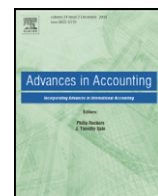




Contents lists available at ScienceDirect

Advances in Accounting, incorporating Advances in International Accounting

journal homepage: www.elsevier.com/locate/adiac

Does top executive gender diversity affect earnings quality? A large sample analysis of Chinese listed firms

Kangtao Ye^a, Ran Zhang^{b,1}, Zabihollah Rezaee^{c,*}^a School of Business, Renmin University, Beijing, 100872, PR China^b Guanghua School of Management, Peking University, Beijing, 100871, PR China^c Fogelman College of Business and Economics, 300 Fogelman College Admin. Building, The University of Memphis, Memphis, TN 38152-3120, United States

ARTICLE INFO

Keywords:

Gender difference
 Female senior managers
 Business ethics
 Earnings quality
 Emerging markets
 Corporate governance

ABSTRACT

Using a large sample of Chinese listed firms, this paper examines whether the gender of top executives affects earnings quality. Unlike the findings documented in developed markets such as the U.S., our results show that earnings quality proxies, including earnings persistence, the accuracy of current earnings in forecasting future cash flows, the association between earnings and stock returns, and the absolute magnitude of discretionary accruals do not display significant differences for firms with female and male top executives. This study is the first to examine the relationship between gender and earnings quality in emerging markets such as China that offers managerial and policy implications.

Published by Elsevier Ltd.

1. Introduction

In this paper, we investigate whether the gender of top executives affects earnings quality for a large sample of Chinese companies. Recent improvements in women's economic and social status have generated significant attention to the role of women in firms' upper echelon (McKinsey&Company, 2007). The growing concern about the lack of heterogeneity in the composition of board of directors since the Enron scandal in 2001 greatly inspired research in this area (Williams, 2003; Burgess & Fallon, 2003; Farrell & Hersch, 2005; Singh, 2007; Werhane, 2007). Research on gender and business ethics normally suggests that women are more ethical than men in attitudes and behaviors (Beltramini, Peterson, & Kozmetsky, 1984; Ferrell & Skinner, 1988; Betz, O'Connell, & Shepard, 1989; Akaah, 1989; Ruegger & King, 1992; Nguyen, Basuray, Smith, Kopka, & McCulloh, 2008). As earnings management is generally viewed as an ethical issue by managers and accountants (Bruno & Merchant, 1990), some studies also explore gender differences in earnings quality, and document a positive relation between female employees and earnings quality. Krishnan and Parsons (2008) find that gender diversity in senior management improves the quality of reported earnings. Shawver, Bancroft, and Senneti (2006) also indicate that female accountants were less likely to engage in earnings management.

McKinsey&Company (2007) reports that companies with three or more women directors and officers in Europe and the United States perform better in their corporate governance measures and financial performance. Improving financial performance and earnings quality is also becoming more critical in emerging markets. Take China as an example; over the last two decades, it has experienced incredible levels of growth and structural change coupled with numerous factors that have enhanced the complexity of its transformation. In this transitional economy, how to increase earnings quality and thus enhance market efficiency is a crucial issue that Chinese stock market regulators encounter. Given the difference in language, culture, economic development, legal systems, and personal values between developed and developing countries (Ge & Thomas, 2007; Lam & Shi, 2008; Whitcomb, Erdener, & Li, 1998), does the stated gender effect on earnings quality in developed countries also hold in developing countries? Do firms in emerging markets with female top executives also report higher quality earnings? These questions are addressed in this study by investigating the possible association between top executive gender and earnings quality in the largest emerging market in the world, China.

Our results show that earnings quality proxies, including earnings persistence, the accuracy of current earnings in forecasting future cash flows, the association between earnings and stock returns, and the absolute magnitude of discretionary accruals do not display any significant differences between firms with female and male top executives, which is inconsistent with the documented gender differences in earnings quality in the developed-country context. Our results indicate that advocating firms to hire more female managers may not be helpful to increase listed firms' earnings quality in China. Instead, China may need to seek other methods, such as

* Corresponding author. Tel.: +1 901 678 4652; fax: +1 901 678 0717.

E-mail addresses: kye@ruc.edu.cn (K. Ye), rzhang@gsm.pku.edu.cn (R. Zhang), zrezaee@memphis.edu (Z. Rezaee).¹ Tel.: +86 10 62756911; fax: +86 10 62751463.

increasing the heterogeneity of the board of directors by age, functional background, education, and tenure to enhance its listed firms' earnings quality.

Our paper contributes to the literature in several ways. First, the gender issue is receiving a considerable attention in the work place. The 2009 KPMG survey of 955 companies reveals that more than 61% of these companies now have diversity policy in place monitoring gender, age, race/ethnicity and disability (KPMG, 2009). Second, there is currently no empirical research to examine the relationship between earnings quality and top executive gender in developing countries. Only three related papers addressed gender ethical difference in China.² All of them adopted either experimental or questionnaire method and none of them examined actual behavior related to financial reporting or other aspects of earnings quality. In the light of the advantages of impartial secondary data in business ethics research (Nicholson & Bennett, 2009), we extend the existing research by examining actual reported financial numbers in a large sample of Chinese listed companies and comparing the earnings quality in companies with female and male top executives. Finally, increasing listed firms' earnings quality is even more important for emerging markets, such as China, as in those markets, financial reports are generally less transparent and the market is less efficient, which increases the transaction costs of the market. Academics, regulators, and other users of accounting information are thus interested in mechanisms that mitigate the tendency of the manager to engage in earnings management and thus provide higher quality financial reports. We extend this line of research by examining whether another characteristic of an organization, the gender of top executives, influences earnings quality or the likelihood of earnings management in an emerging market, China.

The remainder of the paper proceeds as follows: the next section reviews the literature, develops the hypotheses, and then presents our research design. This is followed by a description of our sample, a descriptive analysis, and the study's results. Concluding comments complete the paper.

2. Literature review and hypothesis development

2.1. Related studies

Business ethical differences between genders have been broadly studied. Prior literature suggests that women and men exhibit distinct differences in values and interests, and in proclivity for unethical business behavior (Gilligan, 1982; Betz et al., 1989). Men are more interested in economic benefits and career success, and are more likely to break rules to achieve competitive success, while women are oriented more toward harmonious relationships and helping others, are socialized into more communal values, and are less likely to be unethical (Betz et al., 1989; Butz & Lewis, 1996; Mason & Mudrack, 1996).

Empirical evidences concerning gender impact on ethical judgment are mixed. Collins (2000) reviews forty-seven articles published in *Journal of Business Ethics* during 1982–1999. Of these, thirty-two studies reveal that females are more ethically sensitive than males; while fifteen other studies suggest that gender has no impact on ethical attitudes and behaviors. Ford and Richardson (1994) survey fourteen studies on the relationship between gender and ethics. Seven of them document a higher level of ethical consciousness for females than males, while seven other studies do not identify gender differences in ethical attitudes and practices. Taken together, prior literature suggests that the gender effect on ethical behavior is not always significant, but when differences are identified, females appear to be more ethical than males. Inconsistent findings documented by

prior research also suggest that gender differences may be context specific.

With the growing number of studies in this area, the research scope has broadened from a single context to the comparison among countries (or areas). For example, Roxas and Stoneback (2004) find that the ethical decisions between genders differ under different cultural contexts, and Bernardi and Gupta (2008) study 713 students from seven different countries and find that the notion that women are more ethically conscious than men only holds in the U.S. and Canada. Despite the need for gender diversity in the business field and research in developing countries, studies on gender differences remain scarce in developing countries such as China. Hong and Xiao (2007) find that females and males do not show any differences in environmental concern after controlling for their environmental knowledge factor. Roxas and Stoneback (2004) select students from eight different countries as research subjects, and discover that females are less likely to behave ethically in China than in developed countries. By collecting data through personal interviews with working persons of mass transit systems and shopping centers in Beijing and Hong Kong, Lam and Shi (2008) find that females have a lower acceptability of unethical behaviors in Hong Kong, whereas gender effect is not statistically significant in Mainland China. However, none of those studies examine actual ethical behavior between genders.³

We extend the literature by empirically examining the relationship between top executive gender and firm earnings quality using actual reported financial numbers for a large sample of Chinese listed firms. Specifically, we examine whether the gender of Chief Executive Officers (CEO) and Chief Financial Officers (CFO) affects firm earnings quality among Chinese listed firms. CEO and CFO are the senior executives who are more likely to have influence over financial reporting decisions. CFOs are responsible for financial reporting process in their organizations, and Cullinan and Sutton (2002) document that over 70% of financial statement frauds directly involve firm CEOs/presidents. CEO and CFO are also the two senior managers the Sarbanes-Oxley Act (SOX) requires to certify the accuracy and completeness of firms' financial reports (Sarbanes-Oxley Act, 2002).

2.2. Hypothesis development

Inspired by prior literature which suggests women possess a higher level of ethical consciousness than men, some studies have investigated whether gender affects managerial willingness to engage in earnings management. Krishnan and Parsons (2008) find that gender diversity in senior management improves the quality of reported earnings. Shawver et al. (2006) also indicate that female accountants were less likely to engage in earnings management. Based on a survey of accounting students, Klikeman, Geiger, and O'Connell (2001) document no significant differences in the men's and women's attitudes toward earnings management. However, most studies in this field are based on the U.S. data. A global study conducted by McKinsey&Company (2007) suggests that companies where women are most strongly represented on the board of directors or at top-level management exhibit better governance and financial performance. As the gender difference referred above may be context specific, the findings identified in other countries may not hold in China due to institutional and cultural differences.

McKinsey&Company (2007) identifies several barriers that prevent women obtain and succeed in senior executive positions including the double burden syndrome of finding a right balance between work and domestic responsibilities, the greater effort of adaption for women to assert their talents and gain recognition in the executive position, the difficulties for women to identify with success,

² Please refer to Part 2 paragraph 4 for details of the three studies.

³ Some researchers advocate empirical research in this area (Loe, Ferrell, & Mansfield, 2000; Du & Tang, 2005).

and the appearance of women having lower professional ambitions than men. Since the establishment of the socialist China in 1949, the Chinese government has introduced a series of progressive policies aiming at promoting equality of status of men and women in society, and today many urban husbands and wives share employment, income and housework together (Cooke, 2001). Such a socialist egalitarian ideology tends to eliminate gender differences in social role expectation and ethical values (Lam & Shi, 2008). Gilligan (1982) suggests that the gender differences in moral reasoning are developed during the socialization process of infants and children. As the top executives in today China were trained to think and judge in similar modes when they were young, we would expect no significant gender differences in ethical attitudes and in the likelihood to engage in earnings management for Chinese top executives. We formally state our hypothesis as follows:

Hypothesis 1A. *Ceteris paribus*, firms with male and female Chief Executive Officers will exhibit similar earnings quality in China.

Hypothesis 1B. *Ceteris paribus*, firms with male and female Chief Financial Officers will exhibit similar earnings quality in China.

As the Chair of the Board in Chinese companies are generally involved in the company's daily decision making and rank higher than CEO (Kato & Long, 2006), we also examine whether the gender of the Chair of the Board affects earnings quality.

Hypothesis 1C. *Ceteris paribus*, firms with male and female Chair of the Board will exhibit similar earnings quality in China.

2.3. Research design

Dechow and Schrand (2004) suggest that a high-quality earnings number should be a good indicator of both current and future operating performance, and is a useful summary measure for assessing firm value. Following Dechow and Schrand (2004), we define earnings to be of higher quality when earnings are more persistent, more strongly associated with future cash flows, and more strongly associated with contemporaneous stock price performance. As earnings management clearly decreases earnings quality, we also examine the impacts of top executive gender on the absolute magnitude of discretionary accruals, a well-accepted proxy for earnings management in prior literature (Dechow & Schrand, 2004; Hribar & Nichols, 2007).

2.3.1. Earnings persistence

Earnings persistence is considered one of the important indicators for earnings quality. The persistence of an earnings series captures how a current shock is expected to affect the whole stream of future realizations of the earnings series. If managers manipulate earnings less or, in other words, earnings have higher quality, then we should be able to observe more persistent earnings, as current earnings would be a good indicator of future earnings in this case. Following Krishnan and Parsons (2008), we measure earnings persistence as the slope coefficient in the following model:

$$SOI_{it+1} = \alpha_0 + \alpha_1 SOI_{it} + \alpha_2 FTE_{it} * SOI_{it} + \alpha_3 FTE_{it} + \alpha_4 Loss_{it} * SOI_{it} + \alpha_5 Loss_{it} + \alpha_6 FAMILY_{it} * SOI_{it} + \alpha_7 FAMILY_{it} + \varepsilon_{it} \quad (1)$$

where SOI_{it} is operating income divided by total assets at the beginning of the year for firm i in fiscal year t ; FTE_{it} is a dummy variable that takes the value of 1 for observations with female top executives (the Chair of the Board, CEO, or CFO) and 0 for observations with male top executives. α_1 and $(\alpha_1 + \alpha_2)$ measure the earnings persistence of firms with male and female top executives respectively. Thus, if α_2 is significantly positive, then we can conclude that earnings

are considered more permanent for firms with female top executives than those with male top executives.

As prior literature indicates that losses and family control affect earnings persistence (Hayn, 1995; Jaggi, Leung, & Gul, 2009), we also introduce two dummy variables that proxy for loss firms ($Loss$) and family controlled firms ($FAMILY$). Year and industry effect are also controlled in the regression.

2.3.2. The accuracy of current earnings as forecasts of future cash flows

Firm value is the discounted present value of firm's future cash flows. Hence, a higher association between current earnings and future cash flows can help investors better assess firm value using current earnings number. Following Dechow, Kothari, and Watts (1998), we examine the ability of current earnings to predict future cash flows by performing the following model:

$$CFO_{it+1} = \beta_0 + \beta_1 SOI_{it} + \beta_2 FTE_{it} * SOI_{it} + \beta_3 FTE_{it} + \beta_4 Loss_{it} * SOI_{it} + \beta_5 Loss_{it} + \beta_6 FAMILY_{it} * SOI_{it} + \beta_7 FAMILY_{it} + \varepsilon_{it} \quad (2)$$

where CFO_{it+1} is the cash flow from operations for firm i in year $t+1$, divided by total assets at the beginning of year $t+1$. The other variables are defined as in Eq. (1). β_1 and $(\beta_1 + \beta_2)$ measure the usefulness of current earnings in predicting future cash flows one year ahead for firms with male and female top executives respectively. A significantly positive β_2 suggests that the current earnings number is a better indicator of future cash flows when firms have female top executives.

2.3.3. The association between earnings and stock returns

Stock prices are generally perceived as a summary measure of firm performance. If earnings are less subject to manipulation, the correlation between earnings and firm performance, hence firm stock returns if the stock markets are efficient, will increase (Dechow, 1994). We implement the following model to examine whether female top executives improve the ability of earnings to measure firm performance:

$$Return_{it} = \delta_0 + \delta_1 SOIV_{it} + \delta_2 FTE_{it} * SOIV_{it} + \delta_3 FTE_{it} + \delta_4 Loss_{it} * SOIV_{it} + \delta_5 Loss_{it} + \delta_6 FAMILY_{it} * SOIV_{it} + \delta_7 FAMILY_{it} + \varepsilon_{it} \quad (3)$$

where $Return_{it}$ is the buy-and-hold stock return (including dividends) for firm i in year t , minus the value-weighted market index (including dividends) during year t . $SOIV_{it}$ is operating income for firm i in year t , scaled by the beginning-of-period price. Other variables are defined as in Eq. (1). We interact FTE_{it} with $SOIV_{it}$ to examine whether the contemporaneous association between accounting earnings and stock returns is significantly different for observations with female top executives relative to observations with male counterparts. Observing $\delta_2 > 0$ would provide evidence that earnings number becomes a more useful measure of firm performance when top executives are female.

2.3.4. Absolute magnitude of discretionary accruals

Dechow and Schrand (2004) indicate that earnings management clearly deteriorates earnings quality. Prior studies suggest that the absolute magnitude of discretionary accruals is a potential "red flag" that companies are engaging earnings management (Dechow & Schrand, 2004). Hence, we also examine whether firms with female top executives have smaller absolute magnitude of discretionary accruals. The Jones (1991) model is used to detect discretionary accruals. The model estimates non-discretionary accruals as follows:

$$Accrual_{it} = \gamma_0 + \gamma_1 \Delta Revenue_{it} + \gamma_2 PP\&E_{it} + \varepsilon_{it} \quad (4)$$

where $Accrual_{it} = NI_{it} - CFO_{it}$; NI_{it} is the net income for firm i in year t , and CFO_{it} is the cash flow from operations for firm i in year t .

Table 1
Top executive gender across years.

Year	Observations	Percentage of firms with chairwoman of the board (%)	Percentage of firms with female CEO (%)	Percentage of firms with female CFO (%)
2001	632	5.06	4.11	25.47
2002	765	4.31	3.53	24.97
2003	853	3.87	3.28	25.32
2004	918	4.03	4.14	25.38
2005	971	4.33	4.63	25.33
2006	1077	4.09	5.10	26.18
Total	5216	4.24	4.20	25.48

$\Delta Revenue_{it}$ is revenues in year t less revenues in year $t - 1$ for firm i . $PP\&E_{it}$ is gross property, plant, and equipment in year t for firm i . All the variables in Eq. (4) are divided by total assets at the beginning of year t . We estimate Eq. (4) in cross-section for each industry with at least eight firms in year t . Similar to prior literature, we use the absolute value of residuals as a proxy for earnings quality (Dechow & Schrand, 2004; Hribar & Nichols, 2007). Larger absolute value of residuals indicates poorer earnings quality. We then perform the following model to examine whether female top executives are related to less earnings management:

$$EM_{it} = \lambda_0 + \lambda_1 FTE_{it} + \lambda_2 FAMILY_{it} + \lambda_3 Ln(ASSET)_{it} + \lambda_4 IDR_{it} + \lambda_5 Auditor_{it} + \lambda_6 DUAL_{it} + \lambda_7 ROA_{it} + \varepsilon_{it} \quad (5)$$

where EM_{it} is the absolute value of the estimation residuals from Eq. (4), our proxy for earnings management. FTE_{it} is defined as in Eq. (1). A significantly negative λ_1 suggests that female top executives are less likely to engage in earnings management. We also include the following variables that may affect earnings quality to complete Eq. (5): family control ($FAMILY_{it}$), the natural logarithm of total assets ($Ln(ASSET)_{it}$), the proportion of independent directors on the board (IDR_{it}), the Big-10 auditor dummy ($Auditor_{it}$), the duality of the Chair of the board and CEO ($DUAL_{it}$), and firm's return on assets (ROA_{it}). Year and industry effect are also controlled in the regression.

2.4. Sample and descriptive statistics

In contrast to U.S. annual reporting requirements, Chinese General Accepted Accounting Principles (GAAP) require firms to report details of the name, position, gender, shareholding, and compensation of every senior management member in the firm's annual report. Such information disclosed is official, reliable, and complete, compared to the top executive gender information collected by independent organizations, such as Catalyst.⁴ While for our research, as the top executive gender information is publicly disclosed with firms' annual reports, we are able to include almost all listed firms on the Chinese market in our sample, which reduces the sample selection bias. Our sample includes all listed firms with available data in the Chinese A-share market from 2001–2006. Listed firms' financial, stock return and corporate governance data were drawn from the Peking University CCR Sinofin database.⁵ We excluded banks and financial institutions and deleted firm-year observations (1) without sufficient financial data to compute the required financial variables or (2) without stock return information. We winsorize all consecutive variables at the 1 and 99% levels to minimize the outlier effect.

⁴ Catalyst is an independent, nonprofit research and advisory organization working to advance women in business, with offices in New York, San Jose, and Toronto.

⁵ Sinofin database is widely used in Chinese finance and accounting research. We also use CSMAR (China Security Market Accounting Research) database to test our main results and the results are similar.

Table 2
Top executive gender across industries.

Industry	Observations	Percentage of firms with chairwoman of the board (%)	Percentage of firms with female CEO (%)	Percentage of firms with female CFO (%)
Agriculture	120	1.67	5.00	16.67
Mining and mineral	555	2.70	1.98	18.20
Food	231	3.03	6.49	23.38
Textiles	234	11.11	11.54	25.64
Paper	109	3.67	0.00	28.44
Petrochemicals	594	2.53	3.03	24.41
Electronics	165	4.85	0.61	33.33
Machinery	808	3.47	1.11	24.88
Pharmaceuticals	352	2.56	6.54	33.52
Utilities	214	3.74	2.34	22.90
Construction	90	1.11	0.00	12.22
Transportation	206	3.40	0.49	29.13
IT	338	2.37	0.89	23.08
Retail	352	11.65	15.63	36.65
Real estate	192	7.29	9.38	21.88
Services	140	7.86	4.29	19.29
Conglomerates	450	2.67	3.56	26.67
Other	66	7.58	7.58	42.42

Table 1 shows the percentage of female top executives during the period 2001–2006. Women occupy about four percent of the Chair of the Board/CEO positions in China, which is higher compared to the percentage in the U.S. (Mohan & Ruggiero, 2007; Wolfers, 2006).⁶ The statistics also reveal that women represent about twenty-five percent of CFO positions, far exceeding the ten percent in the U.S. (Holliday, 2000). Taken together, the woman representation in top management in China is relatively higher compared to that in the U.S. Table 2 shows the percentage of female top executives across industries. The woman representation in top management is higher for Retail, Textiles, and Real Estate industries, while lower for Construction, Mining, and Mineral industries. The industry differences in women representation also emphasize the importance of controlling for industry effect in our estimation models.

Descriptive statistics for financial performance, firm size, and corporate governance variables for firms with male and female top executives are in Table 3. Firms with Chairwoman of the Board appear to have performed better in terms of accounting earnings and cash flows, and are more likely to hire a Big-10 auditor than firms with Chairman of the Board. This is consistent with the literature based on the U.S. or the U.K. data, which shows that firms with more women in senior management perform better (Adams & Ferreira, 2003; Krishnan & Park, 2005; Francoeur, Labelle, & Bernard, 2008; Krishnan & Parsons, 2008). The statistics also indicate that observations with female CEO have more independent directors on the board, and are more likely to be controlled by families. However, there appear no significant differences between firms with male and female CFOs.

2.5. Empirical results

We examine the influence of female senior management on earnings quality using three gender variables, i.e., the gender of the Chair of the Board, CEO gender, and CFO gender. Table 4 reports the results of our test on the comparison of earnings persistence, our first measure of earnings quality, between firms with male and female top executives. The persistence coefficients for firms with male top executives are positive and significant, which is consistent with prior literature. The differences in earnings persistence between firms with male and female top executives are not significant in all three

⁶ Mohan and Ruggiero (2007) indicate that less than 1% of the Fortune 1000 companies have female chief executives. Wolfers (2006) also documents that only 1.3% S&P 1500 firms with female CEOs.

Table 3
Descriptive statistics.

Variables	Statistics	Sample portioned by the gender of chair of the board			Sample portioned by the gender of CEO			Sample portioned by the gender of CFO		
		Chairwoman of the Board	Chairman of the Board	Difference	Female CEO	Male CEO	Difference	Female CFO	Male CFO	Difference
<i>Ln(ASSET)</i>	Mean	21.17	21.20	-0.03	21.11	21.20	-0.09	21.16	21.21	-0.04
<i>ROA</i>	Mean	0.021	0.011	0.010*	0.020	0.011	0.009	0.009	0.012	-0.003
<i>SOI</i>	Mean	0.045	0.031	0.015**	0.039	0.031	0.008	0.028	0.033	0.004
<i>SOIV</i>	Mean	0.038	0.023	0.015**	0.034	0.023	0.011*	0.020	0.024	-0.004
<i>CFO</i>	Mean	0.067	0.055	0.012*	0.054	0.056	-0.002	0.059	0.054	0.005
<i>Return</i>	Mean	-0.066	-0.076	0.010	-0.074	-0.075	0.001	-0.088	-0.071	-0.017
<i>IDR</i>	Mean	0.286	0.289	-0.003	0.311	0.288	0.022***	0.292	0.288	0.003
<i>Loss</i>	Mean	0.131	0.155	-0.024	0.155	0.154	0.001	0.150	0.155	-0.005
<i>FAMILY</i>	Mean	0.303	0.281	0.022	0.402	0.277	0.125***	0.290	0.279	0.011
<i>DUAL</i>	Mean	0.113	0.099	0.014	0.119	0.099	0.020	0.109	0.097	0.012
<i>Auditor</i>	Mean	0.308	0.229	0.078***	0.192	0.235	-0.043	0.242	0.230	0.012
<i>EM</i>	Mean	0.068	0.065	0.004	0.066	0.065	0.001	0.064	0.065	-0.001

Note: $Ln(ASSET)_{it}$: the natural logarithm of total assets; ROA_{it} : firm's return on assets; SOI_{it} : operating income divided by total assets at the beginning of the year; $SOIV_{it}$: operating income divided by the beginning-of-period price; CFO_{it+1} : cash flow from for firm i at year $t + 1$ divided by total assets at the beginning of year $t + 1$; $Return_{it}$: the buy-and-hold stock return (including dividends) for firm i in year t , minus the value-weighted market index (including dividends) during year t . IDR_{it} : the proportion of independent directors on the board; $Loss$: a dummy variable equal to 1 for loss firms, and 0 otherwise; $FAMILY_{it}$: a dummy variable equal to 1 for family-controlled firms, and 0 otherwise; $DUAL_{it}$: a dummy variable equal to 1 when the Chair of the Board and CEO are the same person, and 0 otherwise; $Auditor_{it}$: a dummy variable equal to 1 when the firm is audited by a Big-10 auditor, and 0 otherwise; EM_{it} : the absolute value of the estimation residuals from Eq. (4), our proxy for earnings management. All significant tests are two-tailed, *, **, and *** indicate significant at 0.10, 0.05, and 0.01 level respectively.

regressions, which use the gender of the Chair of the Board, CEO gender, and CFO gender as proxies for top executive gender respectively. The results indicate that observations with female top executives do not demonstrate higher earnings persistence. Table 4 also suggests that loss firms have lower earnings persistence, consistent with prior literature.

Table 4
Comparison of earnings persistence by top executive gender.

Variables	Regression 1	Regression 2	Regression 3
	Dependent variable: SOI_{it+1}		
SOI_{it}	0.8514*** (23.03)	0.8471*** (22.47)	0.8566*** (27.18)
$FTE1 * SOI_{it}$	-0.0384 (-0.369)		
$FTE1$	-0.0063 (-0.901)		
$FTE2 * SOI_{it}$		0.0235 (0.265)	
$FTE2$		-0.0050 (-0.766)	
$FTE3 * SOI_{it}$			-0.0362 (-0.586)
$FTE3$			-0.0000 (-0.0113)
$Loss * SOI_{it}$	-0.5997*** (-8.186)	-0.5957*** (-8.159)	-0.5937*** (-7.973)
$Loss$	-0.0250*** (-4.271)	-0.0249*** (-4.284)	-0.0248*** (-4.302)
$FAMILY * SOI_{it}$	0.0609 (1.182)	0.0598 (1.153)	0.0602 (1.175)
$FAMILY$	-0.0114*** (-4.059)	-0.0113*** (-4.013)	-0.0114*** (-4.064)
<i>Industry</i>	Controlled	Controlled	Controlled
<i>Year</i>	Controlled	Controlled	Controlled
<i>Constant</i>	-0.0093 (-1.641)	-0.0092 (-1.605)	-0.0097* (-1.705)
<i>Observations</i>	5216	5216	5216
<i>Adjusted R-squared</i>	0.446	0.445	0.445

Note: $FTE1$: a dummy variable equal to 1 for firms with Chairwoman of the Board, and 0 otherwise; $FTE2$: a dummy variable equal to 1 for firms with female CEO, and 0 otherwise; $FTE3$: a dummy variable equal to 1 for firms with female CFO, and 0 otherwise; SOI_{it} : operating income divided by total assets at the beginning of the year; $Loss$: a dummy variable equal to 1 for loss firms, and 0 otherwise; $FAMILY_{it}$: a dummy variable equal to 1 for family-controlled firms, and 0 otherwise. T-statistics are in parentheses, calculated using standard errors corrected for heteroskedasticity and serial autocorrelation. *, **, and *** indicate significant at 0.10, 0.05, and 0.01 level respectively.

Table 5 shows the empirical results of our model (2). The coefficient on SOI_{it} is positive and significant, implying that current earnings is a good indicator of future cash flows. The coefficient on our key variable, $FTE_{it} * SOI_{it}$, however, is not significant, suggesting that

Table 5
Comparison of the accuracy of current earnings as forecasts of future cash flows by top executive gender.

Variables	Regression 1	Regression 2	Regression 3
		Dependent variable: CFO_{it+1}	
SOI_{it}	0.4460*** (11.25)	0.4458*** (11.29)	0.4470*** (11.84)
$FTE1 * SOI_{it}$	-0.0263 (-0.262)		
$FTE1$	0.0005 (0.0646)		
$FTE2 * SOI_{it}$		-0.0450 (-0.456)	
$FTE2$		-0.0011 (-0.152)	
$FTE3 * SOI_{it}$			-0.0106 (-0.220)
$FTE3$			0.0030 (0.869)
$Loss * SOI_{it}$	-0.4563*** (-8.373)	-0.4564*** (-8.337)	-0.4528*** (-8.159)
$Loss$	-0.0015 (-0.292)	-0.0017 (-0.315)	-0.0013 (-0.248)
$FAMILY * SOI_{it}$	-0.0098 (-0.263)	-0.0093 (-0.247)	-0.0102 (-0.272)
$FAMILY$	-0.0077** (-2.264)	-0.0077** (-2.252)	-0.0077** (-2.268)
<i>Industry</i>	Controlled	Controlled	Controlled
<i>Year</i>	Controlled	Controlled	Controlled
<i>Constant</i>	0.0172** (2.048)	0.0172** (2.057)	0.0166** (1.970)
<i>Observations</i>	5216	5216	5216
<i>Adjusted R-squared</i>	0.131	0.131	0.131

Note: $FTE1$: a dummy variable equal to 1 for firms with Chairwoman of the Board, and 0 otherwise; $FTE2$: a dummy variable equal to 1 for firms with female CEO, and 0 otherwise; $FTE3$: a dummy variable equal to 1 for firms with female CFO, and 0 otherwise; CFO_{it+1} : cash flow from for firm i at year $t + 1$ divided by total assets at the beginning of year $t + 1$; SOI_{it} : operating income for firm i at year t divided by total assets at the beginning of the year t ; $Loss$: a dummy variable equal to 1 for loss firms, and 0 otherwise; $FAMILY_{it}$: a dummy variable equal to 1 for family-controlled firms, and 0 otherwise. t-statistics are in parentheses, calculated using standard errors corrected for heteroskedasticity and serial autocorrelation. *, **, and *** indicate significant at 0.10, 0.05, and 0.01 level respectively.

Table 6
Comparison of the association between earnings and stock returns by top executive gender.

Variables	Regression 1	Regression 2	Regression 3
	Dependent variable: $Return_{it}$		
$SOIV_{it}$	3.1168*** (15.86)	3.0214*** (14.25)	3.0367*** (13.86)
$FTE1^* SOIV_{it}$	-1.1775 (-1.555)		
$FTE1$	0.0069 (0.237)		
$FTE2^* SOIV_{it}$		0.0278 (0.0641)	
$FTE2$		-0.0241 (-1.004)	
$FTE3^* SOIV_{it}$			-0.0733 (-0.369)
$FTE3$			-0.0079 (-0.714)
$Loss^*SOIV_{it}$	-3.1967*** (-12.32)	-3.1126*** (-10.45)	-3.1075*** (-10.79)
$Loss$	-0.0671*** (-3.863)	-0.0678*** (-3.827)	-0.0681*** (-3.834)
$FAMILY^* SOIV_{it}$	0.3014 (1.399)	0.2558 (1.022)	0.2566 (1.038)
$FAMILY$	-0.0206* (-1.793)	-0.0212* (-1.846)	-0.0217* (-1.887)
$Industry$	Controlled	Controlled	Controlled
$Year$	Controlled	Controlled	Controlled
$Constant$	-0.0383 (-1.412)	-0.0359 (-1.301)	-0.0361 (-1.318)
$Observations$	5216	5216	5216
$Adjusted R$ -squared	0.217	0.214	0.214

Note: $FTE1$: a dummy variable equal to 1 for firms with Chairwoman of the Board, and 0 otherwise; $FTE2$: a dummy variable equal to 1 for firms with female CEO, and 0 otherwise; $FTE3$: a dummy variable equal to 1 for firms with female CFO, and 0 otherwise; $Return_{it}$: the buy-and-hold stock return (including dividends) for firm i in year t , minus the value-weighted market index (including dividends) during year t . $SOIV_{it}$: operating income for firm i in year t , divided by the beginning-of-period price; $Loss$: a dummy variable equal to 1 for loss firms, and 0 otherwise; $FAMILY_{it}$: a dummy variable equal to 1 for family-controlled firms, and 0 otherwise. t -statistics are in parentheses, calculated using standard errors corrected for heteroskedasticity and serial autocorrelation. *, **, and *** indicate significant at 0.10, 0.05, and 0.01 level respectively.

the usefulness of current earnings in predicting future cash flows is not different for firms with female top executives relative to those with male counterparts.

Table 6 presents the results of the comparison of the association between earnings and stock returns for male and female top executives. Table 6 indicates that top executive gender does not affect the ability of earnings to measure firm performance, indicating that there is no gender difference in earnings quality.

We also examine the impacts of top executive gender on the absolute value of discretionary accruals, a measure perceived as an indicator for earnings management in prior literature. Table 7 reports the empirical results of Eq. (5). The coefficient on FTE is not significant in all three regressions, confirming that top executive gender does not affect earnings quality. The results also reveal that the absolute value of discretionary accruals is higher for family controlled firms, firms with CEO duality, and poor performing firms.

A battery of robust tests is conducted to make sure our results are reliable. In order to increase the power of our tests, we identify a sub-sample of suspect firms which have strong incentives for earnings management, then examine whether top executive gender affects earnings quality for this sub-sample of suspect firms. Dechow, Sloan, and Sweeney (1996) suggest that an important incentive for earnings management is to attract external financing at lower cost. Besides, highly leveraged firms are more likely to engage in earnings management to avoid debt covenants violation. Prior studies also document that managers have strong incentives to manipulate earnings

Table 7
Association between the absolute value of discretionary accruals and top executive gender.

Variables	Regression 1	Regression 2	Regression 3
	Dependent variable: EM_{it}		
$FTE1$	0.0047 (1.030)		
$FTE2$		0.0008 (0.178)	
$FTE3$			-0.0006 (-0.308)
$FAMILY$	0.0040* (1.693)	0.0040* (1.693)	0.0040* (1.701)
IDR	0.0116 (0.806)	0.0115 (0.802)	0.0117 (0.813)
$Auditor$	0.0015 (0.626)	0.0015 (0.658)	0.0015 (0.653)
$DUAL$	0.0053* (1.752)	0.0053* (1.757)	0.0054* (1.760)
ROA	-0.2478*** (-16.52)	-0.2475*** (-16.51)	-0.2475*** (-16.52)
$Ln(ASSET)$	-0.0020 (-1.476)	-0.0020 (-1.481)	-0.0020 (-1.482)
$Industry$	Controlled	Controlled	Controlled
$Year$	Controlled	Controlled	Controlled
$Constant$	0.1026*** (3.420)	0.1028*** (3.424)	0.1029*** (3.431)
$Observations$	5216	5216	5216
$Adjusted R$ -squared	0.177	0.177	0.177

Note: EM_{it} : the absolute value of the estimation residuals from Eq. (4), our proxy for earnings management; $FTE1$: a dummy variable equal to 1 for firms with Chairwoman of the Board, and 0 otherwise; $FTE2$: a dummy variable equal to 1 for firms with female CEO, and 0 otherwise; $FTE3$: a dummy variable equal to 1 for firms with female CFO, and 0 otherwise; $FAMILY_{it}$: a dummy variable equal to 1 for family-controlled firms, and 0 otherwise; IDR_{it} : the proportion of independent directors on the board; $Auditor_{it}$: a dummy variable equal to 1 when the firm is audited by a Big-10 auditor, and 0 otherwise; $DUAL_{it}$: a dummy variable equal to 1 when the Chair of the Board and CEO are the same person, and 0 otherwise; ROA_{it} : firm's return on assets; $Ln(ASSET)_{it}$: the natural logarithm of total assets. T -statistics are in parentheses, calculated using standard errors corrected for heteroskedasticity and serial autocorrelation. *, **, and *** indicate significant at 0.10, 0.05, and 0.01 level respectively.

to avoid reporting losses and earnings decreases (Burgstahler & Dichev, 1997; Roychowdhury, 2006). Hence, we identify the following observations as suspect firms: (1) firms issuing stocks at the current year; (2) firms with leverage ratio higher than the mean ratio of our sample; (3) firms with ROE greater than zero but less than one percent; (4) firms with change of ROE greater than zero but less than one percent. Small profits and small earnings increases suggest a higher likelihood of earnings management to avoid losses and earnings decline (e.g., Roychowdhury, 2006). Following the criteria referred above, we obtain a sub-sample of 2331 suspect firm-year observations. Untabulated results indicate no association between top executive gender and earnings quality for the sub-sample of suspect observations.

To better control for firm fixed effects, we also adopt a "changes in variables" approach. We identify a switch sample of firms shifting from and to male and female top executives during our sample period, and estimate our regressions with the switch sample. Untabulated results indicate no gender effect of earnings quality using the "changes in variable" approach. Besides, we also perform all regressions using the mean observation for each firm and obtain similar results.

2.6. Conclusion, limitations and directions for future research

Anecdotal evidence (McKinsey&Company, 2007) suggests that companies with a higher proportion of women senior executives perform better than those without such gender diversity at their board or top management level in the United States and Europe. This study extends the literature that examines whether top executive gender affects earnings quality in the context of an emerging market,

China. Krishnan and Parsons (2008) have documented that earnings quality is positively and significantly related to high gender diversity in senior management under the U.S. context. However, our empirical results using a large sample of Chinese listed firms' reported earnings show that, during the period 2001–2006, there is no significant earnings quality difference for firms managed by female and male executives. Why is the documented gender differences in earnings quality not present in China? We believe the reason is that females and males do not express different ethical value in China, due to the propagation of socialist egalitarian ideology since the founding of communist China in 1949, while in the developed countries, such as the U.S. and the U.K., females possess different social role expectation and values, as documented in the prior literature. Another plausible interpretation of our results is that barriers to succeed in the executive position (the double burden syndrome, assertion of talents and gaining recognition in the executive position) are more apparent in China than the United States and the United Kingdom.

Our results also indicate that although it may be useful to enhance earnings quality by hiring more female senior managers in the developed-country context, in China, top executive gender is not associated with earnings quality. As earnings quality is important for market efficiency, China may turn to other mechanisms such as increasing the heterogeneity of board of directors in functional background, education, tenure, and age, to enhance corporate governance. Overall, this study provides a platform for future research in gender diversity in emerging markets, by examining one dimension of business ethics, firms' earnings quality and promoting the debate of making transition from acknowledging women's barriers to finding ways to mitigate the perceived effects of those barriers. Showing whether other measures of business ethics are associated with gender diversity in emerging markets, as well as how and to what extent other heterogeneity characteristics of board of directors, such as functional background, education, tenure, and age, affect earnings quality in developing countries other than China, are two possible areas that should be addressed by future research.

Our failure to find a significant link between top executive gender and firm earnings quality is inconsistent with prior findings documented in developed markets (Krishnan & Parsons, 2008; Shawver et al., 2006). However, unlike these studies, our top executive gender data are publically available, which make the data more objective, transparent and valid. Nonetheless, our results have repercussions for researchers, corporations and corporate governance advocates. First, lack of support for the relation between managerial gender and firm earnings quality suggests that corporations and their directors should recognize other roles that female executives play in corporate culture (e.g., recruiting more women employees, promoting more ethical conduct, bring new ideas, fresh perspectives and diversified styles to the management team). Future research could investigate the link between gender and other corporate governance roles in the emerging markets. Second, there may be many more important factors (e.g., corporate governance measures, board independence, executives' financial literacy, education, tenure and age) that influence earnings quality with gender diversity not playing an influencing role. An obvious extension of this study is the investigation of the possible association between these factors and earnings quality in the emerging markets such as China.

Acknowledgements

This paper is sponsored by the National Natural Science Foundation of China (Approval Nos. 70802003 and 70532002) and the Scientific Research Foundation for the Returned Overseas Chinese Scholars, State Education Ministry.

References

Adams, R. B., & Ferreira, D. (2003). Diversity and incentives: Evidence from corporate boards. *Working paper*. : University of Stockholm.

- Akaah, I. P. (1989). Differences in research ethics judgments between male and female marketing professionals. *Journal of Business Ethics*, 8(5), 375–381.
- Beltramini, R. F., Peterson, R. A., & Kozmetsky, G. (1984). Concerns of college students regarding business ethics. *Journal of Business Ethics*, 3, 195–200.
- Bernardi, R. A., & Guptill, S. T. (2008). Social Desirability Response Bias, Gender, and Factors Influencing Organizational Commitment: an International Study. *Journal of Business Ethics*, 81(4), 797–809.
- Betz, M., O'Connell, L., & Shepard, J. M. (1989). Gender differences in proclivity for unethical behavior. *Journal of Business Ethics*, 8(5), 321–324.
- Bruns, W. J., & Merchant, K. A. (1990). The dangerous morality of managing earnings. *Management Accounting*, 72(2), 22–25.
- Burgess, Z., & Fallon, B. (2003). A longitudinal study of women directors in Australia. *Women in Management Review*, 18(7), 359–368.
- Burgstahler, D., & Dichev, I. (1997). Earnings management to avoid earnings decreases and losses. *Journal of Accounting and Economics*, 24(1), 99–126.
- Butz, C. E., & Lewis, P. V. (1996). Correlation of gender-related values of independence and relationship and leadership orientation. *Journal of Business Ethics*, 15(11), 1141–1149.
- Clikeman, P. M., Geiger, M. A., & O'Connell, B. T. (2001). Student perceptions of earnings management: the effects of national origin and gender. *Teaching Business Ethics*, 5(4), 389–410.
- Collins, D. (2000). The quest to improve the human condition: the first 1500 articles published in *Journal of Business Ethics*. *Journal of Business Ethics*, 26(1), 1–73.
- Cooke, F. L. (2001). Equal opportunity? The role of legislation and public policies in women's employment in China. *Women in Management Review*, 16(7/8), 334–347.
- Cullinan, C. P., & Sutton, S. G. (2002). Defrauding the public interest: A critical examination of reengineered audit processes and the likelihood of detecting fraud. *Critical Perspectives on Accounting*, 13, 297–310.
- Dechow, P. M. (1994). Accounting earnings and cash flows as measures of firm performance: The role of accounting accruals. *Journal of Accounting and Economics*, 18, 3–42.
- Dechow, P. M., Kothari, S. P., & Watts, R. L. (1998). The relation between earnings and cash flows. *Journal of Accounting and Economics*, 25, 133–168.
- Dechow, P. M., & Schrand, C. M. (2004). *Earnings Quality*. : Research Foundation of CFA Institute.
- Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1996). Causes and consequences of earnings manipulation: an analysis of firms subject to enforcement actions by the SEC. *Contemporary Accounting Research*, 13(1), 1–36.
- Du, L., & Tang, T. L. (2005). Measurement invariance across gender and major: the love of money among university students in People's Republic of China. *Journal of Business Ethics*, 59(3), 281–293.
- Farrell, K. A., & Hersch, P. L. (2005). Additions to corporate boards: the effect of gender. *Journal of Corporate Finance*, 11(1–2), 85–106.
- Ferrell, O. C., & Skinner, S. J. (1988). Ethical behavior and bureaucratic structure in market research organizations. *Journal of Marketing Research*, 25(1), 103–109.
- Ford, R. C., & Richardson, W. D. (1994). Ethical decision making: a review of the empirical literature. *Journal of Business Ethics*, 13(3), 205–221.
- Francoeur, C., Labelle, R., & Bernard, S. D. (2008). Gender diversity in corporate governance and top management. *Journal of Business Ethics*, 81, 83–95.
- Ge, L., & Thomas, S. (2007). A cross-cultural comparison of the deliberative reasoning of Canadian and Chinese accounting students. *Journal of Business Ethics*, 82(1), 189–211.
- Gilligan, C. (1982). *In a different voice: Psychological theory and women's development*. Cambridge(MA): Harvard University Press.
- Hayn, C. (1995). The information content of losses. *Journal of Accounting and Economics*, 20, 125–153.
- Holliday, K. K. (2000, November/December). No longer rare. *Financial Executive*, 34–40.
- Hong, D., & Xiao, C. (2007). Sociological analysis on gender difference of environmental concern. *Journal of Chinese Social Research*, 2, 111–135 (in Chinese).
- Hribar, P., & Nichols, D. C. (2007). The use of unsigned earnings quality measures in tests of earnings management. *Journal of Accounting Research*, 45(5), 1017–1053.
- Jaggi, B., Leung, S., & Gul, F. (2009). Family control, board independence and earnings management: Evidence based on Hong Kong firms. *Journal of Accounting and Public Policy*, 28, 281–300.
- Jones, J. J. (1991). Earnings management during import relief investigations. *Journal of Accounting Research*, 29(2), 193–219.
- Kato, T., & Long, C. (2006). CEO turnover, firm performance, and enterprise reform in China: Evidence from micro data. *Journal of Comparative Economics*, 34, 796–817.
- KPMG: 2009, 'CSR and Diversity Threshold Identified', February 24, Available at kpmg.com/KPMG/UK/News/mht.
- Krishnan, G. V., & Parsons, L. M. (2008). Getting to the bottom line: an exploration of gender and earnings quality. *Journal of Business Ethics*, 78, 65–76.
- Krishnan, H. A., & Park, D. (2005). A few good women-on top management teams. *Journal of Business Research*, 58(12), 1712–1720.
- Lam, K., & Shi, G. (2008). Factors affecting ethical attitudes in Mainland China and Hong Kong. *Journal of Business Ethics*, 77, 463–479.
- Loe, T. W., Ferrell, L., & Mansfield, P. (2000). A review of empirical studies assessing ethical decision making in business. *Journal of Business Ethics*, 25(3), 185–204.
- Mason, E. S., & Mudrack, P. E. (1996). Gender and ethical orientation: A test of gender and occupational socialization theories. *Journal of Business Ethics*, 15(6), 599–605.
- McKinsey&Company. 2007. Women Matter: Gender diversity, a corporate performance driver. Copyright @ McKinsey & Company, Inc.
- Mohan, N., & Ruggiero, J. (2007). Influence of firm performance and gender on CEO compensation. *Applied Economics*, 39, 1107–1113.
- Nguyen, N. T., Basuray, M. T., Smith, W. P., Kopka, D., & McCulloh, D. (2008). Moral issues and gender differences in ethical judgment using Reidenbach and Robin's

- (1990) multidimensional ethics scale: implications in teaching of business ethics. *Journal of Business Ethics*, 77, 417–430.
- Nicholson, S. W., & Bennett, T. B. (2009). Transparent practices: primary and secondary data in business ethics dissertations. *Journal of Business Ethics*, 84, 417–425.
- Roxas, M. L., & Stoneback, J. Y. (2004). The importance of gender across cultures in ethical decision-making. *Journal of Business Ethics*, 50(2), 149–165.
- Roychowdhury, S. (2006). Earnings management through real activities manipulation. *Journal of Accounting and Economics*, 42, 335–370.
- Ruegger, D., & King, E. W. (1992). A study of the effect of age and gender upon student business ethics. *Journal of Business Ethics*, 11(3), 179–186.
- Sarbanes-Oxley Act. 2002. July 2002, Available at: www.sec.gov/about/laws/soa2002.pdf
- Shawver, T. J., Bancroft, P. C., & Senneti, J. (2006). Can the 'clan effect' reduce the gender sensitivity to fraud? The case of the IPO environment. *Journal of Forensic Accounting*, 7, 185–208.
- Singh, V. (2007). Ethnic diversity on top corporate boards: A resource dependency perspective. *International Journal of Resource Management*, 18(12), 2128–2146.
- Werhane, P. H. (2007). Women leaders in a globalized world. *Journal of Business Ethics*, 74(4), 425–435.
- Whitcomb, L. L., Erdener, C. B., & Li, C. (1998). Business ethical values in China and the U. S. *Journal of Business Ethics*, 17(8), 839–852.
- Williams, R. J. (2003). Women on corporate boards of directors and their influence on corporate philanthropy. *Journal of Business Ethics*, 42(1), 1–10.
- Wolfers, J. (2006). Diagnosing discrimination: Stock returns and CEO gender. *Journal of the European Economic Association*, 4(2–3), 531–541.