams and Ferreira 2009).This has also created interest amongst researchers to examine the differences in various outcomes because of presence of women executives in corporate boards and other senior positions. Majorly, extant research finds that gender-diverse boards enhances corporate value by improving the monitoring, advising and governance activities (Carter, Simkins, and Simpson 2003; Carter, D’Souza, et al. 2010).A major research question that has been increasingly investigated, is whether women executives successful in achieving top executive positions are more ethical or risk averse than their male counterparts, with conflicting results so far. Some empirical evidence finds women on boards help reduce corporate frauds and wrong-doing as they are fundamentally more ethical and risk-averse (Sun et al. 2019; Yu et al. 2010).Gender-diverse boards also engage in lower earnings management and have better financial reporting quality (Barua et al. 2010).However,some studies find no association between the gender of CEO and CFO and financial reporting quality. In this paper, we extend the debating literature by examining the relationship between the gender of the CEO and earnings management, conditional on CEO power. Prior literature has not sufficiently taken into consideration the challenges women leaders face following promotion to key executive roles, which impacts their behavior and attitude towards earnings management. This lack of engagement can help explain the conflicting results in the existing literature. Our results suggest that women CEOs do not necessarily reduce earnings management. We find that as the power with CEOs increases, no significant relation between the gender of the CEO and earnings management exists. Our results show that differences in type of leadership positions (glass cliffs) and expectations towards women and men CEOs (role congruity theory) influence the actions undertaken by women CEOs. Female leaders are seen to violate gender stan-

dards if they manifest male-stereotypical attributes and are unfavorably evaluated for this violation. To overcome these prejudices, women CEOs avoid indulging in earnings management behavior. However, increased power with women CEOs helps in revoking some of the overt and subtle resistances and evaluations. Within the environment of reduced scrutiny and more power to influence the decision-making process, the negative relation between women CEOs and earnings management fades. Hence, our evidence does not support the proposition that differences in financial reporting quality in firms headed by women and men CEOs are necessarily driven by differences in risk taking and conservative nature of women. Therefore, the circumstances surrounding women leaders play an important role in dictating their decision-making process. Our study contributes to the existing gender, accounting and finance literature studying the impact women leaders have on various corporate outcomes. It suggests that gender discriminations in the form of glass cliffs and role incongruities are important factors that affect earnings reporting quality.

**Table 1: Sample Distribution**

The Table provides distribution of female led CEOs and industry breakdown of the sample firms. Panel A provides distribution of female led CEOs and the number and percentage of high power and low power CEOs measured by CEO duality. Panel B provides distribution of sample firms and female led CEOs by industry.

**Panel A: Firm year distribution by calendar year**

Year	# of firm year obs	# of firm year with fem CEOs	# of firm year obs with Dual Female CEOs	# of firm year obs with Dual Male CEOs
2000	419	14 (3.34%)	10 (71.4%)	257 (63.45%)
2001	450	29 (6.44%)	17 (58.6%)	273 (64.84%)
2002	482	22 (4.56%)	14 (63.63%)	276 (60%)
2003	529	33 (6.23%)	21 (63.63%)	305 (61.49%)
2004	533	41 (7.69%)	25 (60.97%)	307 (62.39%)
2005	498	27(5.42%)	13 (48.14%)	280 (59.44%)
2006	521	22 (4.22%)	16 (72.72%)	291 (58.31%)
2007	388	12 (3.09%)	7 (58.33%)	220 (58.51%)
2008	549	12 (2.18%)	8 (66.66%)	328 (61.08%)
2009	618	24 (3.88%)	15 (62.5%)	362 (60.94%)
2010	647	23 (3.55%)	15 (65.21%)	373 (59.77%)
2011	933	34 (3.64%)	24 (70.58%)	547 (60.84%)
2012	950	33 (3.47%)	16 (48.48%)	536 (58.45%)
2013	956	41 (4.28%)	21 (51.12%)	578 (63.16%)
2014	969	42 (4.33%)	26 (61.9%)	536 (57.82%)
2015	956	42 (4.39%)	22 (52.38%)	585 (64%)
2016	809	45 (5.56%)	26 (57.7%)	449 (58.76%)

**Panel B: Firm year distribution by industry**

Fama French 12 Industry	# of firm year obs	% of firm year obs	% of female CEO led firms
Consumer Non-Durables	858	7.65%	0.51%
Consumer Durables	360	3.21%	0.035%
Manufacturing	1,933	17.24%	0.758%
Oil, Gas and Coal Extraction and Products	672	5.99%	0.124%
Chemicals and Allied Products	564	5.03%	0.24%
Business Equipment	2,363	21.08%	0.62%
Telephone and Television Transmission	271	2.41%	0.25%
Wholesale, Retail and Some Services	1,599	14.26%	1.00%
Healthcare, Medical Equipment, and Drugs	1,012	9.03%	0.23%
Other	1,575	14.05%	0.61%
Total	11,207	100%	



**Table 2: Descriptive Statistics**

The Table provides summary statistics and Pearson Correlation of the main variables of interest. Panel A provides Mean, Median, Standard Deviation, 25th Pctl and 75th Pctl of earnings management variables, CEO characteristics, board characteristics and firm characteristics. Panel B provides provides Pearson Correlation matrix for main variables of interest. Difference in means and their statistical significance is based on a t-test. The symbol \* indicate statistical significance at 10% level and under.

**Panel A: Summary Statistics**

Variables	No of obs	Mean	Median	Std Dev	25th Pctl	75th Pctl
<b><i>Main Variables of Interest</i></b>						
Real Erng Mgt (Real EM)	9,860	0.4381	0.316	0.644	-0.028	0.665
Abs DA	9,000	0.0302	0.021	0.037	0.008	0.039
CEO_Fem	11,207	0.044	0	0.205	0	0
CEO_Dual	11,207	0.606	1	0.488	0	1
CEO Pay Slice (CPS)	8,161	0.350	0.342	0.107	0.240	0.432
<b><i>CEO Characteristics</i></b>						
CEO age	11,202	58.34	58	7.092	54	63
CEO Tenure	7,384	11.17	9.68	7.431	6.117	14.279
CEO Total Compensation (000's)	10,926	8,777.85	4,693.241	31,251.39	2,442.336	8,503.39
CEO equity Compensation (000's)	9,899	4,593.32	2,812.65	9,717.032	1,274.98	5,600.17
<b><i>Board Characteristics</i></b>						
Board Size	11,207	7.99	8	3.075	6	10
No of Independent Directors	11,207	6.13	6	2.881	4	8
No of Female Directors	11,207	1.09	1	1.055	0	2
<b><i>Firm Characteristics</i></b>						
Firm Size ( \$ millions)	11,207	10,731.94	2,320.155	35,886.42	855.338	7,167
Ln(Assets)	11,207	7.895	7.749	1.535	6.751	8.877
ROA	11,207	0.049	0.055	0.113	0.024	0.0921
Market-to-book ratio	11,193	3.988	2.454	6.778	1.597	3.901
Revenue Growth	8,983	6.655	5.632	21.33	-1.479	13.357
Cash	11,206	0.148	0.094	0.152	0.035	0.210
Std Dev Sales	7,868	0.284	0.247	0.251	0.146	0.367
Z-Score	10,911	4.744	3.668	4.573	2.451	5.496
E-index	10,338	3.33	3	1.288	3	4

**Panel B: Pairwise Correlations**

	Real EM	Abs DA	CEO_Fem	CEO_dual	CEO_Payslice
Real EM	1.00				
Abs DA	0.0347*	1.00			
CEO_Fem	-0.024*	-0.047*	1.00		
CEO_Dual	0.0504*	0.0074	-0.004	1.00	
CEO Pay Slice (CPS)	0.0136	0.0152*	-0.0159	-0.0148	1.00

**Table 3: Univariate Analysis**

The Table (Panel A) shows difference in means of earnings management variables, CEO, firm and board-level characteristics for male and female CEOs. Panel B provides difference in means of earnings management, CEO, firm and board characteristics for male and female CEOs differentiated by power measured by CEO duality. Difference in means and their statistical significance is based on a t-test. The symbols <sup>3,2,1</sup> indicate statistical significance at 1%, 5% and 10% level, respectively.

	Panel A: Univariate Analysis Based on gender			Panel B: Univariate Analysis Based on CEO Power measured by CEO Duality					
	Male CEOs	Fem CEOs	Difference	Dual CEOs			Non-Dual CEOs		
				Male CEOs	Fem CEOs	Difference	Male CEOs	Fem CEOs	Difference
Real EM	0.441	0.356	0.085 <sup>2</sup>	0.510	0.462	0.048	0.4106	0.132	0.278 <sup>3</sup>
Abs DA	0.0306	0.0221	0.008 <sup>3</sup>	0.0309	0.0214	0.009 <sup>2</sup>	0.0302	0.0230	0.007 <sup>2</sup>
CEO age	58.40	57.21	1.184 <sup>2</sup>	58.42	56.72	1.69 <sup>2</sup>	58.36	57.93	0.430
CEO tenure	11.260	9.457	1.802 <sup>3</sup>	11.341	9.366	1.975 <sup>1</sup>	11.131	9.589	1.545 <sup>3</sup>
Comp(\$ mil)	8.82	7.74	1.074 <sup>3</sup>	8.79	7.47	1.32 <sup>2</sup>	8.86	8.14	.72 <sup>1</sup>
Eq Comp	0.56	0.55	0.006 <sup>3</sup>	0.55	0.56	-0.015	0.56	0.55	0.016 <sup>3</sup>
Board Size	7.97	8.48	-0.510 <sup>3</sup>	7.959	8.408	-0.449 <sup>2</sup>	7.99	8.595	-0.599 <sup>3</sup>
# Fem Dir	1.04	2.13	-1.09 <sup>3</sup>	1.04	2.10	-1.05 <sup>3</sup>	1.03	2.19	-1.15 <sup>3</sup>
# Ind Dir	6.113	6.673	-0.559 <sup>3</sup>	6.103	6.618	-0.514 <sup>3</sup>	6.129	6.755	-0.625 <sup>3</sup>
Ln(Assets)	7.883	8.147	-0.263 <sup>3</sup>	7.884	8.105	-0.220 <sup>1</sup>	7.881	8.208	-0.327 <sup>3</sup>
ROA	0.049	0.057	-0.008 <sup>3</sup>	0.048	0.060	-0.011 <sup>2</sup>	0.049	0.052	-0.003 <sup>3</sup>
MTB	3.993	3.883	0.110	4.350	2.129	2.221	3.440	6.479	-3.038 <sup>3</sup>
StDev Sales	0.285	0.267	0.018 <sup>2</sup>	0.285	0.283	0.001	0.286	0.243	0.042 <sup>2</sup>

**Table 4: CEO Gender, Power and Real Earnings Management: OLS regression**

The Table reports the panel data regression results on the joint impact of CEO gender and power on Real Earnings Management (*Real EM*). The table also reports the OLS regression results for the relation between CEO gender on earnings management for sub-samples formed based on CEO Duality. The symbol \*\*\*, \*\*, \* indicate statistical significance at 1%, 5% and 10% level, respectively.

Dep Var: Real EM	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	All	All	All	Duality=1	Duality=0	All	All
Intercept	0.579 (0.61)	0.514 (0.54)	0.274 (0.29)	-3.288* (1.84)	6.616* (1.85)	0.732 (0.35)	0.574 (0.27)
CEO Fem	-0.448*** (3.09)		-0.257*** (3.61)	-0.298* (1.87)	-0.806*** (3.20)		-0.463 (1.69)
CEO Dual		0.259*** (3.45)	0.631*** (3.15)				
CEO Fem*Dual			0.317 (1.18)				
CEO Pay slice (CPS)						0.078 (0.28)	0.056 (0.02)
CEO Fem*CPS							0.515 (1.49)
CEO Age	0.031 (0.15)	0.036 (0.16)	0.056 (0.27)	1.041 (1.49)	-0.752 (1.27)	-0.194 (0.38)	-0.175 (0.34)
CEO Tenure	0.043 (1.25)	0.048 (1.35)	0.041 (1.21)	0.061 (1.03)	0.043 (0.31)	0.053 (1.16)	0.059 (1.28)
Ln (Assets)	0.028 (0.65)	0.050 (1.13)	0.028 (0.65)	0.045 (0.58)	0.273 (1.17)	0.048 (0.82)	0.059 (1.01)
ROA	0.666** (2.74)	0.648** (2.53)	0.654** (2.72)	0.551 (1.19)	0.297 (0.51)	-0.345 (0.93)	-0.351 (0.95)
MTB	-0.001 (1.38)	-0.002 (1.14)	-0.005 (1.31)	-0.001 (0.84)	-0.003 (0.18)	0.004 (0.31)	0.006 (0.20)
Rev Growth	-0.001** (2.03)	-0.001** (2.12)	-0.002* (1.91)	-0.001 (0.44)	-0.005* (1.75)	-0.002 (1.37)	-0.003 (1.46)
StdDev Sales	0.163* (1.55)	0.157 (1.45)	0.164* (1.58)	0.315 (1.41)	0.609* (1.59)	0.236 (1.39)	0.266 (1.58)
Z score	0.006* (1.89)	0.005* (1.77)	0.004* (1.60)	0.019 (1.55)	0.009 (0.45)	0.022** (2.16)	0.020* (1.92)
Board Size	0.073 (1.25)	0.102* (1.67)	0.074 (1.27)	0.069 (0.68)	0.192 (0.92)	0.011 (0.15)	0.016 (0.22)
Frac of Ind Dir	-0.015 (0.10)	0.102* (1.67)	0.021 (0.14)	0.351 (1.29)	-0.810* (1.62)	0.205 (1.13)	0.192 (1.06)
Frac of Fem Dir	-0.316 (1.39)	-0.476** (2.04)	-0.282 (1.25)	-0.875** (2.15)	0.211 (0.25)	-0.602** (2.03)	-0.416*** (2.38)
No of Obs	9,860	9,860	9,860	6,016	3,844	8,161	8,161
R-Squared	0.054	0.042	0.075	0.094	0.095	0.194	0.18
Year/Industry/ CEO fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes

**Table 5: CEO Gender, Power and Discretionary Accruals: OLS regression**

The Table reports the panel data regression results on the joint impact of CEO gender and power on Absolute value of discretionary accruals (*AbsDA*). The table also reports the OLS regression results for the relation between CEO gender on earnings management for sub-samples formed based on CEO Duality. The symbol \*\*\*, \*\*, \* indicate statistical significance at 1%, 5% and 10% level, respectively.

Dep Var: AbsDA	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	All	All	All	Duality=1	Duality=0	All	All
Intercept	0.065 (0.58)	0.066 (0.59)	0.064 (0.57)	-0.144 (0.63)	0.138 (0.21)	0.098 (0.62)	0.092 (0.58)
CEO Fem	-0.003*** (2.40)		-0.001* (1.95)	-0.010 (0.61)	-0.037** (2.17)		-0.026* (1.91)
CEO Dual		0.032** (2.31)	0.022* (1.92)				
CEO Fem*Dual			-0.008 (0.64)				
CEO Pay slice (CPS)						0.043** (2.18)	0.010 (0.46)
CEO Fem*CPS							0.099 (1.26)
CEO Age	0.006 (0.21)	0.006 (0.21)	0.006 (0.20)	0.020 (0.36)	0.060 (0.34)	0.007 (0.18)	0.006 (0.16)
CEO Tenure	0.034 (0.46)	0.021 (0.48)	0.041 (0.44)	0.012 (0.07)	0.015 (1.00)	0.023 (0.94)	0.013 (0.98)
Ln (Assets)	0.213 (1.30)	0.371 (1.32)	0.221 (1.30)	0.319 (1.64)	0.311 (1.12)	0.297 (1.53)	0.286 (1.40)
ROA	-0.038 (1.82)	-0.039 (1.82)	-0.038 (1.82)	-0.081 (2.18)*	-0.036** (2.36)	-0.031** (2.15)	-0.033** (2.24)
MTB	0.003 (0.58)	0.001 (0.61)	0.002 (0.55)	0.004 (0.36)	0.002 (0.78)	0.003 (0.64)	0.002 (0.88)
Rev Growth	0.065 (1.32)	0.054 (1.31)	0.063 (1.30)	0.077 (1.33)	0.043 (1.39)	0.031 (1.21)	0.076 (1.27)
StdDev Sales	-0.018** (2.05)	-0.018** (2.04)	-0.019** (2.07)	-0.017 (0.88)	0.049 (1.15)	-0.019* (1.92)	-0.020* (1.98)
Z score	0.001** (2.31)	0.001** (2.35)	0.002** (2.30)	0.003* (1.90)	0.006** (2.27)	0.001* (1.81)	0.001* (1.86)
Board Size	-0.003 (1.22)	-0.006 (1.23)	-0.003 (1.51)	-0.002 (1.31)	-0.036 (1.72)	-0.005 (1.87)	-0.005* (1.86)
Frac of Ind Dir	-0.001 (1.06)	-0.001 (1.07)	-0.001 (1.05)	0.008 (1.38)	-0.013 (1.26)	0.018 (1.23)	0.017 (1.18)
Frac of Fem Dir	-0.007 (1.37)	-0.006 (1.31)	-0.006 (1.35)	0.015 (0.39)	-0.210** (2.23)	0.025** (2.08)	0.028** (2.21)
No of Obs	9,000	9,000	9,000	5,510	3,490	8,161	8,161
R-Squared	0.054	0.019	0.11	0.10	0.095	0.13	0.11
Year/Industry/ CEO fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes

**Table 6: CEO gender and power on Earnings Management: Evidence using matched samples**

The Table reports the joint impact of CEO gender and power on earnings management using a matched sample. Panel A reports the difference in means of earnings management, firm, board and CEO characteristics between male and female CEO firm-year observations segregated by CEO duality for the matched sample. Panel B reports presents the results of the regression of Real EM on *CEO Fem*, *CEO power* and the interaction variable (*CEO Fem\*Dual*). The Table also reports the regression results for the impact of CEO gender on real earnings management for the matched sample segregated on CEO Duality. The symbol \*\*\*, \*\*, \* indicate statistical significance at 1%, 5% and 10% level, respectively.

**Panel A: Descriptive Statistics on Matched Samples**

	Duality=1			Duality=0		
	Male CEOs	Fem CEOs	Difference	Male CEOs	Fem CEOs	Difference
Real EM	0.543	0.513	0.030	0.392	-0.177	0.379***
AbsDA	0.028	0.021	0.006	0.032	0.014	0.018**
CEO age	57.53	56.62	0.836*	58.10	57.93	0.167
CEO tenure	10.97	9.37	1.60**	10.45	9.59	0.855
CEO Eq Comp	0.568	0.567	0.001	0.564	0.556	0.007
CEO Total Comp (\$mil)	8.10	7.49	.613*	9.701	8.175	1.525*
Board Size	7.80	8.40	-0.606**	7.90	8.58	-0.683**
Frac of Ind Dir	5.898	6.613	-0.715***	5.954	6.743	-0.788***
Frac of Fem Dir	1.08	2.10	-1.021***	1.033	2.195	-1.16***
Ln(Assets)	7.815	8.108	-0.293**	7.866	8.213	-0.346*
ROA	0.059	0.060	-0.169	0.058	0.061	-0.003
Rev Growth	6.381	7.918	-1.536	6.311	8.086	-1.775
Cash	0.140	0.139	0.001	0.155	0.160	-0.004
StDev Sales	0.293	0.283	0.010	0.240	0.243	-0.003
E-Index	3.32	3.21	0.100	3.402	3.101	0.300**

**Panel B: CEO Gender, Power and Earnings Management: Evidence from Matched Samples**

Dep Var: Real EM	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	All	All	All	Duality=1	Duality=0	All	All
Intercept	-2.327 (1.56)	-1.052 (0.68)	-0.759 (0.49)	0.613 (0.27)	-3.024 (1.42)	-2.830 (1.68)	-2.571 (1.52)
CEO Fem	-0.205** (2.12)		-0.469*** (3.41)	-0.100 (0.72)	-0.440*** (3.34)		-0.062 (0.24)
CEO Dual		0.291*** (3.23)	0.072 (0.57)				
CEO Fem*Dual			0.425 (2.54)*				
CEO Pay slice (CPS)						0.012 (0.03)	0.121 (0.22)
CEO Fem*CPS							0.526 (0.56)
CEO Age	0.528 (1.50)	0.198 (0.54)	0.174 (0.47)	-0.123 (0.23)	0.667 (1.32)	0.704 (1.79)	0.636 (1.62)
CEO Tenure	-0.004 (0.07)	0.004 (0.06)	-0.009 (0.14)	-0.047 (0.60)	0.062 (0.60)	0.016 (0.21)	-0.002 (0.03)
Ln (Assets)	0.021 (1.66)	0.009 (1.29)	0.010 (1.33)	-0.014 (1.34)	0.057 (1.02)	0.006 (0.16)	0.003 (1.29)
ROA	-0.004 (1.01)	-0.031 (1.06)	-0.126 (1.24)	-0.063 (1.08)	-0.159 (1.20)	-0.209 (1.34)	-0.110 (1.18)
MTB	0.004 (1.39)	0.003 (1.65)	0.001 (1.68)	0.002 (1.71)	0.003 (1.34)	0.005 (1.76)	0.003 (1.56)
Rev Growth	-0.013 (1.10)	-0.045 (1.03)	-0.037 (1.13)	0.000 (1.04)	-0.000 (1.08)	-0.000 (1.05)	-0.000 (1.12)
StdDev Sales	0.169** (1.95)	0.185 (1.05)	0.186 (1.07)	0.281 (1.20)	0.060 (1.22)	0.132* (1.67)	0.132* (1.67)
Cash	-0.326 (1.06)	-0.252 (1.82)	-0.197 (1.65)	-0.187 (1.44)	-0.155 (1.34)	-0.336 (1.85)	-0.330 (1.84)
Z score	0.006 (1.43)	0.012 (1.84)	0.012 (1.90)	0.012 (1.74)	0.018 (1.58)	0.029 (1.35)	0.026 (1.20)
Board Size	0.220** (2.35)	0.206** (2.22)	0.212** (2.31)	0.365*** (2.69)	0.069** (2.53)	0.271** (2.46)	0.284** (2.58)
Frac of Ind Dir	-0.006 (0.02)	-0.090 (0.32)	-0.043 (0.16)	-0.142 (0.35)	-0.101 (0.27)	-0.051 (0.16)	-0.013 (0.04)
Frac of Fem Dir	0.432 (1.33)	0.201 (1.71)	0.532 (1.66)	0.713 (1.40)	0.259 (1.64)	0.060 (1.18)	0.384 (1.03)
E-Index	0.011 (1.33)	0.020 (1.64)	0.007 (1.21)	-0.016 (1.36)	0.024 (1.49)	0.035 (1.26)	0.007 (1.20)
No of Obs	756	756	756	464	292	614	614
R-Squared	0.113	0.065	0.11	0.096	0.095	0.08	0.12
Year/Industry/ CEO fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes

**Table 7: CEO Gender, Power and Earnings Management: Instrumental Variable Approach**

The Table provides the estimation of the impact of CEO gender and power on earnings management using Instrumental Variable approach. Panel A provides the pairwise correlation between the two instrument variables (*Gen Equality Old*; *Gen Equality New*) and the CEO gender indicator variable (*CEO Fem*) and earnings management variables (*Real EM*; *AbsDA*). Panel B reports the first stage and second stage regression results. Model 1 reports the first stage regression of *Gen Equality Old* on *CEO Fem*. Model 2 provides the second stage regression results using the predicted values of *CEO Fem* from first stage to examine the impact of CEO gender and earnings management. Panel C reports the first stage regression of *Gen Equality New* on *CEO Fem*. Model 2 provides the second stage regression results using the predicted values of *CEO Fem* from first stage to examine the impact of CEO gender and earnings management. The symbol \*\*\*, \*\*, \* indicate statistical significance at 1%, 5% and 10% level, respectively.

**Panel A: Pairwise Correlations between CEO gender, power and instrument variables**

	Gen Equality Old	Gen Equality New	CEO Fem	Real EM	AbsDA
Gen Equality Old	1				
Gen Equality New	0.6122*	1			
CEO Fem	0.0411*	0.0512*	1		
Real EM	0.0036	0.0051	-0.0274*	1	
AbsDA	0.0076	0.0020	-0.0475*	0.0343*	1

**Panel B: CEO gender, Power and Earnings Management: Regression using first Instrument Variable**

Dep Var	CEO Fem	Real EM			
	Model 1: First stage Regression	Model 2: Second Stage Regression			
	All	All	All	Duality=1	Duality=0
Intercept	0.158** (2.36)	1.668** (2.20)	0.917** (2.15)	1.478** (2.16)	2.093** (2.59)
Gen Equality Old	0.004** (1.79)				
CEO Fem		-5.074** (1.99)	-1.72* (1.83)	-3.176 (1.01)	-6.215*** (2.70)
CEO Dual		-0.014 (0.20)			
CEO Fem*Dual		1.851 (1.17)			
CPS			0.243 (0.70)		
CEO Fem*CPS			-7.382 (-1.04)		
CEO age	-0.048** (2.08)	-0.389 (1.08)	-0.205 (1.05)	-0.343 (1.07)	-0.499 (1.55)
CEO Tenure	-0.009*** (2.72)	0.033* (1.99)	0.028* (1.82)	0.035** (2.41)	0.028 (1.61)
Ln (Assets)	0.641* (1.80)	0.006 (1.00)	0.002 (0.40)	0.004 (0.60)	0.009 (0.99)
ROA	0.392** (2.30)	0.762** (2.20)	-0.734** (2.12)	-0.735*** (2.55)	-0.829*** (2.59)
Leverage	0.002 (0.16)	0.003 (0.05)	0.004 (0.69)	0.062 (0.85)	-0.049 (0.74)
MTB	-0.003** (2.07)	-0.002 (0.44)	-0.003 (0.83)	-0.005 (0.47)	-0.003 (0.26)
Z-score	0.001 (1.07)	0.000 (0.22)	0.004 (0.38)	0.002 (0.55)	-0.001 (0.22)
E-index	0.011 (0.33)	0.014** (1.97)	0.012* (1.83)	0.012 (1.29)	0.017 (1.56)
Board size	-0.001 (0.14)	0.104** (2.26)	0.121** (2.45)	0.070*** (2.70)	0.153*** (4.93)
Frac of Ind Dir	0.045*** (3.86)	0.189 (1.62)	0.054 (1.70)	0.257 (1.65)	0.139 (0.77)
No of obs	10,787	9,860	9,860	5,966	3,894
R-Squared	0.07	0.14	0.135	0.15	0.13
F-Statistic	14.157***				
Firm/year fixed effects	Yes	Yes	Yes	Yes	Yes



**Panel C: CEO gender, power and Earnings Management: Regression using second Instrument Variable**

Dep Var	CEO Fem	Real EM			
	Model 1: First stage Regression	Model 2: Second Stage Regression			
	All	All	All	Duality=1	Duality=0
Intercept	0.188** (2.02)	1.206*** (3.30)	0.917** (2.15)	1.002** (2.08)	1.511** (2.67)
Gen Equality New	0.001 (3.39)**				
CEO Fem		-2.02* (1.87)	-0.008** (2.01)	-0.409 (0.81)	-0.2490*** (2.68)
CEO Dual		0.002 (0.04)			
CEO Fem*Dual		1.354 (1.59)			
CPS			0.280 (1.22)		
CEO Fem*CPS			-7.081 (1.57)		
CEO age	-0.046** (2.17)	-0.273 (1.16)	-0.252 (1.24)	-0.226 (1.15)	-0.344 (1.23)
CEO Tenure	-0.008*** (2.32)	0.022 (1.53)	0.021 (1.29)	0.031 (1.65)	0.015 (1.32)
Ln (Assets)	-0.000 (0.26)	0.003 (0.57)	0.004 (0.64)	0.002 (0.68)	0.005 (0.76)
ROA	0.042 (1.56)	0.713** (2.01)	0.806** (2.23)	0.672*** (2.61)	0.777*** (2.32)
Leverage	0.007 (0.45)	0.002 (0.03)	0.015 (0.77)	0.054 (0.85)	-0.045 (0.61)
MTB	-0.003 (1.41)	0.005 (1.07)	0.001 (1.23)	0.005 (0.54)	0.003 (0.26)
Z-score	0.001 (1.26)	-0.001 (0.26)	0.002 (0.76)	0.005 (0.98)	-0.002 (0.87)
E-index	0.005** (2.18)	0.009 (1.03)	0.008 (1.10)	0.011 (1.06)	0.015 (1.23)
Board size	-0.001 (0.23)	0.108*** (2.52)	0.120** (2.33)	0.073*** (2.73)	0.160*** (2.93)
Frac of Ind Dir	0.065*** (2.86)	0.094 (1.14)	0.120 (1.57)	0.143 (1.32)	0.156 (1.25)
No of obs	10,787	9,860	9,860	5,966	3,894
R-Squared	0.089	0.13	0.15	0.14	0.13
F-Statistic	11.148				
Firm/year fixed effects	Yes	Yes	Yes	Yes	Yes

**Table 8: CEO gender, power and Earnings Management: Evidence from CEO turnovers**

The Table reports the estimation of joint impact of CEO gender and power on earnings management using CEO transitions. Panel A provides descriptive statistics on change in real earnings management following Male-to-female (M-F) CEO transitions, Female-to-male (F-M) CEO transitions and Male-to-Male (M-M) CEO transitions further segregated on change in CEO power. Difference in means and their statistical significance is based on a t-test. Panel B reports the estimation of the impact of CEO transitions on earnings management for change in CEO power. The symbol \*\*\*, \*\*, \* indicate statistical significance at 1%, 5% and 10% level, respectively.

**Panel A: Descriptive Analysis**

CEO turnover	Male to Female (M-F)		Female to Male (F-M)		Male to Male (M-M)		Difference in Real EM (1)-(2)
	No	Change in Real EM (1)	No	Change in Real EM (2)	No	Change in Real EM (3)	
Non-dual to Dual	46	-0.214*	57	0.231***	181	0.0219	-0.445***
Dual to Non-dual	48	-0.292***	54	0.043	198	-0.045	-0.335*
Dual to Dual	18	0.0251	54	0.160	287	-0.003	-0.135
Non-dual to Non-dual	30	-0.176**	27	0.0345	130	-0.105	-0.215*

**Panel B: Changes in Earnings Management around CEO turnovers: Regression Analysis**

Dep Var Real EM(t+1)- Real EM(t-1)	Non-dual to Dual Model 1	Dual to Non-dual Model 2	Dual to Dual Model 3	Non-dual to Non-dual Model 4
Intercept	0.021 (0.05)	-0.003 (0.01)	0.042 (0.10)	0.003 (0.01)
Male to Female (M-F)	-0.110 (0.84)	-0.348*** (3.07)	-0.023 (0.27)	-0.206** (2.37)
Female to Male (F-M)	0.265*** (3.31)	0.139 (1.22)	0.373 (1.29)	0.414* (1.83)
Male to Male (M-M)	0.045 (0.70)	-0.068 (1.17)	0.019 (0.36)	-0.052 (0.69)
Firm Level Controls	Yes	Yes	Yes	Yes
Board Level Controls	Yes	Yes	Yes	Yes
CEO level Controls	Yes	Yes	Yes	Yes
R-Squared	0.129	0.10	0.11	0.10
Year/Industry fixed effects	Yes	Yes	Yes	Yes

**Table 9: CEO gender, power and Earnings Management: Alternate Model Specifications**

The Table provides the ANCOVA regression results as an alternate model specification to estimate the joint impact of CEO gender and power on earnings management for the whole sample and matched sample. To run the ANCOVA model, generate a categorical variable *CEO Gen Power* that takes the value of 1 if *CEO Dual Female=1*, 2 if *CEO Non-Dual Fem=1* and 3 if *CEO Non-Dual Male=1*. We control for other firm, board and CEO characteristics. The symbol \*\*\*, \*\*, \* indicate statistical significance at 1%, 5% and 10% level, respectively.

Dep Var	Full Sample		Matched Sample	
	Real EM (1)	AbsDA (2)	Real EM (3)	AbsDA (4)
Intercept	1.337*** (3.43)	0.126*** (2.60)	-1.367 (0.79)	0.098 (1.03)
CEO Dual Female	0.022 (0.36)	-0.003 (0.95)	0.043 (0.38)	0.004 (0.64)
CEO Non-Dual Fem	-0.416*** (5.46)	-0.002*** (2.37)	-0.481*** (3.87)	-0.008** (2.18)
CEO Non-Dual Male	-0.066*** (3.05)	-0.001** (2.05)	-0.112* (1.97)	0.004* (1.95)
CEO Age	-0.184* (1.93)	-0.020* (1.65)	-0.460 (1.07)	-0.014 (0.61)
CEO Tenure	0.006 (0.43)	-0.001 (1.25)	-0.074 (1.20)	-0.001 (1.32)
Ln (Assets)	-0.004 (0.56)	-0.012 (0.93)	-0.019 (0.65)	-0.015 (1.26)
ROA	0.986*** (3.49)	0.026*** (3.75)	1.209 (1.38)	0.033 (1.06)
MTB	0.008 (0.50)	0.005 (0.48)	0.001 (0.68)	0.002 (0.24)
Rev Growth	0.013 (0.17)	0.016 (1.15)	0.017 (0.09)	0.016 (1.27)
StdDev Sales	0.116*** (2.75)	0.005** (2.04)	0.106 (0.55)	0.003 (0.29)
Z score	0.003 (1.43)	0.002 (1.54)	0.014 (0.40)	0.017 (0.21)
E Index	0.024*** (2.96)	0.001* (1.86)	0.007 (1.22)	0.009 (1.36)
Board Size	0.073*** (2.79)	0.009*** (2.89)	0.032 (1.28)	0.004 (1.56)
Frac of Ind Dir	0.241*** (3.39)	0.012*** (2.97)	0.157 (1.52)	0.164 (1.01)
Frac of Fem Dir	-0.424*** (3.04)	-0.022*** (3.65)	0.803** (2.12)	-0.053** (2.03)
No of Obs	9,860	9,000	756	748
R-Squared	0.1378	0.188	0.145	0.13

## A. Appendix: Description of Variables

Variables	Description
CEO Duality	An indicator variable which takes the value of one in firm-years where the CEO is also chairing the board, zero otherwise
CEO Payslice	A measure of CEO power computed as the ratio of CEO pay (tdc1 in Execucomp) to the total pay awarded to top five executives including the CEO
Absolute Discretionary Accruals (AbsDA)	Discretionary accruals are computed based on the cross-sectional performance-adjusted modified Jones Model estimated using firms in the Fama French 17 industry and year
Real earnings management (Real EM)	Computed as the sum of abnormal discretionary expenses (multiplied by -1) and abnormal production costs (calculated as the estimated residuals using equations 1 and 2)
CEO Female	An indicator variable that equals 1 if the CEO in the firm-year observation is female, zero otherwise
CEO age	Age of CEO in years as depicted by ISS database
CEO tenure	Computed as the number of years since the CEO's appointment
Board Size	Natural logarithm of total number of directors serving on Corporate board
Fraction of independent directors	Computed as the number of directors indicated as independent by the ISS database, divided by the total number of directors
Frac of female directors	Computed as the ratio of number of female directors serving the corporate board, divided by the total number of directors.
Standard Dev of Operating Cash Flow	Computed as 3 year rolling standard deviation of operating cash flow to measure the riskiness of firm's investment decisions
Z-Score	Measures the financial strength of the company. Computed as $1.2 * (\text{working capital} / \text{total assets}) + 1.4 * (\text{retained earnings} / \text{total assets}) + 3.3 * (\text{earnings before interest and taxes} / \text{total assets}) + 0.6 * (\text{Market value of equity} / \text{total liabilities}) + 1 * (\text{Sales} / \text{total assets})$
E-index	Entrenchment index based on six antitakeover provisions in the ISS governance database: Staggered board, poison pills, supermajority requirements for mergers, limits to shareholder bylaw amendments, limits to the charter bylaw amendments and golden parachutes.

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