Gender differences in financial reporting decision-making: Evidence from accounting conservatism

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Abstract

This paper investigates the effect of gender on corporate financial reporting decision-making. Focusing on firms that experience changes of CFO from male to female, the paper compares the firms' degree of reporting conservatism between pre- and post-transition periods. We find that female CFOs are more conservative in their financial reporting. We also find that the relation between CFO gender and conservatism depends on firm risks such as litigation and default risks, and CFO specific risk such as job security risk. We further find that the risk-aversion of female CFOs leads them to choose less equity-based compensation, reduce firm risk, dividend payout, discretionary accruals and earnings volatility, and invest more in tangible assets than in intangible assets with growth options, all of which imply more conservative accounting for firms under the control of female CFOs. Finally, we find that the stock market reacts less negatively to bad earnings news of firms with female CFOs. Overall, the study provides strong support for the notion that female CFOs are more risk-averse than male CFOs, which leads female CFOs to adopt more conservative financial reporting policies.

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1. Introduction

Over the past decade, there has been a significant increase in the number of women belonging to top executive teams. With this increase, researchers have begun investigating the impact of female executives on various corporate decisions such as financing, investment, mergers and acquisitions, and going public, among others (see, e.g., Huang and Kisgen (2008), Levi et al. (2008), and Mohan and Chen (2004)). In general, they find that the corporate decisions made by women executives are significantly different than those made by male executives. However, in the accounting literature, whether there exists a gender effect on corporate accounting decision making is very limited (see, e.g., Dyreng et al. (2010), Birnberg (2011), Ge et al. (2011)). In this paper, we seek an answer to this question by examining whether there are systematic differences in the choice of financial reporting practices between female and male executives. Specifically, using chief financial officer (CFO) gender changes as our quasi-natural experiment, we examine whether female CFOs follow a more conservative approach in their financial reporting compared to their male counterparts subsequent to being hired.

Motivated by Hambrick and Mason's (1984) "upper echelons theory" that argues that managers' individual characteristics affect how they assess and interpret their positions and thereby their decisions, manager-effects have begun receiving increasing attention in accounting research (e.g., Geiger and North (2006), Bamber et al. (2010), Dyreng et al. (2010) and Ge et al. (2011)). Generally, these papers show that managerial fixed effects have significant explanatory power for various accounting choices, such as voluntary disclosure, tax avoidance, discretionary accruals, meeting/beating analysts' expatiations and earnings smoothness. However, when the impact of specific individual characteristics on these accounting choices is examined, support is generally not found for a gender-effect.[1] In his survey paper, Birnberg (2011) concludes that although behavioral accounting research has shown greater awareness of gender issue in recent years, whether there exist gender differences in terms of accounting decision-making is still an open question, and he calls for more research in this area.

Gender differences in attitudes towards risk and risk related behavior have long been studied in the sociology, psychology and economics literatures. In general, most studies support the notion that women are more risk averse than men (e.g., Eckel and Grossman (2004) and

[1] Ge et al. (2011) explain that a possible reason of the insignificant result on gender effect is due to the limited observations of female executives.

Groson and Gneezy (2009)). Given that corporate decisions also reflect managers' personal risk preferences (see, e.g., Hambrick and Mason (1984) and Graham et al. (2009)), we would expect that the accounting practices of female executives and male executives would be significantly different, with female being more conservative.

Our paper fills an important void in the accounting literature by specifically examining the effect of gender on accounting decision-making. Our paper differs from prior studies, such as Dyreng et al. (2010) and Ge et al. (2011), in two important ways. First, our paper links the gender of CFOs with accounting conservatism, which is important given as pointed out by Sterling (1970), conservatism is (arguably) the most influential principle of accounting. More important for the issues addressed in our paper it reflects managers' attitude towards risk. For example, Watts (2003a) points out that accounting conservatism is an efficient mechanism that could mitigate conflicts between management and various contracting parties, and could reduce potential litigation by outside parties, especially shareholders. Biddle et al. (2010) find that accounting conservatism and firm default risk are jointly determined. Desai et al. (2006), Hennes et al. (2008) and Collins et al. (2009), among others, find that CEO and CFO turnover rates are higher around financial restatements due to the use of aggressive accounting, and importantly, that displaced managers suffer reputational and labor market penalties for using aggressive accounting. Therefore, given the existing evidence that women are generally more risk averse than men, we expect that female executives are significantly more sensitive to the risks related to the use of aggressive accounting. Thus, they should have stronger incentives to be more conservative in their financial reporting so as to avoid potential conflicts between various stakeholders, litigation by outside parties, bankruptcy, and to maintain their reputation thereby securing their position at the top executive level.

Second, both Dyreng et al. (2010) and Ge et al. (2010) adopt a research design that aims to capture CEO and/or CFO fixed effects. In contrast, we use a methodology that allows us to cleanly isolate the gender effect. Specifically, we construct three sets of sample firms with CFO gender changes (male to female, female to male, and male to male), and examine how accounting conservatism changes when there is a change from male to female and vice versa in the hiring of a new CFO. By isolating the effect of gender on accounting conservatism, while controlling for known economic determinants of conservatism, we are not only able to examine

the existence, but also the magnitude of the effect of individual managers' gender on their firms' accounting conservatism.

In this paper, we focus on CFOs effect on accounting conservatism because the management of a firm's financial reporting system is the primary responsibility of the CFO. Mian (2001), Geiger and North (2006), Chava and Purnanandam (2010), Ge et al. (2011) and others, provide evidence showing that among senior managers the CFO has the most direct impact on accounting related decisions.

Using a sample of S&P 1,500 companies over the period 1988 to 2007, we examine whether following a change in CFOs if there is a significant difference in accounting conservatism between the pre- and post-transition periods that can be attributed to a change in gender. We use three measures of accounting conservatism that have been used in the extant literature. These are (i) a measure based on the firm's market to book ratio (Beaver and Ryan (2000)); (ii) an accrual measure (Givoly and Hayn (2000)); and (iii) a skewness measure (Givoly and Hayn (2000) and Zhang (2008)). We find that subsequent to the hiring of a CFO where there is a change in gender from male to female there is a significant increase, both statistically and economically, in the level of accounting conservatism. These results hold irrespective of the measure of conservatism that we use, and when we control for firm characteristics, industry and year effects.

Next, we examine the impact of endogeneity on our results. We perform this analysis because, when hired female CFOs may not be randomly chosen. In addition, unobservable time series changes contemporaneous with CFO changes could also affect accounting conservatism. In conducting this analysis, we use both differences-in-differences and propensity score matching approaches, where we use male to male CFO transition as the control group. The results further confirm the gender differences in conservative reporting decision-making. Our results are also robust to the various measures of accounting conservatism measure, and for controls such as equity ownership, age, previous experience of the CFO, corporate governance, and whether there is a concurrent CEO turnover.

We also find that female CFOs' positive impact on conservatism is more pronounced when firms have higher litigation risk, default risk or management turnover risk. These findings provide strong support for our conjecture that female CFOs are more conservative in their

financial reporting when facing higher firm' and job security risks. Additionally, they provide an important link between the risk-aversion of female CFOs and accounting conservatism.

Next we examine how several corporate decisions and firm characteristics change, which we argue reflects female CFOs attitude towards risk, and their implications for conservative accounting subsequent to the transition. First, we find a significant decrease in discretionary accruals and earnings volatility following male to female CFO transition, which is consistent with more conservative accounting (e.g., Watts (2003a), Chen et al. (2007), and Kim and Pevzner (2010)). Second, we find that there is a reduction in investment in intangible assets and projects with more growth options and an increase in investment with tangible assets. This finding provides a possible mechanism through which risk-aversion leads to an increase in conservatism, because Roychowdhury and Watts (2007) point out that conservatism could be driven by the nature of the firm's assets, with firms that have more tangible assets reporting a more conservative accounting. Third, we also detect a significant reduction in dividend payout following male to female CFO transition. This finding provides support for Watts (2003a) argument that firms could increase their conservatism by reducing dividend payout.

Finally, we compare the market reaction to quarterly earnings announcements for the pre-transition period (under the control of male CFOs) and the post-transition period (under the control of female CFOs). We find that for positive earnings announcements there is not a significant difference in the stock-market reaction. In contrast, for negative earnings announcements, there is a smaller negative abnormal return in the post-transition period compared to the pre-transition period. This suggests that the negative earnings announcements made by male CFOs reveal more negative firm-specific information to the market than those made by female CFOs. This result which is consistent with Kim and Pevzner (2010) who find that the stock market reacts less negatively to bad earnings news of more conservative firms, suggests that stock market participants are aware of the differences in terms of financial reporting conservatism between male and female CFOs.

To our knowledge, this is the first study to find and quantify the effect of gender on accounting conservatism. Prior studies examining accounting conservatism take the neoclassical view and focus on firm-level or country-level factors as determinants of conservatism, and treat top executives as homogenous. In our paper, we relate corporate financial reporting decisions to the gender of top executives. Moreover, because of our research design, we are able to isolate

and quantify the effect of gender on accounting conservatism. In addition, we provide a rich set of tests on why and how risk-aversion of female CFOs affects accounting conservatism. Our study broadens the view of what drives accounting conservatism to include the gender of top executives.

Our paper is also related to an emerging literature in behavioral accounting research that examines how CFOs' personal characteristics and styles affect financial reporting practices (e.g., Geiger and North (2006), Bamber et al. (2010), Dyreng et al. (2010) and Ge et al. (2011)). While prior studies show CFOs matter in several accounting choices, they find limited evidence of the impact of various CFO individual characteristics on accounting choices. Borrowing from the well-established theory from sociology, psychology and economics literatures, we bridge the risk aversion of female executives with conservative accounting and find strong corroborative evidence of its importance. More importantly our findings indicate that there is a substantial gender factor to the determinants of accounting decision-making. Thus, our paper complements and extends this stream of research and responds to the call by Birnberg (2011).

The remainder of our paper is structured as follows. Section 2 contains a brief review of the relevant research and presents our hypotheses. Section 3 introduces the measures of conservatism that we use in our analysis. In Section 4, we describe our sample selection process and present descriptive statistics. Multivariate tests are conducted in Section 5. The final section summarizes and concludes.

2. Conservative financial reporting and gender differences in risk attitudes

2.1. Information asymmetry, risk and accounting conservatism

Conservatism has long been an important convention in financial reporting (Watts (2003a)). Prior studies provide several explanations for the existence of conservative accounting.[2] Two of the most widely accepted are the contracting and litigation risk explanations. The contract-based explanation argues that conservatism is beneficial to investors and other contracting parties because it is a means of mitigating moral hazard problems caused by asymmetric information facing contracting parties. For instance, Watts (2003a) points out that with its asymmetrical verifiability requirement, conservative accounting can reduce agency costs by constraining managerial opportunistic behavior. Zhang (2008) also points out, and

[2] For a comprehensive review of accounting conservatism, see Watts (2003a, b).

provides empirical support, that conservatism can benefit debt holders, because under conservative accounting debt covenant violations can be triggered faster so that debt holders can take protective actions earlier.

Consistent with the contracting explanation, Lafond and Roychowdhury (2008) find that lower managerial ownership increases the demand for conservatism. Ahmed and Duellman (2007) find that firms with more independent boards and boards with higher shareholdings report a higher level of conservatism. Lara et al. (2009) find that stronger governance firms have higher levels of accounting conservatism. Finally, Ahmed et al. (2002) find that conservative reporting can mitigate bondholder-shareholder conflicts over dividend policy and hence reduce cost of debt.[3]

The litigation risk explanation contends that litigation generates asymmetric payoffs because firms overstating net assets are more likely to be involved in potential litigation and thus have higher litigation costs than firms understating net assets (Watts (2003a)). Conservatism can reduce firms' litigation risk by understating net asset values. Empirical studies find that management and auditors that overstate earnings and net assets are more likely to be sued by shareholders than management and auditors that understate earnings and net assets (e.g., Kellogg (1984)). Watts (2003b) also observes that courts are more likely to punish firms with overstatements than firms with understatements because, in general, stakeholders suffer more losses from overstatements than from understatements.

More recently, Biddle et al. (2010) examine the relation between accounting conservatism and firm's bankruptcy risk. They find that conservatism's cash enhancing and informational roles could reduce both contemporaneous and subsequent bankruptcy risk of the firm.

In the financial restatement literature, studies find that the number of restating firms that overstate their previous earnings is much larger than the number of restating firms that understate their previous earnings.[4] For example, Graham et al. (2008) find that overstatements outnumber understatements nine to one. Prior studies also find that the turnover rates of CEOs and CFOs

[3] Several studies investigate accounting conservatism from an international perspective. Ball et al. (2000) demonstrate that the political influence, such as different legal systems, on financial reporting helps explain conservatism. Bushman and Piotroski (2006) find country level institutions, such as judicial systems, securities laws, and political economies, influence the degree of accounting conservatism.

[4] An extant literature documents negative market reactions to the announcements of financial restatements (e.g., Palmrose et al. (2004)).

are relatively higher around financial restatements, especially for restatements due to the use of aggressive accounting (e.g., Desai et al. (2006), Hennes et al. (2008) and Collins et al. (2009)). The replaced managers also suffer significant losses in income, power and reputation because of using of aggressive accounting. For example, they are less likely to find a comparable position as their prior CFO position, and they are more likely to face legal and financial penalties. Using survey evidence, Graham et al. (2005) find that about 78 percent of CFOs believe that disclosing bad news faster improve their company's reputation for accurate and transparent reporting.

One of the few papers that link executives risk attitudes to the degree of conservatism is that by Lubberink and Huijgen (2001). Using a sample of Dutch companies over the 1983 to 1995 period, they find that if managers are more risk averse (measured by compensation structure), they are more likely to report more conservative earnings because risk-averse managers are more inclined to reduce potential information risk and litigation risk.

In this paper, we propose an alternative explanation of financial reporting conservatism. Rather than focusing on firm-level characteristics, we relate corporate financial reporting decisions to the gender of the top decision makers inside the firm. Our study is similar to Lubberink and Huijgen (2001) in that we relate conservatism to decision makers' attitudes toward potential risk. However, our study focuses on gender effect as a main driver of difference in risk-averseness and relates this risk-attitude to reporting conservatism. In our paper, we also provide a rich set of tests to articulate the link between risk-aversion of women and accounting conservatism.

2.2. Gender differences in risk attitudes

In the psychology and sociology literature numerous studies, using primary and meta-analytic approaches, support the notion that women are more risk-averse than men. In the economic literature laboratory tests and field studies are widely used to examine the impact of gender differences in individual's business decision-making.[5] For example, by using abstract gambling experiments, Levin et al. (1988) report significant differences between male and female college students towards gambling attitudes. However, results from experiments with a contextual environment are mixed. While Powell and Ansic (1997) provide results supporting

[5] Eckel and Grossman (2004) and Groson and Gneezy (2009) provide excellent surveys of gender differences in risk attitudes in the economics literature.

different attitudes toward risk between women and men, Schubert et al. (1999) find no systematic differences in risk attitudes towards investment decisions for their subjects.

Evidence from field studies also demonstrates gender differences in risk related behavior. For instance, Johnson and Powell (1994) find that women are more risk-averse than men in their betting habits. Jianakoplos and Bernasek (1998) find that single women are more risk-averse than single men in household-holdings investment decisions. Sundén and Surette (1998) examine gender differences in the allocation of defined contribution plan assets and report that women, compared to men, are less likely to hold most of their assets in stocks. Bernasek and Shwiff (2001) also find that women allocate their pension more conservatively than men.

Olsen and Cox (2001) survey a sample of chartered financial analysts and certified financial planners and find that female professional investors are more concerned about downside risk than their male counterparts, and are more likely to reduce risk given a target return. In contrast, men tend to focus on increasing returns. Kumar (2009) find that female analysts issue more accurate forecasts and that their accuracy is higher in market segments compared to their male counterparts.

In the managerial setting, several studies such as Niessen and Ruenzi (2007), among others, focus on mutual fund managers and compare the investment behavior of male and female fund managers. In general, they find that female fund managers are more risk-averse than male fund managers in their investment decisions.

More recently, studies have begun to investigate whether the gender of corporate executives affects corporate decision-making. Huang and Kingen (2008) investigate how gender differences of CFOs affect various corporate financial decisions. They find that firms under the control of female CFOs grow slower than firms under the control of male CFOs. Additionally, they find that female CFOs are less likely to make significant acquisitions and are less likely to issue debt. Furthermore, the capital structure adjustment speed under the control of female executives is slower than that under the control of male executives. However, female CFOs are more likely to reduce leverage level than male CFOs. They also find that acquisitions made by female CFOs exhibit higher announcement returns compared to those made by firms with male CFOs. Their results provide some supportive evidence that female CFOs are more risk-averse than male CFOs. Levi et al. (2008) examine whether the gender of CEOs or corporate directors plays a role in the pricing of and returns on mergers and acquisitions. They find that bidders

with female CEOs paid much lower premiums than bidders with male CEOs. They also find that the presence of female directors on the board is inversely related to bid premiums. Gul et al. (2011) find that stock prices of firms with gender-diverse have more firm specific information because gender diversity could improve transparency of disclosures and/or facilitate private information collection.

To summarize, most of the evidence in the literature points to gender differences in risk attitudes, with females being more risk-averse.[6] Because CFOs have the responsibility for deciding and monitoring financial reporting policies, and female CFOs are more sensitive to risks (such as information risk, litigation risk, default risk and the risk of being fired) than male CFOs, we expect that firms under the control of female CFOs will exercise more caution in the recognition and measurement of income and assets, and exert higher verification of good news than bad news, thereby, reducing the potential risk of overstatement. Therefore, we hypothesize that when a firm changes its CFO from male to female, the female CFO would adopt more conservative financial reporting policies compared to her male predecessor.

2.3. Gender effect in behavioral accounting research

Stimulated by behavioral decision-making, cognitive psychology and experimental economic literature, behavioral accounting research has grown in breadth, depth and complexity over the last two decades (Birnberg (2011)). For example, using students as the participants in experimental studies is the dominant methodology to conduct behavioral accounting research in early studies. However, recent studies emphasize the importance of using professional participants in behavioral accounting research to enhance the study's external validity (e.g., Hirst and Hopkins (1998)). Meanwhile, beyond experimental studies, survey studies and archival studies using natural experiments have also been commonly utilized in recent years.

Motivated by Hambrick and Mason (1984) upper echelons' theory that managers' individual characteristics affect how they assess and interpret their positions and thereby affect their decisions, a new stream of behavioral accounting research has begun to investigate how individual top managers affect corporate accounting related decisions. To exert individual manager' s idiosyncratic influence on accounting decisions, most of the papers follow the

[6] Groson and Gneezy (2009) summarize three possible explanations for the gender difference in risk taking behaviors as emotions, overconfidence and risk as challenge or threats.

research design of Bertrand and Schoar (2003) that disentangles the manger effect from firm effect by tracking managers across firms over time. For example, Bamber et al. (2010) examine executive fixed effects on corporate financial disclosure policies and find that individual mangers have a significant effect on voluntary disclosure. Dyreng et al. (2010) find that there exists a CEO/CFO fixed effect on corporate tax avoidance strategies. Ge et al. (2011) find that individual CFOs are an important determinant of various accounting choices, such as discretionary accruals, meeting/beating analysts' expatiations and earnings smoothness. However, when they examine how different individual characteristics affect those accounting decisions, they generally do not find a gender effect. Ge et al. (2011) explain one possible reason is due to the relative small number of observations of female executives.

Given the dramatic increase in female corporate executives and the well-established theory in sociology, psychology and economics literatures, gender differences in accounting related decision making have begun attracting attention in behavioral accounting research. Birnberg (2011) summarizes that "future behavioral accounting research may show greater awareness of the issue." However, "because of the limited research, it is an open question whether gender is as relevant an issue when professional participants are used as it is in other studies."

Our paper tries to fill the void by specifically examining the effect of gender on accounting decision-making. Our paper differs from prior studies in two important ways. First, our paper examines gender effect on accounting conservatism, which is one of the most influential principles of accounting and is closely related to individuals' risk preferences. Second, we employ a natural experiment that allows the effect of CFO's gender to be idiosyncratic.

3. Measures of accounting conservatism

At present, there is no single general accepted measure of conservatism in the accounting literature. Consequently, we use three different measures of conservatism in our analysis: a market-value-based measure (*CON_MTB*) and two earnings-based measures (*CON_ACCRUAL* and *CON_SKEWNESS*). In robustness checks, we also use Basu's (1997) asymmetric timeliness of earnings measure.

Our first measure of conservatism, *CON_MTB*, is the market to book ratio of a firm (Beaver and Ryan (2000), Ahmed et al. (2002), Ahmed and Duellma (2007) and Hui et al. (2009)). Intuitively, the market to book ratio reflects asymmetric verification due to earlier recognition of expenses and losses and to deferred revenue recognition, thereby capturing understatement of net assets relative to market value. Therefore, the higher the market to book ratio the more conservative is the firm's accounting policy (Beaver and Ryan (2000)). However, it should be noted that in the extant accounting and finance literature a firm's market to book ratio is also used as a proxy for firms' growth opportunities and economic rents generated from assets-in-place. Consequently, in our analysis we control for these factors in the regressions. We discuss these control variables in detail below. In addition, following Beaver and Ryan (2000), we also include the current and 6-year lagged stock returns as additional explanatory variables to filter out the lag component in the regressions. In these estimations our results are qualitatively unchanged.[7]

Our second measure of conservatism, *CON_ACCRUAL*, is the cumulative non-operating accruals deflated by cumulative total assets, multiplied by -1 for ease of interpretation.[8] Thus, higher *CON_ACCRUAL* indicates greater conservatism. This measure which is due to Givoly and Hayn (2000) has become widely used in the accounting literature (e.g., Ahmed and Duellma (2007), Beatty et al. (2008) and Zhang (2008)). The basic idea is that conservative accounting tends to accelerate the recognition of losses and defers the recognition of gains which leads to persistently negative accruals. Richardson et al. (2005) point out that accruals tend to be reversed within a one- to two-year period. Thus, cumulative accruals over a reasonably long period of time mitigate the effects of any temporary large accruals and reduce the potential serial correlation problem (Ahmed and Duellma (2007)). We calculate *CON_ACCRUAL* for both the pre- and post-transition periods of each firm and test for differences between these two periods.

Our third measure of conservatism, *CON_SKEWNESS*, is the time-series skewness of earnings. Similar to Zhang (2008), we deflate it by the skewness of cash flows to control for the

[7] The results of using bias component are very similar to the results of using simple market to book ratio. Therefore, we only report results based on market to book ratio.

[8] Non-operating accruals are defined as operating accruals – Δaccounts receivable (Compustat #2) – Δinventories (Compustat #3) - Δprepaid expenses (Compustat #160) + Δaccounts payable (Compustat #70) + Δtaxes payable (Compustat #71), where operating accruals = net income (Compustat #172) +depreciation (Compustat #14)) – cash flow from operations (Compustat #308).

variation in firm performance. It is also multiplied by -1 to make the results more easily interpretable. Higher *CON_SKEWNESS* indicates higher conservatism. This measure is also based on Givoly and Hayn (2000) who argue that accounting conservatism requires an immediate and complete recognition of negative news and a delayed and gradual recognition of positive events, leading to a negatively skewed earnings distribution. We calculate *CON_SKEWNESS* for both the pre-transition period and the post-transition period of each firm and test differences between these two periods.

4. Data and summary statistics

4.1. Sample selection

To examine the gender effect on financial reporting conservatism, our primary research design is to compare the degrees of conservatism between the pre- and post-transition periods for male to female CFO turnover firms. For robustness checks, we also examine conservatism between the pre- and post-transition periods for male to male and from female to male.

The gender information is mainly from the ExecuComp database which covers most of the S&P 1,500 public companies. In cases where there is missing gender information in ExecuComp, we manually search the 10K filing of the firm through the SEC Edgar system. If the company filing does not report the gender of the executives, we further search the company's website and other business websites (such as, Forbes.com, yahoo.com, google.com and ZoomInfo.com) to identify the gender of the executives. We construct our CFO transition samples using the following filters: (1) Both pre- and post-transition CFOs have to be in office consecutively for at least 3 years excluding the transition year; (2) if a firm changes its CFO from male to female more than once, we only count the most recent change for each firm; (3) we exclude financial firms and utility companies (SIC code between 6000 and 6999 and between 4900 and 4999), and our time period is from 1988 to 2007. The resulting sample is then merged with Compustat to obtain firm accounting information. Our final sample consists of 974 firm-year observations with 92 cases of male to female transitions. For the other two transitions that we examine, we have 4,239 firm-year observations with 353 cases of male to male transitions, and 421 firm-year observations with 48 cases of female to male transitions.

4.2. Sample and summary statistics

Panel A of Table 1 contains information on the distribution of female CFOs in the transition year by tenure, year, industry, where the stock is traded and the state in which the firm is located. The results show that female CFOs tenure varies across our sample with a minimum of 4 years (34.78% of the total 92 cases) and a maximum of 11 years (one case). They also show that female CFOs appointments have increased significantly 1995 (4 cases) peaked in 2002 (16 cases), and have declined somewhat since then. Industry distribution shows that the consumer industry has the largest female CFOs representation, followed by the manufacturing and high-tech industries. Firms listed on the New York Stock Exchange have more than twice the number of female CFOs than firms trading on NASDAQ. Finally, the state with the highest number of female CFOs is California with 17 cases, followed by Texas and Ohio with 12 and 8 cases.

[Insert Table 1 here]

Panel B of Table 1 presents summary statistics for the male to female CFO transition firms. For CON_MTB, the mean (median) for our sample is 1.809 (1.498), which is slightly lower than mean (2.291) and median (1.513) of all Compustat firms for the same time period. The means (medians) of CON_ACCRUAL and CON_SKEWNESS are 0.017 (0.016) and -0.197 (-0.255), which are similar to the results reported by, among others, Ahmed et al. (2002), Ahmed and Duellma (2007), Zhang (2008), Hui et al. (2009).[9] We find that mean (median) firm assets for our sample is 11,212 million (1,170 million), while the mean (median) firm assets for all Compustat firms is 5,724 million (272 million). Our sample firms are relatively larger than the average firm in the Compustat database, as our sample is primarily from Execucomp which covers S&P 1,500 firms. Our other firm-specific variables are similar to Huang and Kisgen (2008) who also use Execucomp as the primary source of data. We find that about 22% of our sample belongs to high litigation risk industries, and 26% of our sample is after SOX.

5. Empirical results

5.1. Male to female CFO transition and accounting conservatism

[9] The correlations among the three measures of conservatism are all positive and highly significant.

In our multivariate analysis, we begin by testing how male to female CFO transition affects accounting conservatism using the three different conservative measures. The main empirical model is the following:

(1) *Conservatism = f (Post, Firm characteristics, Industry effect, Year effect).*

Where, *Post* is our primary variable of interest and is a dummy variable that equals one if a year is after the CFO transition year and zero if a year is before the CFO transition year.

Table 2 presents regression results on the impact of the transition from male CFOs to female CFOs on accounting conservatism. As noted earlier we use three different measures of conservatism in our tests: *CON_MTB*, *CON_ACCRUAL* and *CON_SKEWNESS*. We predict a positive relation between accounting conservatism and *Post*, as we expect that female CFOs are more conservative than their male predecessors in making financial reporting decisions.

[Insert Table 2 here]

Following prior studies, such as Ahmed et al. (2002), Ahmed and Duellma (2007) and Lafond and Roychowdhury (2008), we include the following firm-level control variables in our regressions: *Log (Asset)* - the natural log of total assets; *Profitability* - earnings before interest, taxes, and depreciation divided by total assets; *Leverage* - total long term liabilities divided by total assets; *Sales growth* - annual growth in total sales; *R&D* - research and development costs divided by total assets; and *Cash holding* - cash and short-term investment divided by total assets.

We also include several additional variables in our regressions. Watts (2003a) argues that litigation risk is one of the major factors that affect accounting conservatism. Following Field et al. (2005), Ahmed and Duellma (2007) and Lafond and Roychowdhury (2008), we construct a dummy variable, *Litigation risk*, that equals one if a firm belongs to high-litigation-industries (SIC code 2833–2836, 3570–3577, 7370–7374, 3600–3674, and 5200–5961), and zero otherwise. Lobo and Zhou (2006) find that there is an increase in accounting conservatism following SOX. To control for the SOX effect, we include a dummy variable *SOX*, which equals one if a year is after 2002, and zero otherwise. Ahmed and Duellma (2007) emphasize the industry differences of accounting conservatism, and Basu (1997) and Givoly and Hayn (2000) find that accounting conservatism changes over time. To control for these effects we include industry and year effects in the regressions.

Column 1 of Table 2 shows that the male to female CFO transition has a statistically significant and economically meaningful impact on *CON_MTB*. Specifically, the coefficient on *Post* is 0.274 and is significant at the 1% level, indicating that the market to book ratio is 0.274 higher for the post-transition period (under the control of female CFOs) compared to the pre-transition period (under the control of male CFOs). This finding provides supportive evidence that female CFOs are more conservative in financial reporting decision-making than their male counterparts.

With regard to the control variables, the coefficient estimates for *Profitability* and *Sales growth* are positive and significant at the 1% level, consistent with the findings by Ahmed et al. (2002) and Ahmed and Duellma (2007). The variable *Log (Asset)* is negative and significant, which is consistent with the finding by Lafond and Watts (2008) and Givoly et al. (2007) who argue that information asymmetry is often smaller for large firms than for small firms, which in turn reduces the demand for conservative accounting for large firms. In addition, we find that the *Cash holding* coefficient is positive and significant, indicating that firms that hold more cash are more likely to be characterized by more conservative financial statements. *Litigation risk* is negative and significant, while the coefficients on *R&D* and Leverage are both insignificant. Interestingly, we find that the coefficient on the SOX dummy is positive and significant. This finding suggests that subsequent to SOX, the financial statements of firms that transitioned from male to female CFOs became even more conservative.[10]

In Column 2 of Table 2, we use *CON_ACCRUAL*, an accrual based measure of conservatism as the dependent variable. Our control variables are the same as those used in Column 1.[11] Consistent with the results for *CON_MTB*, we find that *Post* is statistically significant with a coefficient of 0.007. With regard to the control variables, consistent with our expectations and prior findings we find that *Profitability*, *Leverage* and *R&D* are all positive and significant, while *Sales growth* is negative and significant.

In Column 3 of Table 2, we present regression results where the specification is similar to that in Columns 1 and 2, except that we use the skewness based measure of conservatism,

[10] We also ran firm- and year-fixed effects regressions to control for the potential cross sectional independence and to rule out the effect of unobservable firm characteristics that are stable over time and correlated with the independent variables. Our testing variable, *Post*, remained significant within these regressions.

[11] Because *CON_ACCRUAL* and *CON_SKEWNESS* are cumulative measures, the control variables in Columns 2 and 3 are averaged over the pre- and post-transition periods. We also measured control variables in the central year of each period or the last year that the CFO is in the office. The results are similar to those obtained when we use average values.

CON_SKEWNESS, as the dependent variable. Similar to the results reported in Columns 1 and 2, we find that *Post* has a statistically significant and economically meaningful impact on *CON_SKEWNESS*. With regard to the control variables, *Log (Asset)* is negatively related to, while *Profitability* and *Leverage* are positively related to, *CON_SKEWNESS*. The results are all consistent with our expectations and prior studies.

In sum, our results show that for all three measures of accounting conservatism, financial reporting becomes more conservative following a change in CFO from male to female. These results provide robust evidence that female CFOs are more conservative than male CFOs in financial reporting decision-making.

5.2. Exploring endogeneity

5.2.1. Difference-in-difference regression results

Unobservable time series changes contemporaneous with CFO changes could also affect accounting conservatism that could make our results spurious. To remove the effect of contemporaneous changes on our results, we employ a matching sample difference-in-difference methodology (Bertrand and Mullainathan (2004)). We first construct a matching sample of firms that change their CFOs from male to male (the control sample). We then estimate the following regression using a sample that pools the treated (the sample in which firms switch their CFOs from male to female) and control samples:

$$(2) \quad CON_{i,t+1} = \mu + \nu_i + \tau_t + \beta_1 Post_{i,t+1} + \beta_2 Femal_i * Post_{i,t+1} + \beta_3 X_{i,t} + \varepsilon_{i,t},$$

where $CON_{i,t+1}$ is the different measures of accounting conservatism measured at the end of year t+1; ν_i are firm fixed effects; τ_t are year fixed effects; *Post* is a dummy variable which equals one if a year is after transition year and zero if a year is before transition year; *Female* is a dummy variable that equals one if a firm is a male to female CFO transition firm, and zero if a firm is a male to male CFO transition firm; and $X_{i,t}$ is a set of control variables, which we used in the previous estimations for firm *i* measured at the end of year *t*.

[Insert Table 3 here]

Results from these regressions are reported in Table 3. The first column contains the results with *CON_MTB* as the dependent variable. We find that the coefficient of *Post*, which captures the effect of male to male CFO transition on accounting conservatism, is insignificant indicating that there is not a significant difference between the pre- and post-transition periods for the control group. The coefficient of the interaction term between *Post* and *Female*, which captures the incremental effect of male to female CFO transition on *CON_MTB*, is 0.251 and is significant at the 1% level.[12] Thus, compared to male CFOs, female CFOs increase accounting conservatism significantly more post CFOs transitions.

Column 2 of Table 3 reports estimation results for *CON_ACCRUAL*. The coefficient of *Post* is 0.005 and significant at the 5% level, which indicates an increase in conservatism for male to male CFO transition. This finding is consistent with that of Givoly and Hayn (2000) who find that new CFOs tend to decrease discretionary accruals subsequent to their hiring. Examining the interaction term *Post*Female* we see that the coefficient is 0.005 and is significant at the 1% level. This result is important in that it indicates that male to female CFO transition has a significantly larger positive effect on accounting conservatism than male to male CFO transition.

In Column 3, we use *CON_SKEWNESS* as the dependent variable. Similar to the result in Column 1 we find that the coefficient of *Post* is insignificant. For the interaction term *Post*Female*, the results are similar to those reported in Columns 1 and 2. Specifically, we find that the coefficient is 0.657 which is significant at the 5% level, indicating that female CFOs increase accounting conservatism significantly more after the CFO transition compared to male CFOs.

In sum, using a difference-in-difference approach we find that for all three proxies of accounting conservatism, male to female CFO transitions increase accounting conservatism significantly more than male to male CFO transitions. These findings indicate that the increase in conservatism subsequent to the male to female transition cannot be attributed to unobservable contemporaneous time series changes. Rather, they provide further support for our hypothesis that female CFOs are more conservative than male CFOs in financial reporting decision-making.

[12] The F-test of the effect of *Female* on *CON_MTB* after CFO transition is (0.251-0.04=0.211) is significant at the 1% level.

5.2.2. Propensity-Score matching results

It could also be the case that female CFOs are not randomly assigned to firms. In order to address this potential selection bias issue, we apply a propensity score matching approach. The matching begins with a logistic regression of the female CFO dummy variable on industry, firm size, profitability and leverage. These firm characteristics are measured one year before the CFO transition year. Next we use the propensity scores obtained from the logistic estimations and perform a one to one nearest neighbor match with replacement. This procedure ensures that each male to female CFO transition firm is paired with a male to male CFO transition firm.

[Insert Table 4 here]

Table 4 reports the results and as before we use *CON_MTB*, *CON_ACCRUAL* and *CON_SKEWNESS* as dependent variables in Columns 1, 2 and 3, respectively. The variable of interest is *Female*, which is a dummy variable that equals one if a firm is a male to female CFO transition firm, and zero if a firm is a male to male CFO transition firm. The coefficient estimates, which are reported in Columns 1, 2 and 3, are 0.296, 0.008 and 0.667 and are significant at the 1%, 1% and 5% levels, respectively. The results indicate that subsequent to a CFO transition, on average, firms under the control of female CFOs have a higher degree of accounting conservatism compared to the matching firms that are under the control of male CFOs. Thus, the results of the propensity score matching approach confirm our hypothesis that female CFOs are more conservative in reporting accounting numbers than male CFOs.

5.3. Additional sensitivity tests

5.3.1 Asymmetric timeliness measure of accounting conservatism

In this section, we examine the sensitivity of our results to an alternative measure of conservatism that is also used as a measure of conservatism in accounting research: the asymmetric timeliness measure (Basu (1997)). The underlying idea is that both "bad news" and "good news" are reflected in stock prices, and "bad news" is reflected much more prominently in earnings. Thus, the relation between current earnings and current returns is stronger when the returns are negative than when they are positive. As such we use the following specification:

$$(3)\quad X_{i,t}/P_{i,t-1} = \alpha_0 + \alpha_1 Neg_{i,t} + \beta_0 \mathrm{Re}turn_{i,t} + \beta_1 \mathrm{Re}turn_{i,t} * Neg_{i,t} + \gamma_0 Post_{i,t} + \gamma_1 Post_{i,t} * Neg_{i,t} + \gamma_2 Post_{i,t} * \mathrm{Re}turn_{i,t} + \gamma_3 Post_{i,t} * \mathrm{Re}turn_{i,t} * Neg_{i,t} + \varepsilon_{i,t},$$

where $X_{i,t}$ is the earnings per share of firm *i* in fiscal year *t*; $P_{i,t-1}$ is the price per share of firm *i* at the beginning of fiscal year *t*; $\mathrm{Re}turn_{i,t}$ is the 12-month return of firm *i* ending three months after the end of fiscal year *t*; $Neg_{i,t}$ is a dummy variable equal to one if $Return_{i,t}$ is less than zero and zero otherwise; and $Post_{i,t}$ is a dummy variable which equals one if firm *i* in fiscal year *t* is after the transition year and zero if firm *i* in fiscal year *t* is before the transition year.

[Insert Table 5 here]

Table 5 presents the results of the pooled regressions used to estimate the asymmetric timeliness coefficient and to test for the effect of male to female CFO transition on asymmetric timeliness. In Column 1, we present the Basu (1997) regression without considering the gender transition effect. Consistent with our expectation, we find that the asymmetric timeliness coefficient, *Return*Neg*, is 0.153 and is significant at the 1% level, indicating that the relation between earnings and negative returns is more pronounced than the relation between earnings and positive returns.

Column 2 contains the results when we interact *Post*, which captures the effect of male to female CFO transition, with other variables. If female CFOs report bad news more quickly than male CFOs, we expect the coefficient estimate of *Retrun*Neg*Post* to be positive and significant. Consistent with our expectation the coefficient estimate of *Retrun*Neg*Post* is 0.403 and is significant at the 1% level.

Column 3 reports results where we have augmented the model with the same set of control variables that we used in our earlier estimations. We also interact each control variable with *Return*, *Neg*, and *Return*Neg*. We find that the coefficient of *Retrun*Neg*Post* is still positive and significant at the 1% level, indicating that accounting conservatism as measured by asymmetric timeliness increases significantly after male to female CFO transition. This finding corroborates our earlier results and indicates that our results are not dependent upon the measure of accounting conservatism that is used in our estimations.

5.3.2. Are results driven by corporate governance or CFO individual characteristics?

So far our results provide overwhelming evidence that female CFOs are more conservative in financial reporting decision-making than male CFOs. However, we have not controlled for several variables that prior studies show significantly impact accounting conservatism. In this sub-section we investigate whether the observed differences in accounting conservatism between the pre- and post-transition periods can be explained by a corporate governance effect, a CFO ownership effect, or CFO personal characteristics effects, as these variables have been shown to affect conservatism (e.g., Lara et al. (2009), and Ahmed and Duellma (2007), among others).

We first test whether our previous results are driven by underlying governance structures of firms instead of a gender effect. Our first measure of governance is Gompers et al. (2003) G-index which is a measure of shareholder rights. For our other measures, we use several board characteristics that are widely used in the corporate governance literature to measure board structure. These board characteristics are: *Board composition* - the ratio of the number of independent directors to total number of directors; *Log (board size)* - the natural log of the number of directors on a board; *Board duality* - dummy that equals one if the CEO is also the chairman of board, and zero otherwise; and *Board shareholding* - the total shares holding by total board members divided by total shares of a firm. We obtain both G-index and board information from the IRRC database for the 1996 to 2007 period.[13]

Watts (2003a) points out that conservative financial reporting can facilitate efficient contracting between managers and shareholders in the presence of agency problems. Lafond and Roychowdhury (2008) empirically test the relationship between managerial ownership and accounting conservatism and find that both CEO ownership and top management team ownership are negatively related to accounting conservatism. Therefore, we also test whether the documented difference in accounting conservatism between male and female CFOs can be explained by CFOs ownership incentives instead of by gender. We obtain CFO ownership information from ExecuComp database. *CFO shareholding* is the percentage of shares held by the firm's CFO.

[13] Because IRRC does not provide G-index information annually, following Bebchuk and Cohen (2005), we fill in missing years by assuming that the governance provisions reported in any given year were also in place in the year preceding the volumes' publication.

CFOs' personal characteristics could also impact their reporting incentives. For example, older CFOs may be more conservative than younger CFOs in reporting financial numbers. CFOs previous working experience could also impact their incentives to report more or less conservative accounting. To control for these possibilities we include two additional CFO individual factors in our regressions. These are the CFO's age and a dummy variable *Prior* that equals one if a CFO has previous CFO experience, and zero otherwise.[14]

[Insert Table 6 here]

Table 6 presents regression estimates after controlling for corporate governance variables, CFO shareholdings, and CFO personal characteristics. Results for our three measures of conservatism, *CON_MTB*, *CON_ACCRUAL* and *CON_SKEWNESS*, are presented in Columns 1, 2 and 3. Consistent with our earlier results we find that in all three cases *Post* has a positive and significant effect on accounting conservatism, indicating that the documented increase in accounting conservatism for firms that transitioned from a male to female CFO cannot be explained by corporate governance, CFO characteristics or share ownership.

In terms of corporate governance, we find that *Board composition* has a positive and significant effect on *CON_ACCRUAL*, and *Board shareholding* has a significantly positive effect on *CON_SKEWNES.* These results while consistent with the findings of Ahmed and Duellma (2007),[15]they are inconsistent with our expectation in that we find that *Duality* has a positive effect on *CON_MTB* and *CON_SKEWNESS*. We also find that the *G-index* is significantly negatively related to *CON_SKEWNESS*. This result is consistent with Lara et al. (2009) who argue that better corporate governance leads to a higher degree of accounting conservatism.

With regard to CFO ownership, as expected, the coefficient estimates of *CFO shareholding* are negative in all three regressions. However, only in Model 3 (*CON_SKEWNESS*) is the coefficient significant which only weakly supports the finding by Lafond and Roychowdhury (2008).[16] For *CFO age*, the coefficient is positive and significant for Models 1 and 3, indicating that older the CFOs tend to be more conservative. The coefficient

[14] Because *CON_ACCRUAL* and *CON_SKEWNESS* are cumulative measures, we use the average age of CFOs in the pre and post transition periods for model 2 and model 3.

[15] We also test whether audit committee structures, such as size, composition, duality and financial expertise in audit committee, affect accounting conservatism. However, we do not find a significant relationship between audit committee structures and accounting conservatism.

[16] We also test the effects of CFOs' other compensation structures (such as salary, bonus and stock option) on accounting conservatism. However, we do not find a significant relationship between any of those compensation measures and conservatism.

estimates of *CFO prior experience* is insignificant indicating that CFOs' prior working experience has no impact on accounting conservatism.

5.3.3. Are results driven by simultaneous changes of CFOs and CEOs?

Prior research shows that there are significant changes in financial reporting following a change in CEOs. New CEOs sometimes use the "big bath" to reduce earnings, so that they can blame the company's poor performance on the previous CEOs and take credit for the (expected) future improvements. In order to ensure that our results are not confounded by a contemporaneous CEO change during our CFO transition period, we identify cases in which our male to female CFO transition firms concurrently appoint new CEOs during the same transition year. For our sample of 92 male to female CFO transitions, we find 56 cases with concurrent CEO turnovers in the transition year. We then re-estimate our models using a reduced sample that excludes cases of simultaneous changing of CFOs and CEOs.

[Insert Table 7 here]

Table 7 presents regression results. As before, *CON_MTB*, *CON_ACCRUAL* and *CON_SKEWNESS* are our dependent variables and coefficient estimates are reported in Columns 1, 2 and 3, respectively. We find that in all three regressions *Post* continues to have a significant positive effect on accounting conservatism. These results indicate that our finding of a significant increase in the level of accounting conservatism when there is a transition from male to female CFO cannot be attributed to the simultaneous changing of the firm's CEO.

5.3.4. Female to male CFO transition and accounting conservatism

To the extent that the significant increase in the level of accounting conservatism following a male to female CFO transition is due to the different risk preferences between female CFOs and male CFOs, we would expect that there would be a decrease in the degree of accounting conservatism after firms change their CFOs from female to male. To examine if this is the case, we construct a sample of female to male CFO transition cases using the same criteria as the male to female CFO transition sample. Our final sample includes 48 female to male CFO changes.

[Insert Table 8 here]

Table 8 presents regression results using the female to male CFO transition sample. We use *CON_MTB, CON_ACCRUAL* and *CON_SKEWNESS* as dependent variables in Columns 1, 2 and 3. In these regressions, *Post* is a dummy variable which equals one if a year is after the CFO transition year and zero if a year is before the CFO transition year. The coefficients of *Post* in Column 1 and Column 2 are -1.107 and -0.018 and are significant at the 1% and 10% level, suggesting that after female to male CFO transitions, accounting conservatism measured by market to book ratio or by non-operating accruals decreases. Although the coefficient of *Post* in Column 3 is negative, it is not significant at traditional significance levels. In general, our results of using a female to male CFO transition sample seem consistent with our conjecture that male CFOs are more risk-taking than female CFOs as evidenced by the finding that after firms switch their CFOs from female to male, the degree of accounting conservatism is reduced.

5.4. Male to female CFO transition, risks and accounting conservatism

Previous studies report that different types of risks, such as litigation, default and managers' job security, affect accounting conservatism. If it is risk-aversion that affects female CFOs' financial reporting practices, we should observe more conservative accounting when female CFOs face higher firm risk or personal job security risk. To test our conjecture, we construct several risk measures that we interact with *Post* to find out whether the relation between gender and conservatism is conditional on different aspects of risks.

[Insert Table 9 here]

Litigation risk is one of the most important factors that affect conservatism (Watts (2003a)). When firms overstate earnings and net assets, managers are more likely to be sued by shareholders (Kellogg (1984)). Conservatism can reduce firms' litigation risk by understating earnings and net asset value, as it reduces the likelihood of disappointing outcomes and potential conflicts between the firm and its outside shareholders (Lubberink and Huijgen (2001)). We therefore conjecture that female CFOs would report more conservative accounting than their male counterparts for firms that are characterized by higher litigation risk, as they are more

concerned with the potential litigation by outside shareholders given their greater degree of risk-aversion.

Panel A of Table 9 reports the results, including the interaction between *Post* and *Litigation risk*. As before, we use *CON_MTB, CON_ACCRUAL* and *CON_SKEWNESS* as dependent variables in Columns 1, 2 and 3. We find that the coefficient estimates of *Post* in all three columns are still positive and significant. The coefficient estimates of the interaction term *Litigation risk*Post*, which captures the gender effect on conservatism for firms with higher litigation risk, are all positive for the three models and significant for models' 1 and 2. These results indicate that female CFOs report more conservative accounting when faced with higher litigation risk.

There are several ways in which Conservatism can reduce the risk of default. Watts (2003a) points out that by delaying recording earnings and net assets, conservatism reduces or defers cash expenditures for performance-based compensation, taxation and dividends. Conservatism, by reporting bad news and losses more timely, can control bad investments in negative net present value projects. Ahmed and Duellman (2002) and Zhang (2008) provide evidence consistent with conservatism providing easier access to external financing. Finally, Lafond and Watts (2008) contend that conservatism reduces default risk indirectly by reducing information asymmetry and uncertainty of the firm. Therefore, to the extent that female CFOs are more risk averse, we would expect female CFOs to report more conservative accounting when faced with higher default risk.

We examine whether the relation between gender and conservatism is conditional on the default risk of the firm in Table 9, Panel B. We first calculate default risk based on Altman (1968) Z-score. Then we construct a dummy variable *Default risk*, which equals one if a firm's Z-score is above the median Z-score value, and zero otherwise. Consistent with our expectations, we find that in all estimations the coefficient estimate of *Default risk*Post* is positive and significant at different levels, indicating that female CFOs report more conservative accounting when firms face higher default risk.

Desai et al. (2006) and Hennes et al. (2008) find that managerial turnover rate is higher following the revelation of aggressive accounting. In addition, they find that displaced managers are less likely to find comparable employment subsequent to the displacement. Thus, if female CFOs are concerned about maintaining their positions at the top managerial level, we would

expect that because of the ex-post labor market penalties, they would be incentivized to report more conservative accounting.

Table 9 Panel C provides evidence on the extent to which female CFOs' reporting practice is affected by their job security concerns. Using ExecuComp available information, we first calculate the turnover rate of each firm. It is defined as the total number of top managers being fired in the industry scaled by the total number of firms in the industry. We then construct a dummy variable *Turnover risk,* which equals one if a firm's turnover rate is above the median value of the turnover rate, and zero otherwise. We find that all three coefficients of *Turnover risk*Post* are positive with two of the three (models 1 and 2) significant. This finding thus indicates that female CFOs report more conservative accounting when they have higher concerns about their job security.

Overall, the results in Table 9 indicate that female CFOs are significantly more conservative in their accounting practices than their male counterparts when they are faced with relatively high levels of risks, such as litigation risk, default risk and job security risk. The results also provide a link between the risk-aversion of female CFOs and accounting conservatism.

5.5. Female CFOs, other corporate decisions, and their implications for accounting conservatism

In this sub-section, we provide evidence on changes in CFOs compensation structures firm risk, earnings quality and other operational decisions. The main purpose is to further investigate possible channels through which female risk aversion impacts conservatism.

5.5.1. Do female CFOs choose less risky compensation packages?

We first examine whether the structure of female CFOs compensation is different from their male counterparts. We perform this analysis because different compensation structures have different implications for observed conservative accounting practices. For example, Lafond and Roychowdhury (2008) find that there is a negative association between managerial ownership (as measured by managers' shareholdings in their compensation) and accounting conservatism, as the separation between ownership and control increases agency problems, hence increasing the demand for conservatism. And as shown by Lubberink and Huijgen (2001)

there is a negative relation between managerial risk-taking incentives (as measured by the required risk premiums in their compensation structures) and accounting conservatism.

Graham et al. (2009) find that managers choose the type of compensation package that is consistent with their personal risk preferences. Risk-averse managers are more likely to be compensated by cash and less likely to be compensated by equity related packages. Therefore, we conjecture that if risk-aversion is an inherent trait of female CFOs, we would observe that female CFOs are more likely to choose cash-based rather than equity-based compensation and a lower level of risk-taking incentives compared to their male counterparts.

To test our conjecture, we collect CFO compensation information from ExecuComp. We separate total compensation into salary, bonus, equity, options and others. Each of these components is then divided by total compensation. We then compare the compensation structure of male CFOs at year t-1 with female CFOs compensation structure at year t+1 for the male to female CFO transition sample. Results are graphically displayed in Figure 1.

[Insert Figure 1 here]

Figure 1-1 shows significant differences between male CFOs and female CFOs with regard to the structure of their compensation contracts. It shows that female CFOs are more likely to be compensated with cash (both salary and bonus) than with equity-based compensation (both equity and option) than their male predecessors. In untabulated results we find that the mean differences of cash-based and equity-based compensation between male and female CFOs are both significant at the 5% level. Importantly, we find that this is driven primarily by the option component of the compensation contracts. The percentage of options for male CFOs is 11%, while it is only 4.3% for female CFOs. These results are consistent with the argument that female CFOs are more risk averse, and consequently, compared to their male counterparts receive a greater percentage of their compensation in salary and bonus.

A common measure of mangers risk-taking incentive is Vega, which is the sensitivity of the manager's wealth to the firm's stock return volatility (see, e.g., Coles et al. (2006) and Chava and Purnanandam (2010)). To examine whether female CFOs have less risk-taking incentives compare to male CFOs we plot in Figure 1-2 the Vega of the CFOs one year prior to and three years subsequent to the transition from male to female. The plot shows that there is a distinct

and continuous decline of CFOs' Vega once there is a transition from male to female. For instance, at year t-1, the Vega of male CFOs is about 43,578, while the Vega of female CFOs is 23,259 at year t+3. Figure 1-2 further confirms that female CFOs are more risk averse than their male counterparts.

In sum, the less equity-based compensation contracts and the Vega of female CFOs reflect their personal risk preferences. According to Lafond and Roychowdhury (2008) and Lubberink and Huijgen (2001), the different compensation structure chosen also implies different level of conservative accounting practices between male and female CFOs, with female CFOs adopting more conservative accounting than male CFOs.

5.5.2. Corporate decision changes following male to female CFO transition and their implications for accounting conservatism

Guay (1999), Coles et al. (2006) and Chava and Purnanandam (2010), among others, find a strong relation between managers' risk-taking incentives and firms' operating and accounting decisions. In Panel A of Table 10, we first examine how the transition from male to female CFO affects firm risk. We provide univariate comparisons of several risk measures between pre- and post-transition periods. The results show that there is a significant reduction in firm leverage following the hiring of a female CFO. We also find that both stock return volatility and idiosyncratic risk are reduced subsequent to the change in gender of CFOs from male to female.

[Insert Table 10 here]

Prior research finds that managers' risk-taking incentives affect firms' earnings quality. For example, Chava and Purnanandam (2010) find that CFO risk-decreasing incentives are associated with lower accrual based earnings management. Abdel-khalik (2007) finds a negative relation between CEO risk-aversion and earnings volatility. Discretionary accruals and earnings volatility are correlated with observed conservative accounting. Watts (2003a), Lafond and Watts (2008) and Chen et al. (2007) contend that accounting conservatism is an efficient governance mechanism to reduce manipulation activities by managers. They predict a negative relation between earnings management and accounting conservatism.

In Panel B, we present evidence on the changes in earnings quality following the male to female CFO transition. Consistent with our expectations, we find that both discretionary accruals and earnings volatility are significantly lower in the post-transition period than in the pre-transition period. The reduction of discretionary accruals is consistent with the prediction. However, the relation between conservatism and earnings volatility is unclear as discussed earlier. The finding of a reduction in earnings volatility provides support for the argument that increases in conservatism leads to a reduction in earnings volatility. This finding is also consistent with those reported by Kim and Pevzner (2010).[17]

Next we examine how firms' investment policies are affected by the change of gender of CFOs. This is motivated by the work of Roychowdhury and Watts (2007) that contends that firms' investment decisions have important implications for accounting conservatism. Specifically, they argue that under GAAP, with limited exceptions, accounting assets do not record many valuable intangible assets and the value of growth options. For example, R&D and advertising expenditures which could create intangible assets are expensed as incurred. Unless they are acquired externally with a verifiable value, the value changes of acquisition assets are also not recorded. Consequently, the value decline of those unrecorded assets is not recognized. Thus, if a firm's assets are determined more by growth options and intangible assets, we would observe less conservative accounting.

Guay (1999) and Coles et al. (2006), among others, find that managerial risk-taking incentives are positively related to firms' riskier investment policy choices, such as more investment in R&D and less investment in PPE. To the extent that female CFOs are more risk averse than male CFOs, we would expect that firms under the control of female CFOs would make less risky investments and have less investment opportunities than firms under the control of male CFOs. This is the case because, as argued by Smith and Stulz (1985), risk-aversion could lead managers to forgo risk-increasing, positive net-present-value projects.

In Panel C of Table 10, we present evidence on the changes in various investment decisions subsequent to the male to female transition. Consistent with our expectations, we find that firms under the control of female CFOs are less likely to invest in intangible assets and are more likely to invest in tangible assets. Specifically, we find that *R&D*, *Advertising* and *Sales*

[17] The correlations between earnings volatility and different measures of conservatism are all negative and significant at different levels.

growth are significantly reduced, while *Tangibility* is increased significantly after male to female CFO transition. We also find that *Capital expenditure* in the post-transition period is significantly lower than that in the pre-transition period. Although *Acquisition* is also lower in the post-transition period than in the pre-transition period, the mean difference is not significant at traditional levels.

Finally, in Panel C, we examine how firm payout policy changes following male to female CFO changes. We find that *Dividend* is significantly reduced after male to female CFO transition. The result is consistent with Watts (2003a) who argues that firms could be more conservative by reducing or deferring dividends.

To gain a visual sense of how the patterns of investments/payout policy change following male to female CFO transition, we plot in Figure 2 key investment and payout variables from year t-1 through year t+3. For comparison purposes, we also plot the changes of the same variables for the male to male CFO transition sample.

[Insert Figure 2 here]

Figure 2-1 shows R&D expenditures one year before and three years after the CFO transition. For male to female transition firms, we see a significant and continuous drop of *R&D* after female CFOs are hired. For male to male transition firms, *R&D* remains relatively stable.

Figure 2-2 plots how advertising expenditures change following CFOs transitions. We see that male to female CFO transition-firms have higher advertising expenditures than male to male CFO transition-firms at year t-1. Although advertising expenditures of both sample firms decline after new CFOs take over, the magnitude is significantly larger for male to female transition-firms than that for male to male transition-firms.

As shown in Figure 2-3, the trends of asset tangibility for the firms belonging to the two different samples are opposite. For male to female transition-firms, it keeps increasing following the transition from male to female CFOs while for male to male CFO transition-firms there is a steady decline.

In Figure 2-4, we see that capital expenditures of firms belonging to both samples decline following the changes in CFOs. However, the magnitude of decline for the male to female CFO transition-firms is substantially larger than that for male to male CFO transition-firms. Figure 2-

5 shows the changes in acquisition activities following CFO changes. For the male to female CFO transition sample, we see a significant decline in acquisition activity during year t (transition year), and then a gradual decline in the following three years. For male to male CFO transition sample, there is not a clear trend in acquisitions over time. Finally, Figure2-6 shows that dividend payout ratio keeps declining after male to female CFO transition, while it is relatively stable for male to male CFO transition.

In sum, both Panel C of Table 10 and Figure 2 shows that firms under the control of female CFOs are more likely to invest in tangible assets, make fewer acquisitions, and pay less dividends than firms under the control of male CFOs. Based on Roychowdhury and Watts (2007) and Watts (2003a), we conclude that the observed conservative accounting choices by female CFOs could be driven by investments and/or payout policy of the firm.

5.6. Does the stock market recognize the gender differences in terms of financial reporting conservatism?

Finally, we examine whether the stock market recognizes the gender differences in terms of conservative accounting practices. An important implication of conservative accounting is that it increases the transparency of financial reporting, and that earnings are more predictable (Watts (2003a) and Li (2008)). If female CFOs are more conservative, then we would expect that they would report earnings that reflect bad news in a more timely fashion than good news and would persistently understate net assets (Watts (2003a) and Basu (1997)). An implication of this is that we would expect that the market would react less to the earnings announcements, especially negative earnings announcements, made by female CFOs than those made by male CFOs. Using event study methodology, we present additional evidence on firm's stock price reaction to quarterly earnings announcements for the pre- and post-transition periods.

[Insert Table 11 here]

Table 11 reports the results. We separate quarterly earnings announcements into positive earnings announcements and negative earnings announcements. We calculate [-1, 1] 3-day cumulative average abnormal returns using the market model.[18] Panel A of Table 11 contains

[18] Using market adjusted model yields similar results.

the CAAR for the fourth quarter of year t-1 and the first quarter of year t+1. We find that for positive earnings announcements there is no significant stock price reactions in either period. However, for negative earnings announcements, the 3-day CAAR for the pre-transition period is -1.81% and is significant at the 10% level, while the 3-day CAAR for the post-transition period is 0.32% and is insignificant. The mean difference is 2.14% and is significant at the 10% level.

Generally, the earnings reports of the fourth quarter of year t-1are announced in year t, where it is possible that firms have already changed their CFOs from male to female when the announcements are made. To mitigate this influence, we compare market reactions to earnings announcement for the entire year t-1 and year t+1 in Panel B of Table 11. Consistent with our previous results, we find that the market does not react significantly to the positive earnings announcements. For the negative earnings announcements, we find that the 3-day CAAR for the year t-1 is -1.04% and is significant at the 10% level, and the 3-day CAAR for year t+1 is 0.08% and is insignificant. The mean difference of 1.12% is significant at the 10% level.

In sum, the results in Table 11 are consistent with our expectations. Specifically, we contend that because earnings are more predictable under the control of female CFOs, we do not find any significant market reactions to earnings announcements made by female CFOs. However, the negative earnings announcements made by male CFOs convey more negative surprises in the market, so we detect negative abnormal returns to the negative earnings announcements made by male CFOs. These findings are consistent with those of Kim and Pevzner (2010) which shows that the stock market reacts less negatively to bad earnings news of more conservative firms. They also indicate that the stock market participants are aware of the male-female differences in terms of financial reporting conservatism.

7. Conclusion

In this paper, we study the impact of gender on financial reporting decision-making in the context of accounting conservatism. We find that subsequent to the hiring of a female CFO there is a significant increase in the degree of accounting conservatism compared to that of their male predecessors. To alleviate endogeneity concerns, we apply a differences-in-differences approach and a propensity score matching approach using male to male CFO transition as the control group. The results further confirm the gender differences in conservative financial reporting decision-making. Our results are also robust to the use of asymmetric timeliness as the measure

of accounting conservatism, controlling for corporate board structure, CFO ownership, CFO individual characteristics as measured by age and CFO prior working experience, and concurrent CEO turnover effect. The opposite effect of female to male CFO transition on accounting conservatism further supports our main hypothesis.

In addition, we find that the positive relation between female CFOs and conservatism is more pronounced when firms have higher litigation risk, default risk or management turnover risk. To further provide the link between risk-aversion of female CFOs and accounting conservatism, we examine how male to female CFO transition affects the structure of compensation contract, earnings quality, investment decisions and payout policy. First, we find that female CFOs are less likely to choose equity-based compensation. Second, there are significant decreases in discretionary accruals and earnings volatility following male to female CFO transition. Third, male to female CFO transition also changes firms' investment patterns from more intangible assets and growth options to more tangible assets. Fourth, female CFOs are more likely to reduce dividend payout. These changes are consistent with an increase in accounting conservatism following male to female CFO transition and provide possible channels through which the risk-aversion of female CFOs affects accounting conservatism.

Finally, we find that the market reacts less negatively to the negative earnings announcements when firms are under the control of female CFOs than when firms are under the control of male CFOs, indicating that the stock market participants are aware of the male-female CFO differences in terms of financial reporting conservatism.

This study extends existing research on the determinants of financial reporting conservatism. Watts (2003a) summarizes four explanations for the existence and continuation of conservatism in the financial reporting process. This is the first study that provides evidence that gender of top executives plays an important role in financial reporting conservatism decision-making. The importance of this is that it furthers our understanding of the determinants of accounting conservatism. This paper also fits in the emerging literature in behavioral accounting research that examines how managerial characteristics and styles affect financial reporting practices. Using the quasi-natural experiment of a change in the gender when there is a CFO turnover, we are able to more adequately control for those unobservable differences beyond gender, thereby enabling us to overcome the drawbacks of earlier studies that examine the

impact of managerial characteristics on financial accounting. Our study also answers the call by Birnberg (2011) and demonstrates that gender effect does exist in accounting decision-making.

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Table 1: Sample and summary statistics

Panel A presents the distribution of female CFOs in the transition year by tenure, year, industry, exchange market and state. Panel B presents summary statistics. The sample includes 92 S&P 1500 firms who change their CFOs from male to female in the 1988-2007 periods. We require that both pre-transition male CFOs and post-transition female CFOs have to be in office consecutively for at least 3 years excluding transition year. If a firm changes its CFOs from male to female more than once, we only count most recent one. Transition year is the year when the turnover of a CFO from male to female happens. Tenure is the number of years that the executive shows up on a firm's 10K reports as a CFO. The industry classification follows Fama-French 5 industry classification. We only report states which have more than 5 female CFO appointments in the transition year. CON_MTB is the ratio of market value to book value of a firm. CON_ACCRUAL is the cumulative non-operating accruals divided by cumulative total assets, multiplied by -1. For the pre-transition year, it is measured using all available data up until the year t-1. For the post-transition year, it is measured using all available data up until one year before next turnover of CFOs. CON_SKEWNESS is the skewness of earnings divided by the skewness of cash flow from operations, multiplied by -1. For the pre-transition year, it is measured using all available data up until the year t-1. For the post-transition year, it is measured using all available data up until one year before next turnover of CFOs. Asset is the total assets of a firm. Profitability is earnings before interest, taxes, and depreciation divided by total assets. Leverage is the total long term liabilities divided by total assets. Sales growth is annual growth in total sales. R&D is the research and development costs divided by total assets. Cash holding is the cash and short investment divided by total assets. Litigation risk is a dummy variable that equals one if a firm belongs to high-litigation-industries (SIC code 2833–2836, 3570–3577, 7370–7374, 3600–3674, and 5200–5961), and zero otherwise. SOX is a dummy variable that equals one if a year is after 2002 and zero otherwise.

Panel A: Distribution of female CFOs in the transition year

By tenure

4	5	6	7	8	9	10	11	Total
32	20	14	13	7	3	2	1	92
34.78%	21.74%	15.22%	14.13%	7.61%	3.26%	2.17%	1.09%	100.00%

By year

1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Total
4	7	9	11	15	9	13	16	5	3	92
4.35%	7.61%	9.78%	11.96%	16.30%	9.78%	14.13%	17.39%	5.43%	3.26%	100.00%

By industry

Consumer	Manufacture	High-Tech	Health	Other	Total
30	25	19	6	12	92
32.61%	27.17%	20.65%	6.52%	13.04%	100.00%

By exchange market

NAS	NYS	OTC	Total
27	60	5	92
29.35%	65.22%	5.43%	100.00%

By state (N>= 5)

CA	TX	OH	MA	NY	IL
17	12	8	5	5	5
18.48%	13.04%	8.70%	5.43%	5.43%	5.43%

Panel B: Summary statistics for male to female CFO transition sample

	N	Mean	Median	STD	25 percentile	75 percentile
CON_MTB	974	1.809	1.498	1.395	0.847	2.344
CON_ACCRUAL	125	0.017	0.016	0.013	0.007	0.025
CON_SKEWNESS	166	-0.197	-0.255	2.411	-1.200	0.879
Log (Assets)	974	7.239	7.065	1.918	6.162	8.411
Profitability	974	0.141	0.140	0.107	0.092	0.204
Leverage	974	0.236	0.229	0.175	0.075	0.346
Sales growth	974	0.241	0.109	0.662	0.018	0.304
R&D	974	0.030	0.000	0.066	0.000	0.035
Cash holding	974	0.138	0.064	0.169	0.019	0.209
Litigation risk (Dummy)	974	0.218	0.000	0.414	0.000	0.000
SOX (Dummy)	974	0.256	0.000	0.436	0.000	1.000

Table 2: Male to Female CFO change and accounting conservatism

This table presents regression results on how the change from male to female CFOs affects accounting conservatism. Our sample includes 92 S&P 1500 firms who change their CFOs from males to females in the 1988-2007 periods. We require that both pre-transition male CFOs and post-transition female CFOs have to be in office consecutively for at least 3 years excluding transition year. If a firm changes its CFOs from male to female more than once, we only count most recent one. The dependent variables are three measures of accounting conservatism. CON_MTB is the ratio of market value to book value of a firm. CON_ACCRUAL is the cumulative non-operating accruals divided by cumulative total assets, multiplied by -1. For the pre-transition year, it is measured using all available data up until the year t-1. For the post-transition year, it is measured using all available data up until one year before next turnover of CFOs. CON_SKEWNESS is skewness of earnings divided by skewness of cash flow from operations, multiplied by -1. For the pre-transition year, it is measured using all available data up until the year t-1. For the post-transition year, it is measured using all available data up until one year before next turnover of CFOs. Post is a dummy variable which equals one if a year is after transition year and zero if a year is before transition year. Log (Asset) is the natural log of total assets. Profitability is earnings before interest, taxes, and depreciation divided by total assets. Leverage is the total long term liabilities divided by total assets. Sales growth is annual growth in total sales. R&D is the research and development costs divided by total assets. Cash holding is the cash and short investment divided by total assets. Litigation risk is a dummy variable that equals one if a firm belongs to high-litigation-industries (SIC code 2833–2836, 3570–3577, 7370–7374, 3600–3674, and 5200–5961), and zero otherwise. SOX is a dummy variable that equals one if a year is after 2002 and zero otherwise. For CON_MTB, firm level control variables are measured one year prior to the dependent variable measured year. For CON_ACCRUAL and CON_SKEWNESS, firm level control variables are measured by the average value of the whole pre-transition period or the average value of the whole post-transition period. Absolute values of the heteroskedasticity robust t-statistics are in parentheses. Significance at the 10%, 5%, and 1% levels is indicated by *, **, and ***, respectively.

	Predicted sign	CON_MTB	CON_ACCRUAL	CON_SKEWNESS
Post	+	0.274***	0.007**	1.645**
		[3.91]	[2.09]	[2.23]
Log (Asset)	-	-0.130***	-0.001	-0.309**
		[5.99]	[0.50]	[2.45]
Profitability	+	5.002***	0.026**	3.447*
		[7.26]	[2.48]	[1.66]
Leverage	+	-0.117	0.020***	2.787*
		[0.49]	[2.71]	[1.74]
Sales growth	+/-/-	0.240***	-0.003**	-0.286
		[4.53]	[2.37]	[1.12]
R&D	+	1.266	0.051**	-2.777
		[1.22]	[2.10]	[0.62]
Cash holding	+	3.445***	0.007	-0.836
		[9.79]	[0.67]	[0.42]
Litigation risk (Dummy)	+	-0.230*	-0.001	0.896
		[1.90]	[0.42]	[1.38]
SOX (Dummy)	+	0.470**	0.002	-0.235
		[2.58]	[0.52]	[0.31]
Industry and year effects		Y	Y	Y
Observations		971	118	157
Adjusted R-Squared		0.46	0.37	0.15

Table 3: Female CFOs and accounting conservatism: Difference-in-Difference regression results

This table presents results of a difference-in-difference regression on how male to female CFO transition affects accounting conservatism. The model is:

$$CON_{i,t+1}=\mu+\nu_i+\tau_t+\beta_1 Post_{i,t+1}+\beta_2 Femal_i{*}Post_{i,t+1}+\beta_3 X_{i,t}+\varepsilon_{i,t}$$

The treated sample includes 92 S&P 1500 firms who change their CFOs from males to females, and the control sample include 350 S&P 1500 firms who change their CFOs from males to males in the 1988-2007 periods. We require that both pre-transition male CFOs and post-transition female (male) CFOs have to be in office consecutively for at least 3 years excluding transition year. If a firm changes its CFOs from male to female (male) more than once, we only count most recent one. The dependent variables are three measures of accounting conservatism. CON_MTB is the ratio of market value to book value of a firm. CON_ACCRUAL is the cumulative non-operating accruals divided by cumulative total assets, multiplied by -1. For the pre-transition year, it is measured using all available data up until the year t-1. For the post-transition year, it is measured using all available data up until one year before next turnover of CFOs. CON_SKEWNESS is skewness of earnings divided by skewness of cash flow from operations, multiplied by -1. For the pre-transition year, it is measured using all available data up until the year t-1. For the post-transition year, it is measured using all available data up until one year before next turnover of CFOs. Post is a dummy variable which equals one if a year is after transition year and zero if a year is before transition year. Female is a dummy variable which equals one is a firm is a male to female transition firm, and zero if a firm is a male to male transition firm. Log (Asset) is the natural log of total assets. Profitability is earnings before interest, taxes, and depreciation divided by total assets. Leverage is the total long term liabilities divided by total assets. Sales growth is annual growth in total sales. R&D is the research and development costs divided by total assets. Cash holding is the cash and short investment divided by total assets. Litigation risk is a dummy variable that equals one if a firm belongs to high-litigation-industries (SIC code 2833–2836, 3570–3577, 7370–7374, 3600–3674, and 5200–5961), and zero otherwise. SOX is a dummy variable that equals one if a year is after 2002 and zero otherwise. For CON_MTB, firm level control variables are measured one year prior to the dependent variable measured year. For CON_ACCRUAL and CON_SKEWNESS, firm level control variables are measured by the average value of the whole pre-transition period or the average value of the whole post-transition period. Absolute values of the heteroskedasticity robust t-statistics are in parentheses. Significance at the 10%, 5%, and 1% levels is indicated by *, **, and ***, respectively.

	Predicted sign	CON_MTB	CON_ACCRUAL	CON_SKEWNESS
Post	?	-0.040	0.005**	-0.152
		[1.40]	[2.17]	[0.35]
Post*Female	+	0.251***	0.005***	0.657**
		[4.44]	[2.61]	[2.30]
Log (Asset)	-	-0.041***	-0.001***	-0.101*
		[3.87]	[2.79]	[1.79]
Profitability	+	5.195***	0.004	0.977
		[15.03]	[0.63]	[1.17]
Leverage	+	-0.194*	0.002	0.286
		[1.79]	[0.53]	[0.42]
Sales growth	+/-/-	0.421***	-0.003***	-0.323**
		[6.67]	[3.13]	[2.24]
R&D	+	5.592***	0.017*	1.211
		[9.39]	[1.73]	[0.79]
Cash holding	+	2.210***	-0.006	-0.429
		[12.26]	[1.41]	[0.53]
Litigation risk (Dummy)	+	-0.043	-0.001	0.366
		[0.85]	[0.41]	[1.21]
SOX (Dummy)	+	-0.056	0.004	-0.492
		[0.53]	[0.84]	[0.74]
Industry and year effects		Y	Y	Y
Observations		4768	494	712
Adjusted R-Squared		0.44	0.21	0.04

Table 4: Female CFOs and accounting conservatism: Propensity score match results

This table presents regression results of the effect of female CFOs on accounting conservatism using a propensity-score matched sample. The matching begins with a logistic regression of female CFO dummy variable on industry dummy, firm size, profitability and leverage, which are measured at the end of the transition year. Then we use the propensity scores obtained from logistic estimation and perform a one to one nearest neighbor match with replacement. The dependent variables are three measures of accounting conservatism. CON_MTB is the ratio of market value to book value of a firm. CON_ACCRUAL is the cumulative non-operating accruals divided by cumulative total assets, multiplied by -1. For the post-transition period, it is measured using all available data up until one year before next turnover of CFOs. CON_SKEWNESS is skewness of earnings divided by skewness of cash flow from operations, multiplied by -1. For the post-transition period, it is measured using all available data up until one year before next turnover of CFOs. Female is a dummy variable which equals one is a firm is a male to female transition firm, and zero if a firm is a male to male transition firm. Log (Asset) is the natural log of total assets. Profitability is earnings before interest, taxes, and depreciation divided by total assets. Leverage is the total long term liabilities divided by total assets. Sales growth is annual growth in total sales. R&D is the research and development costs divided by total assets. Cash holding is the cash and short investment divided by total assets. Litigation risk is a dummy variable that equals one if a firm belongs to high-litigation-industries (SIC code 2833–2836, 3570–3577, 7370–7374, 3600–3674, and 5200–5961), and zero otherwise. SOX is a dummy variable that equals one if a year is after 2002 and zero otherwise. For CON_MTB, firm level control variables are measured one year prior to the dependent variable measured year. For CON_ACCRUAL and CON_SKEWNESS, firm level control variables are measured by the average value of the whole post-transition period. Absolute values of the heteroskedasticity robust t-statistics are in parentheses. Significance at the 10%, 5%, and 1% levels is indicated by *, **, and ***, respectively.

	Predicted sign	CON_MTB	CON_ACCRUAL	CON_SKEWNESS
Female	+	0.296***	0.008***	0.667**
		[4.54]	[2.76]	[2.30]
Log (Asset)	-	-0.083***	-0.002*	-0.238***
		[3.11]	[1.73]	[2.70]
Profitability	+	7.059***	0.011	-1.188
		[13.12]	[0.54]	[0.94]
Leverage	+	0.260	0.008	2.933**
		[0.96]	[0.42]	[2.53]
Sales growth	+/-/-	0.470**	-0.002	-0.120
		[2.53]	[0.25]	[0.19]
R&D	+	5.527***	0.022	2.219
		[3.44]	[0.46]	[0.56]
Cash holding	+	2.371***	-0.009	1.031
		[6.01]	[0.71]	[0.83]
Litigation risk (Dummy)	+	-0.076	0.004	0.571
		[0.58]	[0.78]	[1.19]
SOX (Dummy)	+	1.531***	0.028***	1.426**
		[10.45]	[3.60]	[2.53]
Industry and year effects		Y	Y	Y
Observations		851	104	152
Adjusted R-Squared		0.55	0.18	0.21

Table 5: Robustness test: Asymmetric timeliness measure of accounting conservatism

This table presents pooled regression results of how the change from male CFOs to female CFOs affects accounting conservatism based on modified Basu (1997) model as follows:

$X_{i,t} / P_{i,t-1} = \alpha_0 + \alpha_1 Neg_{i,t} + \beta_0 \text{Return}_{i,t} + \beta_1 \text{Return}_{i,t} * Neg_{i,t} + \gamma_0 Post_{i,t} + \gamma_1 Post_{i,t} * Neg_{i,t} + \gamma_2 Post_{i,t} * \text{Return}_{i,t} + \gamma_3 Post_{i,t} * \text{Return}_{i,t} * Neg_{i,t} + Controls + \varepsilon_{i,t}$ where $X_{i,t}$ is the earnings per share of firm *i* in fiscal year *t*, $P_{i,t-1}$ is the price per share of firm *i* at the beginning of fiscal year *t*, $\text{Return}_{i,t}$ is the 12-month return of firm *i* ending three months after the end of fiscal year *t*, $Neg_{i,t}$ is a dummy variable equal to one if $\text{Return}_{i,t}$ <0 and zero otherwise, and $Post_{i,t}$ is a dummy variable which equals one if firm *i* in fiscal year *t* is after transition year and zero if firm *i* in fiscal year *t* is before transition year.

Our sample includes 92 S&P 1500 firms who change their CFOs from males to females in the 1988-2007 periods. We require that both pre-transition male CFOs and post-transition female CFOs have to be in office consecutively for at least 3 years excluding transition year. If a firm changes its CFOs from male to female more than once, we only count most recent one. The other control variables include Log (Asset), Profitability, Leverage, Sales growth, R&D, Cash holding, Litigation Risk and SOX. Log (Asset) is the natural log of total assets. Profitability is earnings before interest, taxes, and depreciation divided by total assets. Leverage is the total long term liabilities divided by total assets. Sales growth is annual growth in total sales. R&D is the research and development costs divided by total assets. Cash holding is the cash and short investment divided by total assets. Litigation risk is a dummy variable that equals one if a firm belongs to high-litigation-industries (SIC code 2833–2836, 3570–3577, 7370–7374, 3600–3674, and 5200–5961), and zero otherwise. SOX is a dummy variable that equals one if a year is after 2002 and zero otherwise. All of the other control variables in the regression are also interacted with Return, Neg and Return*Neg. Absolute values of the heteroskedasticity robust t-statistics are in parentheses. Significance at the 10%, 5%, and 1% levels is indicated by *, **, and ***, respectively.

	Predicted sign	(1)	(2)	(3)
Return	+	0.070***	0.106***	0.669***
		[7.32]	[9.20]	[9.03]
Neg		0.584***	0.561**	2.519**
		[3.10]	[1.97]	[2.05]
Return*Neg	+	0.153***	-0.022	-0.203
		[2.83]	[0.28]	[0.54]
Post			0.450***	1.109***
			[2.59]	[5.64]
Post*Return			-0.108***	-0.303***
			[5.45]	[11.43]
Post*Neg			-0.107	-0.764**
			[0.29]	[2.05]
Return*Neg*Post	+		0.403***	0.485***
			[3.75]	[4.24]
Other control variables		N	N	Y
Industry and year effects		N	N	Y
Observations		806	806	806
Adjusted R-squared		0.08	0.12	0.32

Table 6: Robustness test: Are results driven by corporate governance or CFO individual characteristics?

This table presents regression results on how male to female CFO transition affects accounting conservatism after controlling for corporate governance and CFO individual factors. The sample includes 92 S&P 1500 firms who change their CFOs from males to females. We require that both pre-transition male CFOs and post-transition female CFOs have to be in office consecutively for at least 3 years excluding transition year. If a firm changes its CFOs from male to female more than once, we only count most recent one. The dependent variables are three measures of accounting conservatism. CON_MTB is the ratio of market value to book value of a firm. CON_ACCRUAL is the cumulative non-operating accruals divided by cumulative total assets, multiplied by -1. For the pre-transition year, it is measured using all available data up until the year t-1. For the post-transition year, it is measured using all available data up until one year before next turnover of CFOs. CON_SKEWNESS is skewness of earnings divided by skewness of cash flow from operations, multiplied by -1. For the pre-transition year, it is measured using all available data up until the year t-1. For the post-transition year, it is measured using all available data up until one year before next turnover of CFOs. Post is a dummy variable which equals one if a year is after transition year and zero if a year is before transition year. Log (Asset) is the natural log of total assets. Profitability is earnings before interest, taxes, and depreciation divided by total assets. Leverage is the total long term liabilities divided by total assets. Sales growth is annual growth in total sales. R&D is the research and development costs divided by total assets. Cash holding is the cash and short investment divided by total assets. Litigation risk is a dummy variable that equals one if a firm belongs to high-litigation-industries (SIC code 2833–2836, 3570–3577, 7370–7374, 3600–3674, and 5200–5961), and zero otherwise. SOX is a dummy variable that equals one if a year is after 2002 and zero otherwise. Board composition is the ratio of the number of independent directors to total number of directors of a firm. Log (board size) is the natural log of total number of directors in a board. Board duality is a dummy that equals one if CEO is also chairman of board, and zero otherwise. Board shareholding is the total shares holding by total board members divided by total shares of a firm. G-index is Gompers, Ishii, and Metrick (2003) corporate governance index. CFO shareholding is the percentage of common shares holding by CFOs. CFO age is the age (average age for model 2 and model 3) of the CFO. CFO prior experience (Dummy) is a dummy variable which equals one if a CFO has previous CFO experience, and zero otherwise. For CON_MTB, firm level control variables are measured one year prior to the dependent variable measured year. For CON_ACCRUAL and CON_SKEWNESS, firm level control variables are measured by the average value of the whole pre-transition period or the average value of the whole post-transition period. Absolute values of the heteroskedasticity robust t-statistics are in parentheses. Significance at the 10%, 5%, and 1% levels is indicated by *, **, and ***, respectively.

	Predicted sign	CON_MTB	CON_ACCRUAL	CON_SKEWNESS
Post	+	0.160**	0.005*	2.561**
		[1.99]	[1.71]	[2.43]
Board composition	+	-0.344	0.017**	0.064
		[1.05]	[2.63]	[0.06]
Log (Board size)	-	-0.189	-0.003	0.453
		[1.13]	[0.74]	[0.50]
Board duality (Dummy)	-	0.212**	0.001	1.090*
		[2.26]	[0.05]	[1.98]
Board shareholding	+	0.003	0.001	0.037**
		[1.41]	[1.10]	[2.43]
G-index	-	-0.018	0.001	-0.282***
		[1.25]	[0.88]	[3.20]
CFO shareholding	-	-0.091	-0.017	-7.939**
		[0.72]	[0.79]	[2.63]
CFO age	+	0.018*	0.001	0.139*
		[1.65]	[0.53]	[1.75]
CFO prior experience (Dummy)	?	0.045	-0.003	-0.649
		[0.58]	[1.03]	[1.14]
Log (Asset)	-	-0.057*	0.001	-0.765***
		[1.71]	[0.67]	[4.14]
Profitability	+	6.395***	0.010	2.220
		[9.25]	[0.59]	[1.07]
Leverage	+	-0.349	0.013	0.270
		[0.95]	[1.06]	[0.17]
Sales growth	+/-/-	0.292***	-0.004**	-0.493*
		[4.60]	[2.33]	[1.70]

R&D	+	1.866	0.087*	-7.430
		[1.00]	[1.72]	[1.36]
Cash holding	+	3.556***	-0.004	-2.369
		[5.94]	[0.29]	[1.13]
Litigation risk (Dummy)	+			
SOX (Dummy)	+	0.311*	0.003	-1.077
		[1.78]	[1.10]	[1.11]
Industry and year effects		Y	Y	Y
Observations		591	85	111
Adjusted R-squared		0.48	0.41	0.28

Table 7: Robustness test: Are results driven by simultaneous changes of CFO and CEO?

This table presents regression results on how male to female CFO transition affects accounting conservatism after controlling for simultaneous changes of CEO and CFO. The reduced sample includes 36 S&P 1500 firms who change their CFOs from males to females without changing CEOs in the same year for the 1988-2007 periods. We require that both pre-transition male CFOs and post-transition female CFOs have to be in office consecutively for at least 3 years excluding transition year. If a firm changes its CFOs from male to female more than once, we only count most recent one. The dependent variables are three measures of accounting conservatism. CON_MTB is the ratio of market value to book value of a firm. CON_ACCRUAL is the cumulative non-operating accruals divided by cumulative total assets, multiplied by -1. For the pre-transition year, it is measured using all available data up until the year t-1. For the post-transition year, it is measured using all available data up until one year before next turnover of CFOs. CON_SKEWNESS is skewness of earnings divided by skewness of cash flow from operations, multiplied by -1. For the pre-transition year, it is measured using all available data up until the year t-1. For the post-transition year, it is measured using all available data up until one year before next turnover of CFOs. Post is a dummy variable which equals one if a year is after transition year and zero if a year is before transition year. Log (Asset) is the natural log of total assets. Profitability is earnings before interest, taxes, and depreciation divided by total assets. Leverage is the total long term liabilities divided by total assets. Sales growth is annual growth in total sales. R&D is the research and development costs divided by total assets. Cash holding is the cash and short investment divided by total assets. Litigation risk is a dummy variable that equals one if a firm belongs to high-litigation-industries (SIC code 2833–2836, 3570–3577, 7370–7374, 3600–3674, and 5200–5961), and zero otherwise. SOX is a dummy variable that equals one if a year is after 2002 and zero otherwise. For CON_MTB, firm level control variables are measured one year prior to the dependent variable measured year. For CON_ACCRUAL and CON_SKEWNESS, firm level control variables are measured by the average value of the whole pre-transition period or the average value of the whole post-transition period. Absolute values of the heteroskedasticity robust t-statistics are in parentheses. Significance at the 10%, 5%, and 1% levels is indicated by *, **, and ***, respectively.

	Predicted sign	CON_MTB	CON_ACCRUAL	CON_SKEWNESS
Post	+	0.252*	0.007**	2.030*
		[1.73]	[2.26]	[2.03]
Log (Asset)	-	-0.040	-0.002	-0.183
		[1.06]	[1.42]	[1.00]
Profitability	+	3.905***	0.034	5.775*
		[6.59]	[0.91]	[1.91]
Leverage	+	-1.332**	0.024**	1.089
		[2.28]	[2.20]	[0.44]
Sales growth	+/-/-	0.252**	-0.006**	0.049
		[2.56]	[2.59]	[0.17]
R&D	+	1.977*	0.071	-7.326
		[1.67]	[0.79]	[1.63]
Cash holding	+	3.008***	-0.003	-3.382
		[5.65]	[0.28]	[1.19]
Litigation risk (Dummy)	+	0.111	-0.001	1.729
		[0.50]	[0.32]	[1.44]
SOX (Dummy)	+	0.147	0.004	0.021
		[0.30]	[0.93]	[0.05]
Industry and year effects		Y	Y	Y
Observations		346	40	60
Adjusted R-Squared		0.41	0.45	0.25

Table 8: Robustness test: Female to male CFO transition and accounting conservatism

This table presents regression results on how female to male CFO transition affects accounting conservatism. The sample includes 48 S&P 1500 firms who change their CFOs from females to males for the 1988-2007 periods. We require that both pre-transition female CFOs and post-transition male CFOs have to be in office consecutively for at least 3 years excluding transition year. If a firm changes its CFOs from female to male more than once, we only count most recent one. The dependent variables are three measures of accounting conservatism. CON_MTB is the ratio of market value to book value of a firm. CON_ACCRUAL is the cumulative non-operating accruals divided by cumulative total assets, multiplied by -1. For the pre-transition year, it is measured using all available data up until the year t-1. For the post-transition year, it is measured using all available data up until one year before next turnover of CFOs. CON_SKEWNESS is skewness of earnings divided by skewness of cash flow from operations, multiplied by -1. For the pre-transition year, it is measured using all available data up until the year t-1. For the post-transition year, it is measured using all available data up until one year before next turnover of CFOs. Post is a dummy variable which equals one if a year is after transition year and zero if a year is before transition year. Log (Asset) is the natural log of total assets. Profitability is earnings before interest, taxes, and depreciation divided by total assets. Leverage is the total long term liabilities divided by total assets. Sales growth is annual growth in total sales. R&D is the research and development costs divided by total assets. Cash holding is the cash and short investment divided by total assets. Litigation risk is a dummy variable that equals one if a firm belongs to high-litigation-industries (SIC code 2833–2836, 3570–3577, 7370–7374, 3600–3674, and 5200–5961), and zero otherwise. SOX is a dummy variable that equals one if a year is after 2002 and zero otherwise. For CON_MTB, firm level control variables are measured one year prior to the dependent variable measured year. For CON_ACCRUAL and CON_SKEWNESS, firm level control variables are measured by the average value of the whole pre-transition period or the average value of the whole post-transition period. Absolute values of the heteroskedasticity robust t-statistics are in parentheses. Significance at the 10%, 5%, and 1% levels is indicated by *, **, and ***, respectively.

	Predicted sign	CON_MTB	CON_ACCRUAL	CON_SKEWNESS
Post	-	-1.107***	-0.018*	-0.173
		[3.40]	[1.75]	[0.46]
Log (Asset)	-	0.192	-0.002	-0.285
		[1.39]	[0.50]	[0.77]
Profitability	+	4.947***	-0.063	1.763
		[4.20]	[1.25]	[0.92]
Leverage	+	-1.213*	0.054*	-0.82
		[1.80]	[1.74]	[0.53]
Sales growth	+/-/-	0.045***	-0.017*	0.772
		[2.75]	[1.77]	[1.01]
R&D	+	8.898***	-0.003	5.660*
		[3.30]	[0.08]	[1.82]
Cash holding	+	4.733***	0.011	-2.822
		[4.06]	[0.30]	[1.51]
Litigation risk (Dummy)	+	2.063	0.034**	-0.598
		[1.04]	[2.60]	[0.51]
SOX (Dummy)	+	-0.428	0.004	-1.079
		[0.92]	[0.39]	[0.88]
Industry and year effects		Y	Y	Y
Observations		240	32	55
Adjusted R-Squared		0.53	0.18	0.18

Table 9: Female CFOs, risk and accounting conservatism

This table presents regression results on how male to female CFO transition affects accounting conservatism conditional on different aspects of risks. The sample includes 92 S&P 1500 firms who change their CFOs from males to females. We require that both pre-transition male CFOs and post-transition female CFOs have to be in office consecutively for at least 3 years excluding transition year. If a firm changes its CFOs from male to female more than once, we only count most recent one. The dependent variables are three measures of accounting conservatism. CON_MTB is the ratio of market value to book value of a firm. CON_ACCRUAL is the cumulative non-operating accruals divided by cumulative total assets, multiplied by -1. For the pre-transition year, it is measured using all available data up until the year t-1. For the post-transition year, it is measured using all available data up until one year before next turnover of CFOs. CON_SKEWNESS is skewness of earnings divided by skewness of cash flow from operations, multiplied by -1. For the pre-transition year, it is measured using all available data up until the year t-1. For the post-transition year, it is measured using all available data up until one year before next turnover of CFOs. Post is a dummy variable which equals one if a year is after transition year and zero if a year is before transition year. Litigation risk is a dummy variable that equals one if a firm belongs to high-litigation-industries (SIC code 2833–2836, 3570–3577, 7370–7374, 3600–3674, and 5200–5961), and zero otherwise. Default risk is a dummy variable which equals one if a firm's Z-score is above the median value of the sample's Z-score. Z-score equals 1.2Working capital/Total assets +1.4Retained earnings/Total assets + 3.3EBIT/Total assets + 0.6Market value of equity/Total liabilities+0.999Sales/Total assets. Turnover risk is a dummy variable which equals one if a firm's turnover rate is above the median value of the sample's turnover rate. Turnover rate is defined as the total number of top managers being fired in the industry scaled by the industry size. We also include control variables which are the same as our main tables. Absolute values of the heteroskedasticity robust t-statistics are in parentheses. Significance at the 10%, 5%, and 1% levels is indicated by *, **, and ***, respectively.

	CON_MTB	CON_ACCRUAL	CON_SKEWNESS
Panel A: Gender, litigation risk and conservatism			
Post	0.180***	0.005*	1.636**
	[2.66]	[1.69]	[2.17]
Litigation risk (Dummy)	-0.422***	-0.006	0.860
	[3.10]	[1.50]	[1.03]
Litigation risk (Dummy)*Post	0.472**	0.010*	0.072
	[2.32]	[1.97]	[0.48]
Observations	971	118	157
Adjusted R-Squared	0.46	0.39	0.15
Panel B: Gender, Default risk and conservatism			
Post	0.198*	0.001	0.777
	[1.80]	[0.10]	[1.10]
Default risk (Dummy)	0.036	0.002	-0.288
	[0.39]	[0.06]	[0.52]
Default risk (Dummy)*Post	0.245*	0.010**	1.498**
	[1.90]	[2.26]	[2.15]
Observations	971	118	157
Adjusted R-squared	0.46	0.40	0.16
Panel C: Gender, Turnover risk and conservatism			
Post	0.144**	0.002	1.446*
	[1.98]	[0.53]	[1.73]
Turnover risk (Dummy)	-0.041	0.002	0.839
	[0.51]	[0.61]	[1.53]
Turnover risk*(Dummy)*Post	0.244*	0.007*	0.731
	[1.95]	[1.66]	[1.18]
Observations	971	118	157
Adjusted R-squared	0.46	0.39	0.16

Table 10: Firms risk, earnings quality and investment changes following male to female CFO changes

This table compares firm risk and earnings quality for pre-transition period (under the control of male CFOs) and post-transition period (under the control of female CFOs) for the male to female transition sample. Daily stock return volatility is the standard deviation of daily stock returns. Idiosyncratic risk measures firm specific risk. We first regress a firm's daily stock returns on the corresponding NYSE/AMEX/NASDAQ Value-Weighted Index from CRSP for the whole pre- and post-transition periods. Then we use the standard deviation of the error term obtained from the market model to measure idiosyncratic risk. Quarterly earnings volatility is the standard deviation of quarterly earnings. Discretionary accruals are calculated based on modified Jones model. R&D is the research and development costs divided by total assets. Advertisement is the advertising expenditures divided by total assets. Tangibility is the net property, plant, and equipment divided by total assets. Capital expenditure is the capital expenditures divided by total assets. Acquisition is acquisitions divided by total assets. Dividend is total dividends divided by total assets. The means of the differences between the variables for two sub-samples and t statistics are also reported. Significance at the 10%, 5%, and 1% levels is indicated by *, **, and ***, respectively.

	Pre-Transition		Post-Transition		(Post)-(Pre) Transition	
	Mean	STD	Mean	STD	Difference	T statistics
Panel A: Firm risk changes following male to female CFO transition						
Leverage	0.247	0.186	0.222	0.161	-0.025**	[-2.25]
Stock return volatility	0.0286	0.0152	0.0263	0.0141	-0.0023**	[-2.39]
Idiosyncratic risk	0.0267	0.0141	0.0236	0.0128	-0.0031***	[3.50]
Panel B: Earnings quality changes following male to female CFO transition						
Discretionary accruals	0.0288	0.2344	-0.0077	0.0886	-0.0365*	[-1.92]
Earnings volatility	0.0379	0.0278	0.0193	0.0175	-0.0286***	[-2.63]
Panel C: Firm investments and payout changes following male to female CFO transition						
R&D	0.035	0.081	0.023	0.043	-0.012***	[-3.01]
Advertisement	0.053	0.055	0.043	0.043	-0.010*	[1.76]
Tangibility	0.300	0.011	0.340	0.012	0.040**	[2.46]
Capital expenditure	0.077	0.076	0.066	0.068	-0.011*	[1.95]
Acquisition	0.031	0.062	0.026	0.055	-0.005	[1.29]
Dividend	0.098	0.203	0.072	0.115	-0.026**	[-2.31]

Table 11: Market reactions to earnings announcements surrounding male to female CFO transition

This table presents cumulative average abnormal returns (CAAR) of quarterly earnings announcements before and after male to female CFO transitions. CAAR is the mean of the [-1, 1] 3-day announcement return adjusted by the market return. Negative announcements refer to announced earnings less than zero, and positive announcements refer to announced earnings more than zero. T-statistics and number of observations are reported. The means of the different market reactions between post-transition period (under the control of female CFOs) and pre-transiton period (under the control of female CFOs) and t statistics are also reported. Significance at the 10%, 5%, and 1% levels is indicated by *, **, and ***, respectively.

	Pre-transition	Post-transition	Differences
Panel A: fourth quarter of the year t-1 vs. first quarter of year t+1			
Negative announcements	-1.82%*	0.32%	2.14%*
	[1.96]	[0.30]	[1.86]
	n=22	n=21	n=43
Positive announcements	0.01%	-0.53%	-0.54%
	[0.02]	[0.97]	[0.39]
	n=68	n=70	n=138
Panel B: year t-1 vs. year t+1			
Negative announcements	-1.04%*	0.08%	1.12%*
	[1.93]	[0.14]	[1.84]
	n=63	n=63	n=126
Positive announcements	-0.15%	-0.21%	-0.06
	[0.51]	[0.82]	[-0.26]
	n=284	n=299	n=583

Figure 1: CFO compensation structure and risk-taking incentive changes after male to female CFO transition

Figure 1-1: Compensation structures of male CFOs at year t-1 and female CFOs at yeart+1

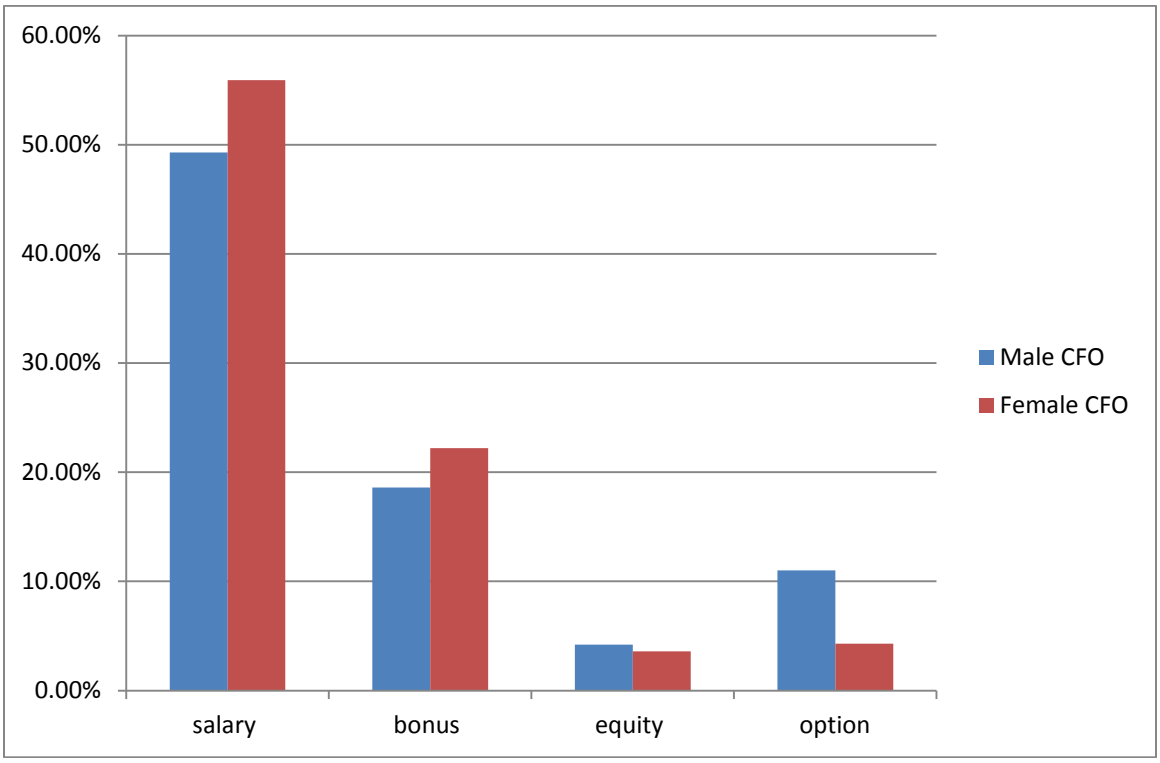
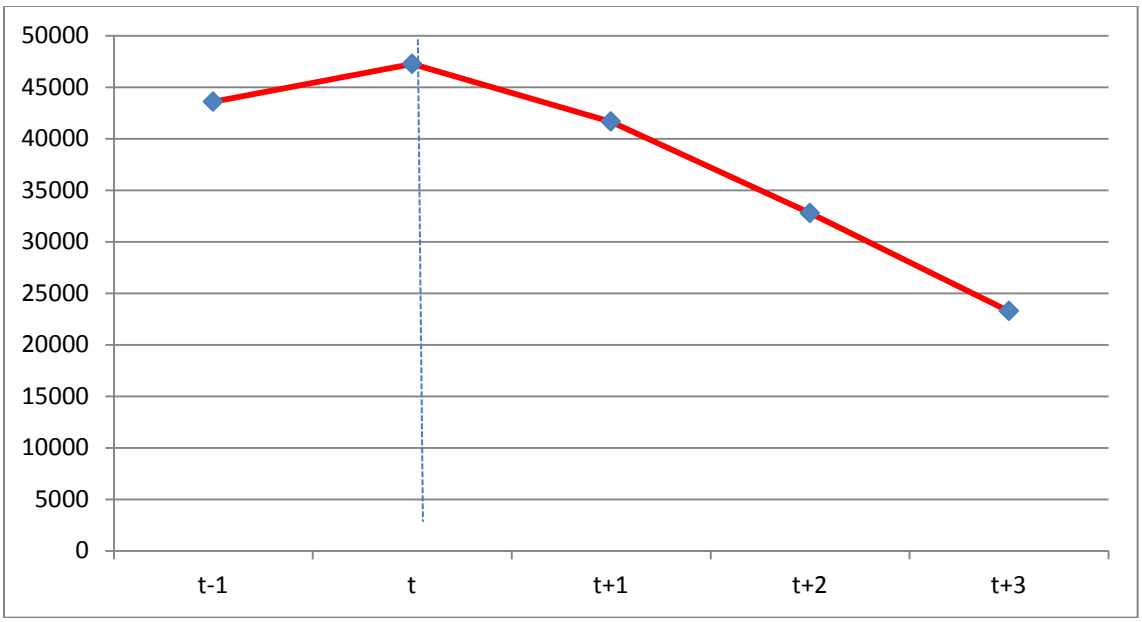


Figure 1-2: CFO Vega changes after male to female CFO transition



*Vega is the measure of managers' risk-taking incentives. It is defined as the dollar gain in the manger's personal portfolio as the firm's stock return volatility goes up by 1%.

Figure 2: Firm Investment decision changes following CFO changes*

Figure 2-1: R&D

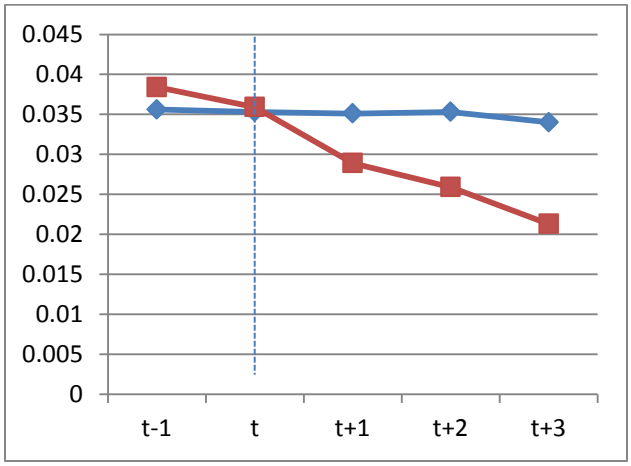


Figure 2-2: Advertisement

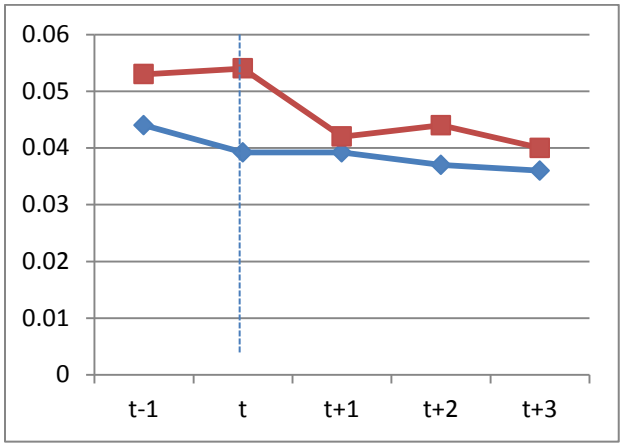


Figure 2-3: Tangibility

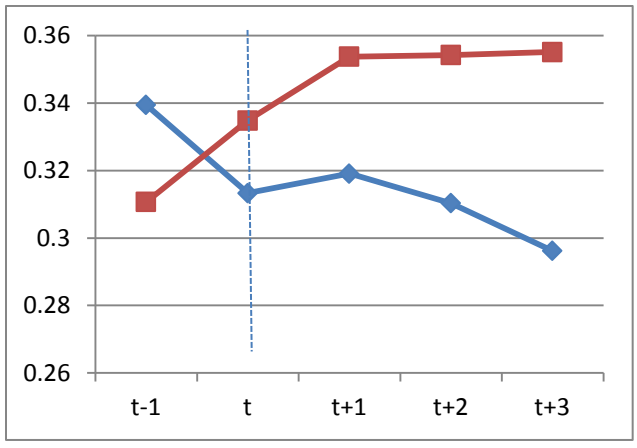


Figure 2-4: Capital expenditure

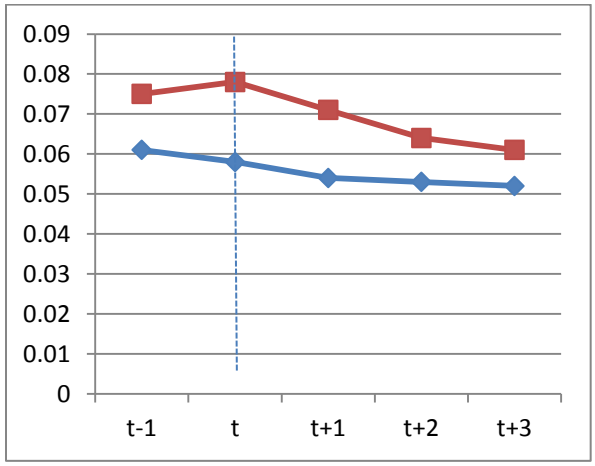


Figure 2-5: Acquisition

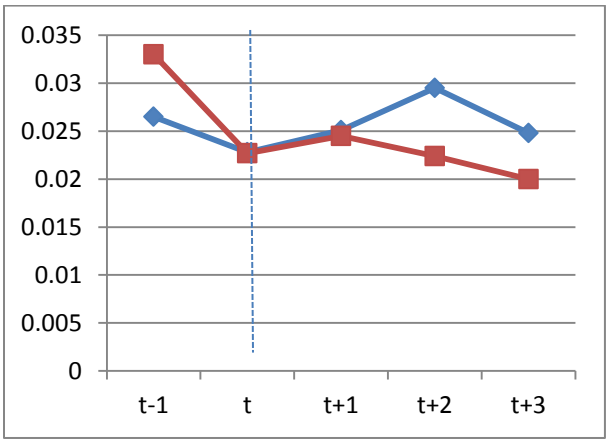
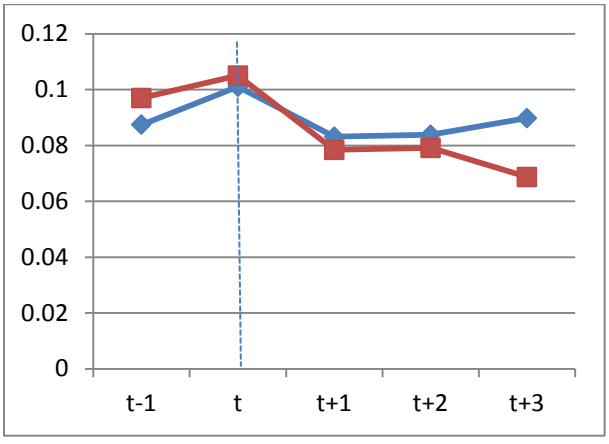


Figure 2-6: Dividend



* Red line represents male to female CFO transition firms

Blue line represents male to male CFO transition fir