CEO Gender, Ethical leadership, and Accounting Conservatism

Abstract

Because male CEOs dominate corporate leadership, the literature on top management decision-making suffers from an implicit masculine bias. Although research indicates that males and females are biologically and psychologically different, the leadership characteristics of female CEOs are largely unexplored. Two of these characteristics, risk aversion and ethical sensitivity, are tied to key accounting issues, such as conservatism in financial reporting and steadfast opposition to fraud. In this study, we examine the relationship between CEO gender and accounting conservatism, and find a positive association between the two. Consistent with conventional wisdom, this association appears to be stronger in firms with high rather than low litigation and takeover risks. This study contributes to the ethics literature by highlighting the benefits of gender diversity in upholding the integrity of financial reporting.

Keywords: accounting conservatism, CEO gender, ethical leadership

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1. INTRODUCTION

The financial press describes a dearth of female leadership in the business world. In 2006, the New York Times reported that only nine of the CEOs of Fortune 500 firms were female, corresponding to less than 2% of the total (Creswell 2006). While this percentage improves to 2.4% in 2011 and 4% in 2012, it is still far lower than the overall percentage of women in the work force (46.3%) (Bhatti 2012; Dizik 2011). A similar picture appears in the corporate leadership of other economies. For example, in 2011, the percentage of female CEOs in large firms was zero in 15 out of 27 European Union (EU) member countries, and only 13.7% of directors of large European firms were female (European Commission 2012b). In 2012, only 3.2% of large EU firms were led by female CEOs (European Commission 2012a). In Hong Kong, one of the major international financial centers, only 10% of board members were female in 2011, and around 40% of listed companies had no female board members at all (*Hong Kong Economic Journal* 2012). The low levels of female representation in senior decision-making positions leave one to wonder how ongoing gender diversity efforts could potentially change corporate leadership attributes such as risk aversion and ethical sensitivity. This study addresses one dimension of this question by examining whether risk aversion and ethical sensitivity among female directors translate into more conservative financial reporting.

Females are frequently described as being less assertive, less aggressive, less overconfident, more anxious, more risk averse, and more ethical, all of which are qualities that suggest a conservative mindset and a low propensity to commit fraud (Maccoby and Jacklin 1974; Powell and Ansic 1997; Vermeir and Van Kenhove 2008). The personal attributes of top management can affect how companies are managed. For instance, according

to the COSO internal control-integrated framework, the philosophies and ethical values of top management affect the control environment. Accordingly, the conservative mindset and ethical leadership of female CEOs could contribute to a better internal control environment with a stronger emphasis on conservative and ethical financial reporting. In addition, the 2002 Sarbanes-Oxley Act makes senior executives individually responsible for the accuracy and completeness of corporate financial reports. Therefore, female CEOs' conservative thinking and firm opposition to fraud can be expected to reinforce compliance with the Sarbanes-Oxley Act and adherence to conservatism in accounting.

Conservatism is a fundamental principle of accounting that has important economic consequences. Prior studies indicate that accounting conservatism effectively modulates moral hazard problems among managers, debtholders, and shareholders (Ahmed et al. 2002; Lafond and Roychowdhury 2008), helps reduce information asymmetry (Hu et al. 2013; LaFond and Watts 2008), and protects shareholder interests by serving as a governance mechanism to limit managerial opportunism (Bushman et al. 2011; Francis and Martin 2010). Furthermore, a lack of conservatism can have serious accounting and economic consequences. Schrand and Zechman (2011) find executives to be overconfident in financial reporting in approximately three quarters of the SEC's enforcement cases and suggest that this overconfidence is possibly the first step on the path to subsequent fraudulent misstatements of earnings. The conservative and ethical inclinations of female CEOs can serve as a natural defense against fraudulent misstatements and, therefore, may have important accounting and economic implications. However, few studies directly examine these implications or, more specifically, the effects of gender difference at the top management level on conservatism in accounting. This study intends to fill a portion of this gap in the literature.

This study echoes that of Francis et al. (2009) who examine, among other things, the association between CFO gender diversity and accounting conservatism. However, different

from Francis et al. (2009), our key measure of accounting conservatism is based on the models of Ball and Shivakumar (2005; 2006) and Ball et al. (2008) and is consistent with the extensive array of research that has adopted these models. Moreover, both the CEO and CFO can influence the quality of reported earnings (Bergstresser and Philippon 2006; Cheng and Warfield 2005; Jiang et al. 2010). The Sarbanes-Oxley Act of 2002 requires both the CEO and the CFO to certify financial reports. Francis et al. (2009) find that female CFOs are more conservative in their financial reporting, but the association between CEO gender and accounting conservatism remains unexplored. Our study focuses on female ethical sensitivity and leadership at the top management (CEO) level. The CEO establishes the firm's ethical norms and provides ethical leadership (Schminke et al. 2005). Given that ethical leadership is one of the determinants of conservatism, it is therefore meaningful to explore the relationship between the gender of the top executive and accounting conservatism.

Given the conservative mindset and ethical values of female CEOs, we predict a positive association between the presence of a female CEO and a firm's conservatism in accounting. Furthermore, we predict that female CEOs, who are on average more risk-averse, will be even more conservative in their financial reporting when the firm confronts higher litigation risk and takeover risk. Our empirical results support these predictions.

This study contributes to the accounting and ethics literature by linking the conservative and ethical inclinations of females to accounting conservatism. The European Commission (2012b) has proposed a legislation to require publicly traded firms to fill at least 40 percent of board positions with women by 2020. A number of European countries, notably Belgium, France, Italy, the Netherlands, Norway, and Spain, either have introduced or are moving to introduce gender diversity language to their corporate governance codes or are requiring firms to meet quotas for female directors (European Commission 2012a). In September 2012, the Hong Kong Exchange issued a public consultation paper on a proposal

to enhance the diversity of board members by setting a minimum quota for female directors (*Hong Kong Economic Journal* 2012). This study establishes that female leadership influences accounting conservatism and predicts that moves to correct the gender imbalance in corporate leadership will result in more conservative accounting.

The study is closely tied to the field of business ethics. Citing an array of Middle Eastern philosophers and poets from the eighth to the first century BCE, Michalos (2008) relates ethics to "how people ought to act and live, morally speaking, to enjoy the best sort of life and to be the best sort of person." As an intellectual leader and political activist, Albert Einstein provides a good example of a life well-lived (Michalos 2005). Alternatively, greedy business leaders with poor moral leadership provide many examples of bad lives and bad people over the course of history (Michalos 2008). Michalos (2008) and Poff (2010) both attribute the many widely publicized business crises to failures of moral leadership. In contrast, sound ethical leadership is often linked to organizational success, such as increased profitability and performance (Paine 2003; Prottas 2013), and employee job satisfaction and commitment (Brown and Mitchell 2010; Hunter 2012; Neubert et al. 2009; Prottas 2013). Poff (2010) calls for a shift in focus from material goods to moral values in the education of future leaders. Recognizing the significance of moral leadership in business, we examine the leadership characteristics of CEOs, including ethical sensitivity. Corporate leaders command huge amounts of economic and human resources, and make decisions that affect the lives of many. Michalos (1982) argues that ethical maxims "increase the chances of producing the best sort of life for the greatest number of people." If this is the case, then it is important to understand the factors that affect the ethical sensitivity of corporate leadership and how ethical sensitivity affects business decisions. This study contributes to the business ethics literature by addressing these questions.

As a profession guided by ethical conduct, accounting is naturally entwined with ethical traits. For instance, the AICPA Code of Professional Conduct, "expresses the basic tenets of ethical and professional conduct" for all members and "call[s] for an unswerving commitment to honorable behavior, even at the sacrifice of personal advantage." The two key focuses of this study, gender and conservatism, are deeply linked to ethical values. In the business environment, the issue of gender often accompanies concerns over unequal opportunities for females in the workplace. The arguments for equal opportunities for both genders are conventionally based on concerns for justice and fairness, which are two common themes of ethics. A conservative attitude is customarily viewed as "a characteristic of accountants [and] a counterweight to the exuberance of other kinds of business people" (Financial Accounting Standards Advisory Council 2005). Conservatism helps promote neutrality (i.e. an unbiased and objective point of view) in financial reporting by canceling out excessive optimism in management's implementation of accounting standards. In the accounting context, therefore, conservatism contributes to the desirable traits of impartiality and objectivity. By documenting the benefits of conservatism (e.g. counteracting litigation and takeover risk) that arise from female corporate leadership, we aim to motivate businesses to offer equal opportunities to females, which in turn will help foster conservative and neutral financial reporting. This study contributes to the ethics literature by highlighting these benefits of gender equality and conservatism, which are easily overlooked. In addition, this paper underscores the stronger ethical disposition of females versus males. By linking female CEOs' ethical sensitivity to accounting conservatism, this paper is well-positioned to encourage business ethics researchers and accounting researchers to further cross-explore research questions.

The remainder of this paper is structured as follows. Section 2 reviews the current literature on conservatism and female leadership, and introduces the hypotheses. Section 3

describes the data and methodology. Section 4 reports the empirical results and discusses their implications. Section 5 discusses the robustness checks. Section 6 provides concluding remarks and discusses opportunities for future research.

2. LITERATURE REVIEW AND HYPOTHESES

2.1. Accounting Conservatism Literature

Conservatism is a time-honored accounting principle of imposing stricter verification standards for recognizing good news as gains than bad news as losses (Basu 1997). This definition of conservatism is conditional since it is contingent on the nature of the news (Beaver and Ryan 2005). Conservative accounting facilitates the monitoring of managers and of debt or other contracts, and is an important feature of corporate governance (Ball et al. 2000).

Accounting conservatism mitigates the information asymmetry between informed and uninformed equity investors (Kim and Pevzner 2010; LaFond and Watts 2008) and helps monitor managers' behavior. By requiring higher verification standards for gains recognition, accounting conservatism reduces managers' ability and incentives to withhold information on expected losses, inflate earnings, or overstate net assets (Ahmed et al. 2002; Holthausen and Watts 2001; Watts 2003; Watts and Zimmerman 1986). Moerman (2008) shows that conditionally conservative firms enjoy lower bid-ask spreads in the secondary loan markets. Furthermore, by facilitating the timely capture of deteriorating credit quality (Ball et al. 2008), conservative accounting reduces the information asymmetries between syndicated loan lead managers and other syndicate participants, and hence helps to mitigate potential adverse selection and moral hazard problems.

Accounting conservatism is also credited with improving contracting efficiency, which leads to lowered cost of capital, and eventually enhanced firm value. Here, accounting

conservatism provides contracting benefits by hastening debt covenant violations, thus "triggering the alarm" earlier (Zhang 2008). Li (2012) finds that conservative accounting warns debt-holders of potentially unfavorable situations, enabling them to make better liquidation decisions. According to agency theory (Jensen and Meckling 1976), insiders possess more information, are motivated to favorably bias the information they provide to outsiders, and take actions (e.g. asset substitution, consumption of perquisites, and empire building) that result in deadweight losses. Watts (2003) and Holthausen and Watts (2001) argue for the important role of conservatism in addressing agency problems. Conservatism provides a means of minimizing the agency problems between debt-holders and shareholders, and is thus negatively related to cost of debt (Ahmed et al. 2002; Li 2012). This negative association between conservative financial reporting and the cost of debt and equity capital is also documented in Li (2010).

Accounting conservatism is also found to play a governance role in monitoring firms' investment decisions. By recognizing economic (or expected) losses earlier, conservatism helps identify negative NPV projects or poorly performing investments, thus improving investment efficiency (Bushman et al. 2011). By providing credible evidence about negative developments to outside stakeholders, conditional conservatism deters managers from engaging in value destroying investments (Bushman et al. 2011). Francis and Martin (2010) further document a positive association between accounting conservatism and the profitability of acquisition-investments, especially among firms with higher *ex ante* agency costs.

In sum, prior studies have established that accounting conservatism plays a role in mitigating the information asymmetry between insiders and outsiders and in reducing agency costs.

2.2. Female Corporate Leadership Literature

2.2.1. Less assertive and more risk-averse

The scarcity of female corporate leaders is at odds with the evidence of multiple empirical studies documenting that female leaders bring economic value to firms. Kotiranta et al. (2007) report that Finnish firms with female versus male CEOs earned higher profits, possibly reflecting the contribution of female leadership to the firms' overall cultural diversity and multidimensionality and good governance and management practices. Francoeur et al. (2008) find that firms operating in complex environments generate positive and significant abnormal returns when they have a high proportion of females in top management. Levi et al. (2008) find that firms headed by female CEOs bid with smaller price premiums in mergers and acquisitions. Similarly, the presence of women on boards of directors positively affects firm value (Campbell and Minguez-Vera 2008). Investors regard the appointment of female directors as value adding, and stock markets react positively to such announcements (Campbell and Minguez Vera 2010). From a sample of 99 Dutch firms, Lückerath-Rovers (2010) finds that firms with female directors outperform those without. Given the current dearth of female CEOs and directors, the abovementioned studies seem to suggest that correcting the gender imbalance in corporate leadership will result in high marginal benefits.

In addition, multiple studies indicate that female leadership contributes in non-monetary ways, at times by complementing the male counterparts. Firms with more women in senior positions suffer less in times of economic downturn, which suggests that gender diversity makes an important contribution to sustainability (Eversheds LLP 2011). Female CEOs cultivate a more female-friendly workplace environment and pay more equal wages to newly hired workers (Tate and Yang 2012). Female directors affect the dynamics of the board of directors (Bradshaw et al. 1996), and behave differently from their male

counterparts, significantly impacting board inputs and firm outcomes and strengthening monitoring efforts (Adams and Ferreira 2009). According to Arfken et al. (2004), the viewpoints and ideas of female directors are a crucial resource, and female membership on boards of directors enhances firms' strategic decisions as the boards more closely reflect the composition of the consumer population. Gul et al. (2011) suggest that gender-diverse boards complement corporate governance and provide evidence that gender diversity improves the informativeness of stock prices by increasing public disclosure in large firms and encouraging private information collection in small firms. Rodríguez-Domínguez et al. (2012) report stronger female versus male performance under similar working conditions and academic backgrounds, and recommend a slight majority of females on boards of directors.

Consistent with the studies reporting the unique qualities of female leadership, the psychology literature documents that there are fundamental gender differences in personality. A number of theoretical psychology models (Costa et al. 2001; Feingold 1994) have been developed to explain these differences. The biological model relates personality differences to innate temperamental characteristics, ascribes male aggression to androgenic hormones, and attributes the higher levels of depression and anxiety among females to the additional X chromosome. The sociocultural model regards gender differences in personality as being directly caused by social and cultural factors such as social roles and gender stereotypes (e.g. assertiveness in men and fearfulness in women). The biosocial model recognizes that gender differences have both biological and sociocultural causes.

Overall, the theoretical models predict gender differences in personality. The psychology literature (Costa et al. 2001; Maccoby and Jacklin 1994) finds females to be less assertive and less aggressive. Hall (1990) and Maccoby and Jacklin (1994) describe females as more anxious than males. Generalized anxiety disorder and major depression are diagnosed substantially more often in females than in males (American Psychiatric

Association 1994). Using undergraduate students as subjects, Lundeberg et al. (1994) find females to be less overconfident in stating wrong answers, and more accurate in their perception of potentially incorrect answers. Females are less overconfident than males in a wide variety of domain-specific tasks (e.g. Niederle and Vesterlund 2007; O'Laughlin and Brubaker 1998; Pajares and Miller 1994). Moreover, females are less likely to engage in risky behaviors, such as gambling (Levin et al. 1988). In an experimental study, Powell and Ansic (1997) find that females choose less risky alternatives. A meta-analysis of 150 studies also reports significantly lower risk-preferences among females than males (Byrnes et al. 1999).

Females have also been observed to be less assertive in various financial and economic settings. Females are inclined to feel less competent than males in financial matters (Prince 1993), and are less overconfident in making financial decisions (Barber and Odean 2001). In his study of investor psychology and asset pricing, Hirshleifer (2002) observes that males are overconfident relative to females, although the magnitude of the difference is task-dependent. Females are more fearful of failure when deciding to become self-employed (Wagner 2007). Huang and Kisgen (2013) observe that female executives are less overconfident in making acquisition and debt-issuance decisions than their male counterparts. In addition, the business and economics literature provides evidence of risk aversion among females. High risk firms are more likely to appoint female CEOs to modulate risk (Martin et al. 2009). Martin et al. (2009) observe significantly bigger reductions in risk following female versus male CEO appointments, reflecting the market's perception of female CEOs as relatively risk averse. Female CEOs are found to avoid risky financing and investment opportunities. Firms with female CEOs have lower leverage, less volatile earnings, and a higher chance of survival than firms with male CEOs (Faccio et al. 2012). Likewise, Mateos de Cabo et al. (2012) find lower-risk banks to be associated with a higher proportion of female directors, which could be explained, *inter alia*, by a risk-aversion hypothesis. In

addition, females perceive risks to be greater, engage in less risky behavior, and choose alternatives that involve less risk (Barsky et al. 1997; Eckel and Grossman 2008; Jianakoplos and Bernasek 2007; Schubert et al. 1999). The risk-aversion of females significantly lowers their earnings relative to males (Levy et al. 1999).

2.2.2. More ethical

Males and females are known to use different decision rules when making ethical evaluations (Galbraith and Stephenson 1993) and hold different attitudes toward codes of ethics (Ibrahim and Angelidis 2009). Many prior studies find females to be more ethical. Females are more likely than males to adopt a strict ethical stance (Weeks et al. 1999), exhibit ethical behavior in the workplace (Bernardi and Arnold 1997; Lund 2008; Simga-Mugan et al. 2005; Valentine and Rittenburg 2004), speak out against unethical behavior (Miethe and Rothschild 1994; Vermeir and Van Kenhove 2008), and become internal whistle blowers (Rothschild and Miethe 1999).

A stronger ethical disposition has been observed among females in the accounting context. Female professional accountants rate ethics as a more important consideration in recruiting entry-level public accountants than their male counterparts (Ibrahim and Angelidis 2009). Fraud firms are found to have a significantly lower proportion of female directors and female chairpersons than non-fraud firms, supporting the notion that females are more ethically sensitive and less likely to commit fraud (Cumming et al. 2012). Extending this line of research, in this study, we relate the ethical disposition of females to another accounting context, namely accounting conservatism.

Ethical considerations are central to females' conceptualization of leadership (Fine 2009). According to the ethical leadership literature, ethical leaders demonstrate appropriate conduct and create an ethical work climate to encourage ethical behavior (Brown et al. 2005; Neubert et al. 2009; Trevino et al. 2000; Zhu 2004). The stronger ethical disposition of

female leaders translates into stronger ethical leadership and hence a more ethical work climate. This ethical work climate promotes honesty in financial reporting, discourages earnings management, and potentially fosters more conservative accounting.

2.3. Hypotheses on Female CEOs and Accounting Conservatism

This study builds on the abovementioned research streams on accounting conservatism and female corporate leadership. The lower assertiveness, aggressiveness, and confidence, higher anxiety, and greater risk-aversion observed in females contribute to female CEOs' conservative mind-set. Evidence suggests that female executives are more conservative in accounting-related tasks. Huang and Kisgen (2013) find that female executives issue significantly wider forecast ranges for earnings per share (EPS) than their male counterparts. The wider (narrower) EPS ranges support the view that female (male) executives are conservative (overconfident) in accounting tasks. The stronger ethical sensitivity of female executives steers them away from unethical and aggressive earnings management practices, thus improving the quality (e.g. conservativeness) of reported earnings. According to Francis et al. (2013), banks are cognizant of the reliable, conservative, and higher quality earnings reported by female CFOs, and accordingly grant firms with female CFOs lower loan prices and more favorable contract terms. Krishnan and Parsons (2008) observe higher profitability but more conservative earnings from firms with more female senior executives. These observations are not ascribable to earnings management or lower earnings quality, but suggest a significant positive association between earnings quality and gender diversity in senior management. Given the conservative mind-set of female CEOs, together with their tendency to be less assertive, less aggressive, less overconfident, and more anxious, and their natural inclination to be ethical, our first hypothesis is:

H1: Accounting conservatism is positively associated with the presence of female CEOs.

In addition, given the greater risk aversion of female CEOs, we predict that a riskier business environment will reinforce their conservative mindset. We therefore expect female-led firms, when confronting high litigation and takeover risks, to seek to avoid these risks by exhibiting more conservative financial reporting. Therefore, our second hypothesis is:

H2: The association between female CEOs and accounting conservatism is more pronounced in firms exposed to high litigation and takeover risks.

3. DATA AND METHODOLOGY

Our sample is drawn from *COMPUSTAT* between 1996, the first year that CEO gender data became available, and 2008. Antitakeover risk measure (*ATR)* data is obtained from the RiskMetrics Governance and Directors databases (formerly called IRRC, or the Investor Responsibility Research Center). We exclude firms with less than 10 million dollars of total assets or total sales, financial institutions, and firms with incomplete data. In addition, we trim the sample at the 99% level to remove potential outliers. The final sample contains 13,206 firm-years.

To test our central hypothesis, we estimate the following model:

$$ACC = \alpha_0 + \alpha_1 DCFO + \alpha_2 CFO + \alpha_3 DCFO*CFO + \alpha_4 FCEO + \alpha_5 DCFO*FCEO + \alpha_6 CFO*FCEO + \alpha_7 DCFO*CFO*FCEO + Firm\ and\ Year\ Fixed\ Effects + CONTROLS + \varepsilon \quad (1)$$

We borrow the models of Ball and Shivakumar (2005; 2006) and Ball et al. (2008), and measure conditional conservatism as the effect of the interaction term *DCFO*CFO* on total accruals (ACC). *CFO* is the firm's operating cash flow, *DCFO* is a dummy variable that equals one if *CFO* is negative and zero otherwise, and *FCEO* is a dummy variable that equals

one if the CEO is female and zero otherwise. A positive *DCFO*CFO* interaction coefficient indicates conditional conservatism. In Eq. (1) α_7 reflects the effect of CEO gender on accounting conservatism. If female CEOs adopt more conservative accounting policies, we expect α_7 to be significantly positive.

Following Jones (1991) and Khan and Watts (2009), we control for fixed assets and changes in sales, which influence accruals, and for company size, leverage, and the market-to-book ratio, which are key determinants of accounting conservatism. In addition, we control for firm and year fixed effects. Appendix A defines all of the variables (including the controls) included in the model.

4. RESULTS

4.1. Descriptive Statistics

Panel A of Table 1 presents the descriptive statistics. The mean value of accruals (*ACC*) is -0.060. Negative accruals are consistent with prior studies and support the conjecture that accrual accounting is generally conservative in nature (Ball and Shivakumar 2006; Basu 1997; Givoly and Hayn 2000). The mean value of operating cash flow (*CFO*) is 0.117, while the proportion of negative operating cash flow (*DCFO*) is 0.053. These results are similar to those of Givoly and Hayn (2000), and reflect the positive cash flows that most companies achieve from operations. The mean value of CEO gender (FCEO) is 0.097 or about 10%, which is consistent with the percentage of female CEOs observed in prior studies. The remaining variables also seem reasonable and consistent with previous research.

Panel B of Table 1 reports the correlation matrix. Accruals (*ACC*) are significantly negatively correlated with *FCEO*, which provides preliminary evidence that companies report more conservatively when the CEO is female. Many other correlations are significant and the signs of the correlation coefficients are consistent with prior research. For example,

consistent with the accruals literature (e.g., Dechow and Dichev 2002; Jones 1991), accruals (*ACC*) are negatively correlated with operating cash flow (*CFO*) and fixed assets (*FASSET*), and are positively correlated with change in sales (*CSALES*).

[Insert Table 1 Here]

4.2. Test of Hypothesis1

Table 2 presents the results of our central hypothesis testing. The coefficients of *DCFO*CFO*FCEO* are uniformly positive and significant across the models, strongly supporting Hypothesis H1. As shown in Columns (2) and (3), the addition of control variables suggested by the literature does not weaken the relationship between CEO gender and accounting conservatism. The positive *DCFO*CFO*FCEO* coefficient means that accruals are more sensitive to negative cash-flow news when the CEO is female, suggesting that female CEOs impound more bad news into earnings.

The control variables are generally consistent with expectations. The negative coefficients on fixed assets (*FASSET*) and positive coefficients on change in sales (*CSALES*) in Columns (2) and (3) of Table 2 are consistent with prior studies of accruals (Jones 1991; Dechow and Dichev 2002). As in Khan and Watts (2009), the negative coefficient on *DCFO*CFO*SIZE* in Column (3) indicates that large firms exhibit less conservatism. Consistent with the prediction of Khan and Watts (2009), the positive coefficient on *DCFO*CFO*MB* suggests that high-growth firms report more conservative earnings[1].

[Insert Table 2 Here]

[1] One of the reviewers points to the potential problem of multicollinearity. As we know, multicollinearity would reduce the probability of finding significant results. Since we are still able to report significant results despite multicollinearity, our results must actually be even more robust. Moreover, we use mean-centering method to lower the VIF values and report them in Table 2. All VIF values in Table 2 and beyond are found to be at acceptable levels (i.e., under 3).

Following prior research, we also test three alternative measures of conservatism and report the corresponding results in Table 3. The first measure is based on the persistence of earnings changes (Basu 1997). The intuition behind this measure is that conservatism causes current (future) earnings to more (less) likely reflect bad news. As a result, earnings changes are more likely to reverse in the future following the recognition of bad news. The second measure is based on the sensitivity of earnings to returns (Basu 1997). The intuition behind this measure is that conservatism makes current earnings more sensitive to bad news than good news. In this case, stock returns are used as a proxy for the nature of the news. The third measure is accruals before depreciation, as in Givoly and Hayn (2000). This measure is based on the intuition that negative accruals are attributable to conservative accounting policies, which duly reflect bad news in earnings. As indicated in Columns (1), (2), and (3), regardless of the measure of accounting conservatism, we find consistent evidence that companies led by female CEOs report earnings more conservatively, further corroborating our central hypothesis.

[Insert Table 3 Here]

4.3. Tests of Hypothesis 2

4.3.1. Effect of Litigation Risk.

If female CEOs' risk aversion contributes to conservatism in accounting, we expect firms confronting higher litigation risk to report more conservatively when led by a female CEO. Hence, we partition the full sample into two subsamples based on whether the company is operating in a litigious industry. The partitioning variable, *LIT*, is equal to one if the firm is in a litigious industry, and zero otherwise. Following Bentley et al. (2013), Cong et al. (2013), Francis et al. (1994), Goh and Li (2011), and Venkataraman et al. (2008), we use the

following primary SIC codes to represent litigious industries: 2833-2836 (biotechnology), 3570-3577 (computer equipment), 3600-3674 (electronics), 5200-5961 (retailing), and 7370-7374 (computer services).

As Table 5 shows, in litigious industries, firms led by female CEOs report earnings more conservatively, while there is no evidence that female-led firms in non-litigious industries adopt more conservative accounting policies. Moreover, the significant differences between the coefficients of the interaction term *DCFO*CFO*FCEO* in the two subsamples suggest that litigation risk induces female CEOs to report more conservatively.

[Insert Table 4 Here]

4.3.2. *Effect of Takeover Risk.*

When companies face a high risk of being taken over, female CEOs, who are presumed to be more risk-averse, are more likely to counter this risk by adopting more conservative accounting policies. To further test whether risk concerns drive the behavioral differences between male and female CEOs, we partition the full sample based on the antitakeover risk measure (*ATR)*, as in Gompers et al. (2003). Higher values for *ATR* indicate lower takeover risk. We partition the sample at the median, setting *DTR* (a dummy variable of takeover risk) to one if *ATR* is below the median, and zero otherwise. As Table 5 shows, companies facing high takeover risk report more conservatively when the CEO is female, while this pattern is not observed in female-led, low-takeover-risk companies. Furthermore, according to the analysis reported at the bottom of Table 5, the effects of CEO gender on conditional conservatism are significantly different between companies with high versus low takeover risk. This difference suggests that the effects of CEO gender on accounting conservatism are contingent on the risk of being taken over, and corresponds with our earlier

findings on the relationship between CEO gender and accounting conservatism. For a sensitivity check, we adopt Bebchuk et al.'s (2003) antitakeover risk index, which is a modified version of Gompers et al.'s (2009) measure, and obtain qualitatively unchanged results.

[Insert Table 5 Here]

4.3.3 Sensitivity to Overall Risk.

Large companies tend to be more capable of handling overall risk (Perez-Quiros and Timmermann 2000). Hence, we expect female CEOs of small companies to be more concerned about risk and, consequently, to recognize bad news in a more timely fashion than good news. We further partition the full sample into two subsamples based on firm size (*SIZE*). The partitioning variable, *SMALL*, is equal to one if the firm size is below the sample median, and zero otherwise. As shown in Columns (1) and (3) of Table 6, small, female-led companies report earnings more conservatively compared to their larger counterparts. The differences between the coefficients of *DCFO*CFO*FCEO* in the two subsamples are statistically significant, further suggesting that the effects of CEO gender on accounting conservatism vary with firm size.

5. ROBUSTNESS CHECKS

We conduct robustness tests for omitted variables, endogeneity, and the use of an alternative set of control variables. First, to address the concern that our results might be driven by omitted variables, we exclude firm fixed effects and include only industry and year fixed effects in a separate test, but our results are materially unchanged. This test helps alleviate the concern that our results might be driven by omitted variables.

Second, appointments of female executives may not be random and could be endogenously determined (Faccio et al. 2012; Francis et al. 2009; Francis et al. 2013; Huang and Kisgen 2013). To address endogeneity concerns, we follow the instrumental variable approach of Huang and Kisgen (2013) and adopt Sugarman and Straus's (1988) state-level gender equality index as the instrumental variable. We presume that a firm located in a state that supports gender equality is more likely to appoint a female executive. We code the state-level gender equality variable of each firm according to the location of the firm's headquarters, with a higher index value indicating greater support of gender equality. Specifically, we estimate a 2SLS model where the first stage is:

$$\text{Female}_i = \beta_0 + \beta_1 \text{ Gender Equality}_i + \beta_2 X_{i,t} + \xi_{i,t}$$

Here, Gender Equality is Sugarman and Straus's (1988) state-level gender equality index and $X_{i,t}$ is a set of control variables. The fitted value of the Female indicator variable from the first-stage regression is used in the second stage, which relates the effects of CEO gender to accounting conservatism.

Our results are consistent with those of Huang and Kisgen (2013). The coefficient on our instrumental variable in the first stage regression is significant at the 1% level, suggesting a strong relation between state-level gender equality and the appointment of female CEOs. Because the F-statistic of 9.312 from the first-stage regression is lower than the rule of thumb threshold of 10 implied by Stock and Yogo (2005), we caution that we cannot rule out weak instrument issues entirely. Supporting our abovementioned major findings, the second-stage regression results in Table 7 show a significantly higher level of accounting conservatism in firms with female CEOs.

[Insert Table 7 Here]

Third, in this study, we adopt the conditional conservatism models of Ball and Shivakumar (2005; 2006) and Ball et al. (2008) and consider the alternative models proposed by Basu (1997) and Givoly and Hayn (2000). Our approach and our choices of control variables are consistent with the extensive body of prior research that has adopted these models (e.g. Chen et al. 2010; Chung and Wynn 2008; Goh and Li 2011; Ramalingegowda and Yu 2012). We also include the control variables in Francis et al. (2009) in a robustness check, but find no qualitative differences in our results (not separately tabulated)[2]. The robustness check provides evidence that our results are not sensitive to an alternative set of control variables and that they are compatible with a related stream of literature, as represented by Francis et al. (2009).

6. CONCLUSION

This study demonstrates that companies with female CEOs report more conservative earnings. Because female CEOs are more ethical and risk-averse, we expect them to recognize bad news in reported earnings in a more timely fashion. Regardless of the measure of conservatism (i.e. Basu's (1997) return-based model, Ball and Shivakumar's (2006) cash-flow-based model, or Givoly and Hayn's (2000) accrual-based model), we find consistent evidence that companies with female CEOs report earnings more conservatively. Consistent with conventional wisdom, the association between female CEOs and accounting conservatism is significant in firms exposed to high rather than low litigation and takeover risks. A cross-sectional analysis of the effects of CEO gender on accounting conservatism produced intuitive results. Specifically, the effects of gender are more pronounced in smaller firms and in firms with stronger corporate governance.

[2] We would like to thank one of the reviewers for this suggestion.

The results fill a number of gaps in the literature. To the best of our knowledge, no other study has documented the effects of CEO gender on accounting conservatism. Furthermore, our results support the view that CEO gender should be considered when assessing and analyzing accounting information quality.

This study is of value to investors, creditors, analysts, and auditors, as it serves as a reminder that CEO gender needs to be taken into consideration when making decisions. For example, when analyzing financial statements, they should keep in mind that a female CEO may report more conservative earnings numbers. Moreover, the increasing number of female corporate leaders may eventually alter the scale of earnings management and change our expectations for various financial ratios. Whether investors, creditors, analysts, and auditors actually factor the conservatism of female CEOs into their decisions is an empirical question left for future researchers. Similarly, the potential changes in earnings management and various financial ratios corresponding to increased female corporate leadership present another interesting topic for future research.

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Appendix A
Variable Definitions

Variable	Definition
ACC	Total accruals. Defined as net income before extraordinary items (#IBC) minus cash flow from operating activities (#OANCF), scaled by total assets at the beginning of the fiscal year (#AT).
CFO	Operating cash flow (#OANCF) deflated by total assets at the beginning of the fiscal year (#AT).
DCFO	A dummy variable that equals one if *CFO* is negative, and zero otherwise.
FCEO	A measure of CEO gender that equals one if the CEO is female, and zero otherwise.
FASSET	Book value of fixed assets (#PPEGT) scaled by total assets at the beginning of the fiscal year (#AT).
CSALES	Change in sales (#SALE) scaled by total assets at the beginning of the fiscal year (#AT).
SIZE	The firm's size calculated as the natural log of total assets at the end of the fiscal year.
LEV	The firm's leverage measured as the sum of long-term debt (#DLTT) and debt in current liabilities (#DLC) deflated by market value of equity at the end of the fiscal year.
MB	The market-to-book ratio calculated as the market value of equity (#CSHO*#PRCC_F) divided by the book value of equity (#CEQ) at the end of the fiscal year.
MV	The market value of equity (#CSHO*#PRCC_F) at the end of the fiscal year.
ΔNI_t	Change in net income before extraordinary items (#IB) in fiscal year t divided by total assets at the beginning of the fiscal year.
ΔNI_{t-1}	The change in net income before extraordinary items (#IB) in fiscal year t-1 divided by total assets at the beginning of the fiscal year.
$D\Delta NI_{t-1}$	A dummy variable that equals one if ΔNI_{t-1} is negative, and zero otherwise.
NI	*NI* is net income before extraordinary items (#IB) deflated by the beginning of period prices.
RET	*RET* is accumulated market-adjusted stock returns from 9 months before fiscal year end to three months after fiscal year end.
DR	A dummy variable that equals one if *RET* is negative, and zero otherwise.
ACCDEP	*ACCDEP* is income before extraordinary items (#IB) less cash flows from operations (#OANCF) plus depreciation expenses (#DP) deflated by average total assets (#AT).
RDADV	*RDADV* is research and development (#XRD) plus advertising expenses (#XAD) scaled by total sales.
GROWTH	Sales growth defined as the percentage of annual growth in total sales (#SALE).
LIT	*LIT* is a dummy variable that equals one if the firm is in a litigious industry, and zero otherwise. Following Francis et al. (1994), primary SIC codes of 2833-2836 (biotechnology), 3570-3577 (computer equipment), 3600-3674 (electronics), 5200-5961 (retailing), and 7370-7374 (computer services) are considered to represent litigious industries.
ATR	An index of antitakeover risk introduced by Gompers et al. (2003). *ATR* is constructed from 24 Antitakeover Provisions (ATPs) published by RiskMetrics. A greater value of *GINDEX* indicates a lower risk of being taken

	over.
DTR	*DTR* equals one if *ATR* is below the sample median, and zero otherwise.
SMALL	*SMALL* equals one if *SIZE* is below the sample median, and zero otherwise.

Table 1
Descriptive Statistics and Correlation Matrix

Panel A: Descriptive Statistics

Variable	Mean	Std.	Median	25^{th}	75^{th}
ACC	-0.060	0.058	-0.055	-0.091	-0.026
CFO	0.117	0.081	0.108	0.066	0.162
DCFO	0.053	0.224	0.000	0.000	0.000
FCEO	0.097	0.296	0.000	0.000	0.000
FASSET	0.607	0.387	0.526	0.294	0.864
CSALES	0.085	0.197	0.062	-0.010	0.163
SIZE	7.470	1.483	7.310	6.394	8.388
LEV	0.253	0.213	0.242	0.076	0.372
MB	3.388	49.906	2.143	1.435	3.470

Panel B: Pearson (above the diagonal) and Spearman rank (below the diagonal) correlations

Variable	*ACC*	*CFO*	*DCFO*	*FCEO*	*FASSET*	*CSALES*	*SIZE*	*LEV*	*MB*
ACC	**1.000**	**-0.472**	**0.174**	**-0.017**	**-0.199**	**0.141**	**0.043**	0.010	-0.004
CFO	**-0.486**	**1.000**	**-0.455**	-0.001	**0.133**	**0.254**	**-0.035**	**-0.190**	**0.007**
DCFO	**0.151**	**-0.388**	**1.000**	0.011	**-0.106**	**-0.077**	**-0.121**	**0.028**	**0.033**
FCEO	**-0.019**	-0.002	0.011	**1.000**	**0.032**	0.004	**0.113**	0.010	-0.003
FASSET	**-0.195**	**0.125**	**-0.111**	**0.037**	**1.000**	-0.009	**0.164**	**0.265**	**-0.012**
CSALES	**0.123**	**0.274**	**-0.084**	0.006	**-0.023**	**1.000**	**-0.033**	**0.032**	**0.009**
SIZE	**0.051**	**-0.042**	**-0.121**	**0.105**	**0.168**	**-0.059**	**1.000**	**0.279**	-0.006
LEV	**0.038**	**-0.243**	**0.021**	0.019	**0.294**	**-0.040**	**0.357**	**1.000**	**0.011**
MB	-0.005	**0.474**	**-0.118**	**0.031**	**-0.121**	**0.275**	**0.063**	**-0.157**	**1.000**

Notes:

This table reports the summary statistics and correlations of the sample. Panel A presents summary statistics of the research variables. Panel B presents the correlation matrix of the research variables. The bold text in Panel B indicates significance at the 0.05 level or better (two-tailed). See Appendix A for variable definitions.

Table 2
The Effects of CEO Gender on Accounting Conservatism

Variable	Column (1)	Column (2)	Column (3)
DCFO	0.007**	0.005	-0.020
	(2.041)	(1.581)	(-1.303)
CFO	-0.442***	-0.502***	-0.495***
	(-54.179)	(-61.552)	(-12.840)
*DCFO*CFO*	0.310***	0.346***	0.606*
	(4.490)	(5.209)	(1.936)
FCEO	0.004	0.006*	0.006**
	(1.297)	(1.830)	(2.014)
*DCFO*FCEO*	0.015	0.007	0.003
	(1.609)	(0.776)	(0.379)
CFO FCEO*	-0.040*	-0.048**	-0.051***
	(-1.942)	(-2.427)	(-2.593)
DCFO*CFO*FCEO	**0.649*** **	**0.719*** **	**0.739*** **
	(3.464)	**(3.987)**	**(4.086)**
FASSET		-0.009***	0.002
		(-2.891)	(0.634)
CSALES		0.091***	0.094***
		(40.606)	(41.431)
SIZE			0.002*
			(1.803)
*DCFO*SIZE*			0.002
			(0.897)
*CFO*SIZE*			-0.002
			(-0.381)
*DCFO*CFO*SIZE*			-0.073
			(-1.434)
LEV			-0.033***
			(-6.050)
*DCFO*LEV*			0.026*
			(1.668)
*CFO*LEV*			0.002
			(0.062)
*DCFO*CFO*LEV*			0.360
			(1.199)
MB			0.000***
			(3.621)
*DCFO*MB*			0.002**
			(2.033)
*CFO*MB*			-0.001***
			(-2.759)
*DCFO*CFO*MB*			0.041***
			(2.626)
Constant	-0.003	-0.003	-0.020*
	(-1.492)	(-1.585)	(-1.885)
Observations	13,206	13,206	13,206
Adj. R-squared	0.490	0.527	0.533

Year Fixed Effects	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes

Notes:
The dependent variable in the table is firm's total accruals (*ACC*). *CFO* is firm's operating cash flow. *DCFO* equals one if *CFO* is negative, and zero otherwise. *FCEO* equals one if the CEO is female, and zero otherwise.

See Appendix A for the definitions of the other variables. T-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels or better, respectively (two tailed).

Table 3
Robustness Checks with Alternative Measures of Conservatism

Column (1) The persistence of earnings changes measure of conservatism in Basu (1997)		Column (2) The sensitivity of earnings to returns measure of conservatism in Basu (1997)		Column (3) The accruals before depreciation measure of conservatism in Givoly and Hayn (2000)	
Dependent variable= ΔNI_t		Dependent variable =*NI*		Dependent variable = *ACCDEP*	
$D\Delta NI_{t-1}$	-0.009	*RET*	-0.017*	***FCEO***	**-0.003****
	(-0.386)		(-1.825)		**(-2.135)**
ΔNI_{t-1}	-0.131	*DR*	0.098***	*SIZE*	0.005***
	(-0.100)		(4.977)		(23.335)
$D\Delta NI_{t-1}$*****ΔNI_{t-1}	-0.233	*DR*RET*	0.008	*LEV*	0.012***
	(-0.176)		(1.173)		(10.312)
FCEO	-0.001	*FCEO*	0.003	*MB*	-0.080***
	(-0.279)		(0.977)		(-19.388)
$D\Delta NI_{t-1}$*FCEO	0.005	*RET*FCEO*	-0.011**	*CFO*	-0.562***
	(1.356)		(-2.050)		(-91.707)
ΔNI_{t-1}*FCEO	-0.045	*DR*FCEO*	-0.003	*RDADV*	-0.340***
	(-0.958)		(-0.856)		(-23.095)
$D\Delta NI_{t-1}$*ΔNI_{t-1}*FCEO	**0.139****	***DR*RET*FCEO***	**0.023****	*GROWTH*	0.062***
	(2.210)		**(2.127)**		(34.101)
SIZE	0.002***	*SIZE*	0.001***	*LIT*	0.001
	(7.300)		(3.798)		(0.224)
$D\Delta NI_{t-1}$*SIZE	-0.000	*DR*SIZE*	-0.001**	*Constant*	-0.056***
	(-1.128)		(-2.398)		(-6.787)
ΔNI_{t-1}*SIZE	0.015***	*RET*SIZE*	0.000	Observations	12,499
	(4.528)		(0.683)	Adj. R-squared	0.643
$D\Delta NI_{t-1}$*****ΔNI_{t-1}*SIZE	-0.022***	*DR*RET*SIZE*	-0.010***	Year Fixed effects	YES
	(-4.972)		(-6.737)	Firm Fixed effects	YES
LEV	-0.070***	*LEV*	-0.069***		

	(-9.621)		(-9.937)	
$D\Delta NI_{t-1}$*LEV	0.006	*DR*LEV*	0.019**	
	(0.817)		(2.360)	
ΔNI_{t-1}*LEV	0.177**	*RET*LEV*	-0.009	
	(2.183)		(-0.848)	
$D\Delta NI_{t-1}$*ΔNI_{t-1}*LEV	-0.715***	*DR*RET*LEV*	0.124***	
	(-6.643)		(5.478)	
MB	-0.009***	*MB*	0.015***	
	(-5.314)		(9.873)	
$D\Delta NI_{t-1}$*MB	-0.000	*DR*MB*	-0.001	
	(-0.094)		(-0.765)	
ΔNI_{t-1}*MB	0.014	*RET*MB*	0.004***	
	(1.336)		(2.976)	
$D\Delta NI_{t-1}$*ΔNI_{t-1}*MB	-0.053***	*DR*RET*MB*	-0.008***	
	(-3.706)		(-3.022)	
LIT	-0.002	*LIT*	-0.001	
	(-0.297)		(-0.216)	
$D\Delta NI_{t-1}$*LIT	0.004	*DR*LIT*	0.001	
	(0.973)		(0.415)	
ΔNI_{t-1}*LIT	0.082	*RET*LIT*	-0.003	
	(1.548)		(-0.883)	
$D\Delta NI_{t-1}$*ΔNI_{t-1}*LIT	-0.018	*DR*RET*LIT*	0.011	
	(-0.248)		(1.293)	
Constant	0.069***	*Constant*	-0.047***	
	(2.808)		(-4.402)	
Observations	13,356	Observations	12,148	
Adj. R-squared	0.246	Adj. R-squared	0.409	
Year Fixed Effects	Yes	Year Fixed Effects	Yes	
Firm Fixed Effects	Yes	Firm Fixed Effects	Yes	

Notes: The dependent variable in Column (1) (ΔNI_t) is the change in net income before extraordinary items for firm i in fiscal year t deflated by beginning-of-year total assets. $D\Delta NI_{t-1}$ equals one if ΔNI_{t-1} is negative, and zero otherwise. The dependent variable in Column (2) is *NI*, which is net income before extraordinary items (*#IB*), deflated by beginning of period prices. *RET* is accumulated market-adjusted stock returns from 9 months before fiscal year end to three months after fiscal year end. *DR* is a dummy variable which equals one if *RET* is less than zero, and zero otherwise. The dependent variable in Column (3) is *ACCDEP*, income before extraordinary items less cash flows from operations plus depreciation expense scaled by average total assets. The lower the *ACCDEP*, the greater the conservatism. *FCEO* equals one if the CEO is female, and zero otherwise. *SMALL* equals zero if *SIZE* is above the sample median, and one otherwise.

See Appendix A for the definitions of the other variables. The standard errors are adjusted for clustering by year. T-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels or better, respectively (two tailed).

Table 4
Sample Partitioned on Litigation Risk

Variable	Column (1) *LIT*=1	Column (2) *LIT*=0	Column (3) *LIT*=1	Column (4) *LIT*=0
DCFO	-0.002	0.005	-0.064**	0.002
	(-0.362)	(1.449)	(-2.067)	(0.095)
CFO	-0.502***	-0.513***	-0.574***	-0.464***
	(-33.794)	(-52.042)	(-8.229)	(-9.958)
*DCFO*CFO*	0.431***	0.175**	0.061	0.934**
	(3.781)	(2.092)	(0.115)	(2.187)
FCEO	0.015**	0.003	0.015**	0.004
	(2.272)	(0.824)	(2.350)	(1.083)
*DCFO*FCEO*	0.028	-0.004	0.020	-0.007
	(1.425)	(-0.372)	(0.999)	(-0.721)
*CFO*FCEO*	-0.074**	-0.045*	-0.080**	-0.048*
	(-2.065)	(-1.824)	(-2.236)	(-1.954)
DCFO*CFO*FCEO	**1.191*** **	**0.222**	**1.063*** **	**0.220**
	(3.871)	**(0.761)**	**(3.376)**	**(0.761)**
FASSET	-0.008	-0.008**	-0.008	0.009**
	(-1.002)	(-2.400)	(-0.965)	(2.454)
CSALES	0.113***	0.081***	0.114***	0.084***
	(23.263)	(33.077)	(22.865)	(33.931)
SIZE			-0.001	0.005***
			(-0.491)	(3.475)
*DCFO*SIZE*			0.007	-0.001
			(1.502)	(-0.328)
*CFO*SIZE*			0.009	-0.008
			(0.911)	(-1.287)
*DCFO*CFO*SIZE*			0.052	-0.160**
			(0.573)	(-2.412)
LEV			-0.023*	-0.038***
			(-1.946)	(-6.078)
*DCFO*LEV*			0.045	0.020
			(1.268)	(1.151)
*CFO*LEV*			0.001	-0.000
			(0.021)	(-0.010)
*DCFO*CFO*LEV*			0.583	0.680*
			(1.000)	(1.820)
MB			0.000	0.000***
			(0.515)	(3.651)
*DCFO*MB*			0.002	0.002**
			(0.910)	(2.420)
*CFO*MB*			0.001	-0.001***
			(0.542)	(-3.155)
*DCFO*CFO*MB*			-0.016	0.056***
			(-0.535)	(2.996)
Constant	-0.011***	-0.000	0.003	-0.041***
	(-2.729)	(-0.004)	(0.130)	(-3.306)
Observations	4,004	9,202	4,004	9,202

Adj. R-squared	0.498	0.537	0.500	0.546
Year Fixed Effects	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes
Difference of coefficients on *DCFO*CFO*FCEO*	(1)-(2) p=0.027**		(3)-(4) p=0.029**	

Notes:
The dependent variable in the table is firm's total accruals (*ACC*). *CFO* is firm's operating cash flow. *DCFO* equals one if *CFO* is negative, and zero otherwise. *FCEO* equals one if the CEO is female, and zero otherwise.

LIT is a dummy variable that equals one if firms are in a litigious industry, and zero otherwise. Following Francis et al. (1994), primary SIC codes of 2833-2836 (biotechnology), 3570-3577 (computer equipment), 3600-3674 (electronics), 5200-5961 (retailing), and 7370-7374 (computer services) are considered to represent litigious industries.

See Appendix A for definitions of the other variables. The standard errors are adjusted for clustering by year. T-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels or better, respectively (two tailed).

Table 5
Sample Partitioned on Anti-takeover Risk

Variable	Column (1) *DTR*=1	Column (2) *DTR*=0	Column (3) *DTR*=1	Column (4) *DTR*=0
DCFO	-0.002	0.010*	-0.029	-0.022
	(-0.331)	(1.886)	(-1.145)	(-0.892)
CFO	-0.509***	-0.568***	-0.482***	-0.588***
	(-40.148)	(-40.663)	(-8.058)	(-8.493)
*DCFO*CFO*	0.191*	0.589***	-0.385	0.921*
	(1.914)	(4.876)	(-0.758)	(1.723)
FCEO	0.009	0.001	0.009	0.001
	(1.624)	(0.140)	(1.550)	(0.403)
*DCFO*FCEO*	0.022	-0.006	0.018	-0.009
	(1.519)	(-0.538)	(1.209)	(-0.845)
*CFO*FCEO*	-0.091***	-0.008	-0.088***	-0.015
	(-2.656)	(-0.335)	(-2.586)	(-0.622)
DCFO*CFO*FCEO	**1.459*** **	**-0.136**	**1.403*** **	**-0.147**
	(4.783)	**(-0.502)**	**(4.488)**	**(-0.536)**
FASSET	-0.013**	-0.001	0.000	0.024***
	(-2.219)	(-0.182)	(0.055)	(4.372)
CSALES	0.089***	0.073***	0.093***	0.075***
	(23.055)	(20.676)	(23.776)	(20.924)
SIZE			0.002	0.004
			(0.994)	(1.551)
*DCFO*SIZE*			0.004	0.001
			(0.982)	(0.377)
*CFO*SIZE*			-0.004	0.004
			(-0.471)	(0.458)
*DCFO*CFO*SIZE*			0.080	-0.061
			(0.955)	(-0.685)
LEV			-0.032***	-0.037***
			(-3.695)	(-4.238)
*DCFO*LEV*			0.003	0.043
			(0.123)	(1.582)
*CFO*LEV*			-0.042	-0.137***
			(-0.936)	(-2.720)
*DCFO*CFO*LEV*			0.380	-0.534
			(0.910)	(-0.854)
MB			0.000	0.000***
			(1.099)	(2.671)
*DCFO*MB*			0.002	0.004**
			(0.917)	(2.509)
*CFO*MB*			-0.000	-0.001**
			(-0.188)	(-2.425)
*DCFO*CFO*MB*			0.007	0.076***
			(0.228)	(2.948)
Constant	-0.001	0.003	-0.017	-0.030
	(-0.173)	(0.942)	(-0.980)	(-1.552)
Observations	5,671	4,608	5,671	4,608

Adj. R-squared	0.527	0.561	0.534	0.577
Year Fixed Effects	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes
Difference of coefficients on *DCFO*CFO*FCEO*	(1)-(2) p=0.000***		(3)-(4) p=0.000***	

Notes:
The dependent variable in the table is firm's total accruals (*ACC*). *CFO* is firm's operating cash flow. *DCFO* equals one if *CFO* is negative, and zero otherwise. *FCEO* equals one if the CEO is female, and zero otherwise.

ATR is an index of antitakeover risk introduced by Gompers et al. (2003). *ATR* is constructed with 24 Antitakeover Provisions (ATPs) published by RiskMetrics. A greater value of *ATR* indicates a lower risk of being taken over. *DTR* equals zero if *ATR* is above the sample median, and one otherwise.

See Appendix A for definitions of the other variables. T-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels or better, respectively (two tailed).

Table 6
Sample Partitioned on Firm Size

Variable	Column (1) *SMALL*=1	Column (2) *SMALL*=0	Column (3) *SMALL*=1	Column (4) *SMALL*=0
DCFO	-0.001	0.015***	-0.047	0.009
	(-0.335)	(2.965)	(-1.341)	(0.205)
CFO	-0.534***	-0.491***	-0.132	-0.651***
	(-46.122)	(-40.968)	(-1.471)	(-7.147)
*DCFO*CFO*	0.296***	0.344***	0.264	-0.713
	(3.580)	(2.638)	(0.442)	(-0.627)
FCEO	0.009	0.006*	0.008	0.008**
	(1.640)	(1.678)	(1.368)	(2.103)
*DCFO*FCEO*	0.015	-0.011	0.011	-0.014
	(1.118)	(-0.886)	(0.843)	(-1.096)
*CFO*FCEO*	-0.050	-0.067**	-0.040	-0.075***
	(-1.595)	(-2.510)	(-1.276)	(-2.827)
DCFO*CFO*FCEO	**1.021*** **	**0.192**	**1.041*** **	**0.103**
	(4.480)	**(0.568)**	**(4.573)**	**(0.283)**
FASSET	-0.009	-0.007*	-0.002	0.009**
	(-1.540)	(-1.850)	(-0.310)	(2.013)
CSALES	0.108***	0.070***	0.109***	0.072***
	(32.715)	(22.361)	(32.766)	(22.966)
SIZE			0.010***	0.002
			(3.368)	(0.922)
*DCFO*SIZE*			0.005	-0.002
			(0.912)	(-0.410)
*CFO*SIZE*			-0.070***	0.022**
			(-4.781)	(2.068)
*DCFO*CFO*SIZE*			-0.043	0.049
			(-0.403)	(0.350)
LEV			-0.048***	-0.016**
			(-5.580)	(-2.173)
*DCFO*LEV*			0.022	0.070***
			(1.000)	(2.917)
*CFO*LEV*			0.137***	-0.129***
			(3.368)	(-3.253)
*DCFO*CFO*LEV*			0.068	2.080***
			(0.170)	(3.626)
MB			0.000*	0.000*
			(1.756)	(1.699)
*DCFO*MB*			0.004***	0.001
			(2.734)	(0.633)
*CFO*MB*			-0.001	-0.001
			(-0.699)	(-1.033)
*DCFO*CFO*MB*			0.074***	0.016
			(3.077)	(0.468)
Constant	-0.002	-0.003	-0.062***	-0.025
	(-0.673)	(-1.117)	(-3.096)	(-1.337)
Observations	6,603	6,603	6,603	6,603

Adj. R-squared	0.553	0.522	0.560	0.531
Year Fixed Effects	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes
Difference of coefficients on	(1)-(2)		(3)-(4)	
*DCFO*CFO*FCEO*	p=0.023**		p=0.019***	

Notes:
The dependent variable in the table is firm's total accruals (*ACC*). *CFO* is operating cash flow. *DCFO* equals one if CFO is negative, and zero otherwise. *FCEO* equals one if the CEO is female, and zero otherwise. *SMALL* equals zero if *SIZE* is above the sample median, and one otherwise.

See Appendix A for definitions of the other variables. T-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels or better, respectively (two tailed).

Table 7

Endogeneity Test: Instrumental variable approach

First Stage of 2SLS

Variable	Column (1)
Lev	-0.045**
	(2.356)
Size	0.021***
	(2.874)
Market-to-Book	-0.000
	(0.351)
FASSET	0.038*
	(1.997)
Csales	-0.018
	(-1.125)
Gender Equality	0.001***
	(3.314)
Observations	13,206
F-Statistic	9.312
[p-value]	[0.00]
Year Fixed Effects	Yes
Firm Fixed Effects	Yes

Notes:
The dependent variable in the table is CEO gender (FCEO). *FCEO* equals one if the CEO is female, and zero otherwise.

See Appendix A for definitions of the other variables. T-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels or better, respectively (two tailed).

Second Stage of 2SLS

Variable	Column (1)	Column (2)	Column (3)

DCFO	0.003	-0.001	-0.018
	(0.535)	(-0.207)	(-1.143)
CFO	-0.438***	-0.497***	-0.495***
	(-34.822)	(-41.793)	(-12.814)
*DCFO*CFO*	0.332***	0.334***	0.622**
	(3.107)	(3.347)	(1.974)
Instrumented FCEO	0.033**	0.005	0.017
	(2.278)	(0.371)	(1.196)
*DCFO*Instrumented FCEO*	0.075	0.080	0.039
	(1.386)	(1.593)	(0.714)
CFO Instrumented FCEO*	-0.030	-0.106	-0.204**
	(-0.302)	(-1.151)	(-2.135)
DCFO*CFO* Instrumented FCEO	**0.791*** **	**0.834*** **	**0.797*** **
	(3.254)	**(3.173)**	**(3.543)**
FASSET		-0.009***	0.003
		(-2.659)	(0.761)
CSALES		0.091***	0.094***
		(40.348)	(41.128)
SIZE			0.002
			(1.091)
*DCFO*SIZE*			0.001
			(0.561)
*CFO*SIZE*			-0.000
			(-0.019)
*DCFO*CFO*SIZE*			-0.079
			(-1.478)

LEV			-0.033***
			(-6.057)
*DCFO*LEV*			0.027*
			(1.696)
*CFO*LEV*			-0.001
			(-0.053)
*DCFO*CFO*LEV*			0.330
			(1.094)
MB			0.000***
			(3.558)
*DCFO*MB*			0.002**
			(2.065)
*CFO*MB*			-0.001***
			(-2.669)
*DCFO*CFO*MB*			0.041***
			(2.648)
Constant	-0.012***	-0.004	-0.015
	(-6.591)	(-1.474)	(-1.312)
Observations	13,206	13,206	13,206
Adj. R-squared	0.455	0.526	0.532
Year Fixed Effects	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes

Notes:
The dependent variable in the table is firm's total accruals (*ACC*). *CFO* is operating cash flow. *DCFO* equals one if CFO is negative, and zero otherwise. Instrumented FCEO is the fitted value of FCEO from the first stage regression.

See Appendix A for definitions of the other variables. T-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels or better, respectively (two tailed).