Age Diversity of Audit Committee Financial Experts, Ownership Structure and Earnings Management: Evidence from China

Journal:	*International Journal of Finance and Economics*
Manuscript ID	IJFE-20-0942.R1
Wiley - Manuscript type:	Research Article
Keywords:	Age Diversity, Older Audit Committee Financial Experts, Younger Audit Committee Financial Experts, Audit Committee Financial Expertise, Earnings Management

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Abstract

The extant literature has shown the impact of demographic characteristics such as gender of audit committee members on earnings management but ignored the importance of the board room's age diversity. Going beyond the prior literature, our study aims to examine how the age diversity of audit committee financial experts (ACFEs) influences the financial reporting quality of Chinese non-financial firms. We found a negative relationship between ACFEs' age diversity and earning management. Our findings also show that younger ACFEs mitigate earnings management as compared to older ACFEs. We further examined this relationship among state-owned enterprises (SOEs) and privately-owned enterprises in China and confirmed that the age diversity of ACFEs influences earnings management differently. However, younger ACFEs working in SOEs mitigates earnings management than their counterpart in privately-owned companies. Our result maintains its robustness after controlling for endogeneity and employing a different measure of earnings management. Our result has relevance for selecting financial experts and the audit committee's overall composition, showing that including younger ACFEs will ensure more efficient control of firms' management. This finding is also relevant for policymakers, especially Chinese regulators, offering them insight into promoting audit committee effectiveness.

Keywords: Age Diversity, Older Audit Committee Financial Experts; Younger Audit Committee Financial Experts; Audit Committee Financial Expertise; Earnings Management

Running head: Age Diversity, Ownership Structure, and Earnings Management

1. Introduction

In recent years a growing number of scholars have shown a keen interest in exploring the impact of demographic characteristics such as gender diversity of audit committee members on organizational outcomes. Specifically, these studies focused mainly on how the gender diversity of audit committee members enhances audit quality (Lai, Srinidhi, Gul, & Tsui, 2017; Miglani & Ahmed, 2019) and financial reporting quality (Oradi & Izadi, 2020; Zalata, Tauringana, & Tingbani, 2018). Sultana, Singh, and Rahman (2019) argued that the audit committee members' experience and age enhance audit quality; however, the age diversity of ACFEs is not considered in their work. The impact of age diversity of audit committee financial experts (ACFEs) in influencing the financial reporting quality is rarely discussed in prior literature.

Section 407 of the Sarbanes-Oxley Act (SOX) requires every listed US company to have at least one ACFE[1] within the audit committee. Other countries also specifically outlined ACFEs requirements. Unlike in the SOX 2002, having an audit committee is not mandatory under the Chinese 2002 code of corporate governance. However, Chinese companies that choose to establish an audit committee are required to have at least one independent audit committee member with financial expertise. Article 54 of the 2002 code of corporate governance defines the audit committee members' roles and responsibilities in China. The Chinese Securities Regulatory Commission (CSRC) recommends that ACFEs have a senior accounting role, such as a certified public accountant. In response to the ACFE regulations, a large number of studies examined the

[1] SEC (2003) define the term "audit committee financial expert (ACFE)" instead of "financial expert" to clarify that the designated person certain qualification or experience in finance or managing the financial staff under sections 407 of SOX 2002. ACFE is the member of audit committee with professional accounting certification (e.g., Certified Public Accountant) and/or have financial working experience (e.g., principal financial officer, principal accounting officer) and supervisory experience of financial staff.

presence of ACFEs in the audit committee and their monitoring role in constraining the management's opportunistic behavior (e.g., earnings management) (Bilal, Chen, & Komal, 2018; Carcello & Neal, 2000; González & García-Meca, 2014; Klein, 2002). ACFEs play a prominent role in ensuring the audit committee's effectiveness, especially its oversight and monitoring role. Audit committee members rely on ACFEs to effectively control managers (Bédard & Gendron, 2010; Zalata et al., 2018). Due to the increasing interest of regulators to further improve ACFEs' effectiveness, a plethora of research considers the composition of ACFEs that maximizes earnings quality (Badolato, Donelson, & Ege, 2014). In line with this, the current study examines how the age diversity of ACFEs enhances their ability to manage earnings.

Going beyond the mere presence of ACFEs in an audit committee, Zalata et al. (2018) study the gender diversity of ACFEs and claim the female ACFEs mitigates earnings management. However, there is no evidence regarding the influence of age diversity (e.g., younger or older) of ACFEs in constraining earnings management. Thus, the current study aims to contribute to the corporate governance literature on the impact of age diversity of ACFEs on earnings management in China.

The issue of age diversity of directors in China is particularly important in a unique Chinese cultural environment where directors from different age groups are associated with certain values, which significantly affects their decision-making process (Talavera, Yin, & Zhang, 2018). Thus, our study motivates us to explore the age diversity of ACFEs since most ACFEs in an audit committee are older independent directors and accounting professors in China. Prior studies have two alternatives views regarding older independent directors in a company. First, when independent directors get older, they become more valuable to their corporation due to past years of corporate experiences of dealing with different challenges and providing beneficial business

opportunities through their social and business networks (Jonson, McGuire, Rasel, & Cooper, 2020). Whereas other studies argued that older independent directors reduce the effectiveness of boardroom monitoring since there are considered less energetic members (Fair, 1991; Horn, 1968), face issues regarding health and mental abilities (Baltes & Lindenberger, 1997; Schroeder & Salthouse, 2004), and are sometimes considered incapable of processing new information (Salthouse, 2000). Thus, it is difficult for older directors to perform their monitoring duties effectively.

Similarly, prior research on audit committee indicates that older audit committee members may be more conservative than younger audit committee members when choosing external auditors and may spend more effort to prevent the collusion between external auditors and managers (Dao, Huang, & Zhu, 2013; Davidson, Xie, & Xu, 2004; Qi & Tian, 2012). Therefore, it is crucial to investigate the effectiveness of older or younger ACFEs in constraining earnings management. Age diversity is most helpful when the task at hand is complex, such as monitoring of financial reporting quality (Wegge, Roth, Neubach, Schmidt, & Kanfer, 2008).

The current study examines how the age diversity of ACFEs enhances their ability to monitor earnings management. We focus on ACFEs' age since it encompasses various factors that influence a person's strategic choices (Rhodes, 1983). Using a sample of 6084 Chinese non-financial companies listed on Shanghai and Shenzhen stock exchanges from 2003-2015, we examine the association between ACFEs age diversity and earnings management. Notably, we are interested in understanding whether ACFEs' age diversity (proxied by the ratio of the current age of ACFE divided by the average of ACFEs) impacts their ability to mitigate earnings management and how older and younger ACFEs influence earnings quality.

Our findings show that the age diversity of ACFEs constrain earnings management and ultimately improve financial reporting quality. We define younger ACFEs as those up to 45 years old. On the other hand, we define older ACFEs in two ways: ACFEs with more than retirement age in China (55 years) and ACFEs with more than 60 years. We find that younger ACFEs are more likely to reduce earnings management. On the other hand, we find that older ACFEs reduces earnings quality among Chinese listed firms. We divided our main sample into state-owned enterprises (SOEs) and privately-owned enterprises and found a negative relationship between age diversity and earnings management that is in line with our main results. To ensure our results' robustness, we compared the results with alternative proxies of earnings management and found that our findings are unchanged. The results remain robust after removing sample selection bias from propensity score matching and endogeneity issues from system GMM.

This study makes a significant contribution to corporate governance and accounting literature in the following ways: First, we are the first to consider the age diversity of ACFEs and its impact on earnings management as prior ACFEs studies focus on ACFEs' status (Badolato et al., 2014) and gender (Zalata et al., 2018). Secondly, we examined ACFEs age diversity among SOEs and private-owned companies, thereby contributing to ownership structure literature. Third, our study contributes to the contemporary corporate governance and accounting literature on the impact of members of an audit committee, board, and top management team demographic characteristics such as age diversity on earnings management (Choi, Han, & Lee, 2014; Hsieh, Chen, Tseng, & Lin, 2018; Kyaw, Olugbode, & Petracci, 2015; Qi, Lin, Tian, & Lewis, 2018; Zalata et al., 2018). Fourth, we add to the current debate on constraining earnings management through ACFEs (Bilal et al., 2018). Finally, our study has implications for regulators, especially

in emerging and developing countries, to set an age limit for ACFE for the effectiveness of audit committee monitoring function over financial reporting quality.

The rest of the paper as follows: section two provides a review of literature and hypothesis development; section three explains the research methodology; section four reports the empirical results and their discussion; and finally, section five concludes the study.

2. Review of literature

At the heart of the earnings management debate is the increasing role of audit committee financial experts (ACFEs) in enhancing the quality of financial reporting since the introduction of the Sarbanes–Oxley Act of 2002 (SOX). In line with Section 407 of SOX, expertise in accounting or financial management and the ability to comprehend financial statements is an essential requirement to be considered as ACFE (SEC, 2003). This knowledge may be demonstrated by current or previous work experience relating to accounting, finance, or membership of appropriate (professional) bodies. ACFEs' role reflects the need to reduce managers' opportunistic behavior through appropriate monitoring and is in line with agency theory (Fama & Jensen, 1983). Prior research emphasized the centrality of ACFEs in ensuring the quality of the financial report. ACFEs are in a better position to reduce internal control weakness (Zalata et al., 2018), understand managers' accounting choices (Li, Mangena, & Pike, 2012), and detect earnings management (Bilal et al., 2018; Zalata et al., 2018). ACFEs can mediate between managers and external auditors and use their financial skills to make managers think harder, thereby ensuring that its monitoring is uncompromised by the management. Therefore, audit committee members' financial expertise is considered an essential attribute of audit committee effectiveness (Li et al., 2012).

The extant research on ACFEs examine the impact of the mere presence of ACFEs in an audit committee on earnings quality and yield inconclusive findings (Abernathy, Beyer, Masli, & Stefaniak, 2015; Badolato et al., 2014; DeFond, Hann, & Hu, 2005; Krishnan & Visvanathan, 2008; Sultana & Mitchell Van der Zahn, 2015). Moreover, Bilal et al. (2018) synthesized these mixed findings of 90 empirical studies via a meta-analysis and claimed a positive impact of ACFEs on earning quality. Qi and Tian (2012) explored the association between audit committee members' personal characteristics and earnings management on average and failed to find any relationship. However, their study ignored the impact of ACFEs personal characteristics on earnings management. However, ACFEs personal characteristics such as gender and experience have become a hot topic for exploring ACFEs effectiveness in mitigating earnings management (Oradi & Izadi, 2020; Sultana et al., 2019; Zalata et al., 2018). However, the impact of ACFEs age diversity in constraining earnings management is not the primary focus of the prior literature.

2.1 Age diversity of ACFEs and earnings management

Although very little is known on how ACFEs' age diversity influence effectiveness, prior literature suggests that age diversity is likely to influence monitoring effectiveness and detect earnings management since a person's age reflects its experiences in life (Mannheim, 1949), encompassing different factors, which have an impact on an individual's value system (Rhodes, 1983). Age influences strategic decision making (Wiersema & Bantel, 1992) and can influence risk aversion (Wiersema & Bantel, 1992). Mishra and Jhunjhunwala (2013) found that younger directors are more adventurous, energetic, quickly embrace new technology, while older directors have more knowledge and experience. The on-going changes in the international accounting standards, the complexity of the job, and the increasing role of technology imply that age-diverse ACFEs have the potential to detect earning management.

Running head: Age Diversity, Ownership Structure, and Earnings Management

However, studies suggest that age diversity will not always improve the board's efficiency and lead to inefficient decision making since people from different age groups have different environmental perceptions, upbringing, and experience. Byrne (1971), in his paradigm of 'similarity attraction,' suggests that variation in demographic characteristics may result in the reluctance of some members to share information with other members classified as 'outsiders.' This stereotyping will discourage teamwork among people from different age classes, hinder the cohesion of board members, and result in a communication breakdown. This will weaken board decision making and its ability to control management effectively.

A plethora of researchers studied the impact of CEO/CFO and directors' reputation and personal characteristics such as gender, age, and education on financial reporting quality (Bryan & Mason, 2020; Chen, Hua, & Sun, 2018; Hsieh et al., 2018). Age diversity of the board demonstrates that the members of the board have a variety of experience, knowledge, and skills, which will ultimately support the quality of financial reporting effectively (Hsieh et al., 2018; Thomsen & Conyon, 2012). Age diversity of the boardroom is important since board members are brought up in different economic, social, and political conditions and look at the world in different ways as they gathered different unique experiences throughout their personal and professional lives (Katmon, Mohamad, Norwani, & Al Farooque, 2019). Mahadeo, Soobaroyen, and Hanuman (2012) identified three different groups of boardroom members' capabilities by considering their age. Firstly, it is argued that young directors possess up to date knowledge and run the business accordingly. Secondly, middle-aged directors are mainly responsible for critical corporate obligations. Thirdly, old directors use their extensive experience, links, and financial capacities to achieve corporate goals. Prior research yields inconclusive results regarding the relationship between the age of audit committee members and earnings management. Specifically, Sanjaya and

Jati (2015) fail to find an association between real earnings management and the age of the audit committee members. Goel (2012) suggests that status does not influence the mitigation of earnings management.

Furthermore, audit committees consisting of aged members are more likely to reduce the earnings management practices than the young members' audit committees (Dao et al., 2013; Qi & Tian, 2012). According to human capital theory, ACFEs from different age groups possess unique skills and experience to monitor financial reporting quality (Becker, 1994). The current study expects that the age diversity of ACFEs leads to the enriched experience and knowledge, which assists ACFEs in mitigating the earnings management in a company. Based on the above discussions, this study tests the following hypothesis:

H_1: Age diversity of audit committee financial experts is negatively related to earnings management.

2.2 Young vs. old ACFEs and earnings management

ACFEs have the incentive to scrutinize management since poor performance usually attracts a penalty such as loss in positions and benefits (Srinivasan, 2005). However, this penalty's impact on the career prospect may depend on employees' age and retirement prospect in the nearest future. For the audit committee's age, literature evidence is scarce, and most empirical studies present contradictory findings. Prior studies found that audit committees consisting of aged members are more likely to reduce the earnings management practices than the young members' audit committees (Shen and Lin (2009). These studies link the age of ACFEs with their experience, suggesting that the longer these experts stay in the firm, the more likely they are to check managers' opportunistic behavior due to their increased status (Badolato et al., 2014; D'Aveni, 1990). Since

older ACFEs members usually have a higher status in the company, they are assumed to possess a superior ability, obtain better information, and are likely to gain more respect from managers. According to Badolato et al. (2014), audit committee members with higher status would be less different to managers. They are likely to be more competent, possess more information, and boldly investigate financial reporting problems. Thus, the increase in status, which comes with age, could increase the ability of older ACFEs to constrain managements' opportunistic behaviour.

There is an ongoing debate regarding the age of board members in news media and academia (Masulis, Wang, Xie, & Zhang, 2018). However, studies around horizon issues suggest that managers nearing retirement tend to ignore their organization's long-term financial performance (Patricia M Dechow & Sloan, 1991; Gibbons & Murphy, 1992). In the earlier stage of a manager's working life, the behavior is influenced by career advancement desires. As the manager comes closer to his retirement age, career worries become increasingly unimportant, paving the way to personal well-being after retirement. Younger ACFEs, who plan to remain in their position will be more likely to hold managers to account since engaging in an income-increasing approach will be detrimental to the firm's shareholders. Mishra and Jhunjhunwala (2013) found that younger directors are more adventurous, energetic, quickly embrace new technology. According to information processing theory, young people smartly process information compared to older people (Di Lollo, Arnett, & Kruk, 1982). Hence, it will improve the accuracy of the information, thereby making companies more efficient. Thus, we expect that younger ACFEs effectively mitigates the earnings management, thereby ensuring financial reporting quality. Based on the above discussion, this study will make the following proposition:

H_2: Younger ACFEs are more likely to constrain earnings management compared to older ACFEs.

2.3 Age diversity of ACFEs, Ownership structure, and Earnings management

The governance reforms are influenced by companies' ownership structure in China, which also affects corporate financial reporting (Rahayu Abdul Rahman, Rahman, Ghani, & Omar, 2019; Tam & Thanh, 2019; L. Wang & Yung, 2011). Although the state-owned enterprises (SOEs) are considered as the economic backbone of China, the financial reporting quality of SOEs is negatively affected by several factors which may include conflicting objectives, government interference and weaker managerial incentives (Cull & Xu, 2003; Ding, Zhang, & Zhang, 2007; Liu & Lu, 2007; Shleifer, 1998). As SOEs' internal decisions are subjected to the Chinese government's interference, this political interference can impact audit committee financial experts (ACFEs) performance, regardless of their age. In addition, the monitoring mechanism is weaker, and agency problems are more serious in SOEs (Fan & Wang, 2019; Huang, Jiang, Liu, & Zhang, 2011). Consequently, managers' of SOEs may engage more in earnings manipulation.

Previous research about earnings management suggests that the lack of firm efficiency, resource misallocation, poor governance, political connections, and unethical behaviors are those factors that become the reason for higher earnings management in SOEs as compared to privately-owned enterprises (Boardman & Vining, 1989; L. Wang & Yung, 2011; Z. Wang, Chen, Chin, & Zheng, 2017). Therefore, prior inconclusive findings do not let us expect any relationship between ACFEs age diversity and earnings management in SOEs. The literature about privately-owned enterprises suggests that privately-owned enterprises' transparency is high compared to SOEs (D'souza & Megginson, 1999; Estrin, Hanousek, Kocenda, & Svejnar, 2009; Gaio & Pinto, 2018). Moreover, it is thought that privately-owned enterprise managers are more disciplined due to a high level of inspection from stockholders and investors (Zhang, Zhang, & Yang, 2004). Because of no government interference, privately-owned enterprises face significantly low agency

problems compared to SOEs (Ding et al., 2007). Thus, the following hypothesis has been developed by considering the above discussion;

H_3: Age diversity of ACFEs working privately-owned enterprises and SOEs has a significantly different association with earnings management.

3. Research Methodology

The current study used a sample of Chinese non-financial companies listed on Shanghai and Shenzhen stock exchanges from 2003-2015. Our sample period begins in 2003 after the CSRC reform of the audit committee. ACFEs, demographic variables data is hand-collected from the audit committee members' profiles. Initially, we got the ACFEs demographic data from China Stock Market and Accounting Research (CSMAR) database after merging two CSMAR's datasets: 1) 'the independent directors' personal characteristics' dataset and 2) 'audit committee members' information' dataset through matching the company's stock code and independent directors' names for the period 1999-2015. Then, in the merged file, we manually checked the designation or title of audit committee members as "CPA" or "Accountant" to determine the ACFEs. Finally, for the companies without ACFEs designations information, we have extracted their information from the company's website and/or independent director's profile on the Bloomberg website. We have limited the data up to 2015 as recent years' data updated very late, and due to hand collection of audit committee personal information, we restrict it to 2015. The data of earnings management, corporate governance, and other control variables are also collected from the CSMAR database. After merging all variables' data, we obtained a final sample of 6,084 firm-year observations from 2003 to 2015 as most of the independent and control variables data were available since 2003. Figure 1 shows the yearly distribution of the sample.

[Insert Figure 1 here]

To test the study's hypotheses, we employed the following regression models, as shown in equation 1.

$$DAk_{it} = \beta_{0i} + \beta_1 Age\_ratio_{it} + \beta_2 Age45\_pro_{it} + \beta_3 Age55\_pro_{it} + \beta_4 Age60\_pro_{it} + \beta_5 ACFE\_gen_{it} + \beta_6 ACFE\_exp_{it} + \beta_7 AC\_ind_{it} + \beta_8 MS_{it} + \beta_9 B\_size_{it} + \beta_{10} CFV_{it} + \beta_{11} RV_{it} + \beta_{12} BIG4_t + \beta_{13} LEV_{it} + \beta_{14} SIZE_{it} + \beta_{15} ROA_{it} + \beta_{16} ACM_{it} + \beta_{17} AC_{it} + u_{it} \quad (1)$$

The dependent variable (DAk_{it}) earnings management, measured through the standard deviation of the performance-adjusted model's residuals during the 5-year period prior to the year t. There are three most widely used proxies to measure discretionary accruals (DA) in the literature are the Jones (1991) and the modified Jones models (Patricia M. Dechow, Sloan, & Sweeney, 1995), and the performance adjusted model (Kothari, Leone, & Wasley, 2005). However, Kothari et al. (2005) argue that measuring DA without controlling for firm performance will produce misspecification in the earnings management model. Therefore, they propose a model that includes an intercept and control for the firm performance using the return on assets (ROA). This is to mitigate the problem of heteroskedasticity and misspecifications that exist in other aggregate accruals models. The Jones (1991) and the modified Jones models (Patricia M. Dechow et al., 1995), and the performance-adjusted model (Kothari et al., 2005) are presented in equations 2-4, respectively.

$$\frac{TA_{it}}{A_{it-1}} = \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{(\Delta REV_{it} - \Delta REC_{it})}{A_{it-1}} + \alpha_3 \frac{PPE_{it}}{A_{it-1}} + \alpha_3 \frac{ROA_{it}}{A_{it-1}} + \varepsilon_{it} \quad (2)$$

$$\frac{TA_{it}}{A_{it-1}} = \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{(\Delta REV_{it} - \Delta REC_{it})}{A_{it-1}} + \alpha_3 \frac{PPE_{it}}{A_{it-1}} + \varepsilon_{it} \quad (3)$$

$$\frac{TA_{it}}{A_{it-1}} = \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{\Delta REV_{it}}{A_{it-1}} + \alpha_3 \frac{PPE_{it}}{A_{it-1}} + \varepsilon_{it} \quad (4)$$

Where:

TA_{it} = total accruals in year t divided by total assets in year $t-1$,
ΔREV_{it} = the change in revenues of a company i between years t and $t-1$,
ΔREC_{it} = the change in revenues of the company i between years t and $t-1$,
PPE_{it} = gross property plant and equipment in year t,
ROA_{it} = return on assets of the company i in year t.
A_{it-1} = total assets in year $t-1$,
ε_{it} = discretionally accruals/ residuals in year t.

We have measured the earnings management through the standard deviation of the residuals of the performance-adjusted model during the five years before the year t. In the additional analysis, we have also used the standard deviation of the residuals of the performance-adjusted model during the 5 years before the year t of other models: the modified Jones model and the Jones Model.

Age diversity of ACFE's is the ratio of their current age of ACFE divided by an average age of ACFEs in the company by following prior work (Marsigalia, Giovannini, & Palumbo, 2019). Young ACFEs are up to 45 years. Middle age ACFEs are 46-60 years. Older ACFEs are more than 60 years of age (Masulis et al., 2018). Following the prior studies, we have included the following control variables. First, ACFEs gender and experience, as prior research claim that audit committee members' gender and experience, have a significant influence on earnings management (Sultana et al., 2019; Zalata et al., 2018). Second, audit committee characteristics such as audit committee establishment, audit committee size, and audit committee meetings also have a significant impact on earnings management (Al-Absy, Ismail, & Chandren, 2019; Klein, 2002; Qi et al., 2018; Rashidah Abdul Rahman & Ali, 2006; Saleh, Iskandar, & Rahmat, 2007). Third, management shareholding is associated with the manager's opportunistic behavior (Sirat, 2012; Umar & Hassan,

2018). Finally, firm characteristics such as cash flow and sales growth volatilities, auditor selection, leverage, firm size, and profitability are included as the control variables as these variables are correlated with earnings management (Klein, 2002; Lin, Hutchinson, & Percy, 2015; Zalata et al., 2018). The variable definitions are presented in Appendix 1.

To check the results' robustness, we have rerun the analysis with alternative proxies of earnings management. Finally, the propensity score matching approach addresses the sample selection bias and endogeneity concerns resolved through system GMM.

4. Empirical Results and Discussion

Table 1 illustrates the descriptive statistics of the sample, the dependent variable, earnings management obtained from the standard deviation of residuals of performance adjusted accruals shows a mean value of 0.23 with a standard deviation of 0.27, which is in line with prior literature in the Chinese setting that documented a mean value of 0.203 of the performance-adjusted model's residuals (Qi et al., 2018). From the independent variables, the age diversity of ACFEs (age_ratio) has a mean value of 1.02, and audit committees in China had younger ACFEs as age45_pro has an average value of 0.71, indicating that the majority of ACFEs are young. On the other hand, older ACFEs between 55 and 60 years of age have a proportion of 24% and 26% on average, respectively. Similarly, Table 1 also reports the mean and standard deviation of all other variables.

[Insert Table 1]

Table 2 presents the correlation analysis, and we find that the age diversity of ACFEs has a negative and significant relationship with earnings management (DAk) measured through standard deviation of performance adjusted discretionary accruals. We find that younger ACFEs (Age45) also have a negative and significant association with earnings management. On the other

hand, older ACFEs (Age60) has a positive and significant relationship with earnings management. Likewise, Table 2 reports the correlation between independent and control variables, and we find that there is no value over the 0.70 cut-point. Hence, it seems that our model does not have any concern of multicollinearity.

[Insert Table 2]

Table 3 presents the results of regression analysis. First, we find that the age ratio of ACFEs has a negative and significant relationship with earnings management (DAk) measured through standard deviation of performance adjusted discretionary accruals (coefficient = -0.091, p-value <0.05). These findings support our first hypothesis, which suggests that the age diversity of ACFEs constrains earnings management and ultimately improve financial reporting quality. The findings add new evidence that suggests that ACFEs age diversity mitigates the earnings management. Our study contributes to the contemporary literature on audit committee members' age and financial reporting quality (Dao et al., 2013; Qi & Tian, 2012; Sultana et al., 2019).

Model two of Table 3 shows the results of younger ACFEs (45 years of age) with earnings management, and we find that younger ACFEs also are more likely to ensure financial reporting quality (coefficient = -0.020, p-value <0.0001). The third model shows the results of ACFEs (55 years of age proportion). Our result show that middle age ACFEs have no impact on earnings management (coefficient = -0.003, p-value >0.10). Model four of Table 3 shows the results of older ACFEs (60 years of age) and shows that the presence of older ACFEs has a positive relationship with earnings management, which suggests that older ACFEs does not mitigate the earnings management (coefficient = 0.029, p-value <0.0001). Thus, our findings support our second hypothesis and provide evidence that younger ACFEs are more effective in constraining

earnings management. Our study adds new evidence on the ongoing debate of the monitoring effectiveness of the younger board or audit committee members in mitigating the mangers opportunistic behavior (Mahadeo et al., 2012; Masulis et al., 2018; Mishra & Jhunjhunwala, 2013).

[Insert Table 3]

Table 4 presents age diversity and earnings management results by splitting the sample into state-owned enterprises (SOEs) and privately-owned enterprises. We find that the age diversity of ACFEs (measured using age ratio) has a negative relationship with earnings management (DAk) measured through standard deviation of performance adjusted discretionary accruals for both SOEs and privately-owned enterprises. Second, the findings show that the younger ACFEs (45 years) working in SOEs have a negative and significant relationship with earnings management. In comparison, we find an insignificant result in the case of younger ACFEs working in privately-owned companies. Third, the findings show that the older ACFEs (55 years) working in SOEs and privately-owned enterprises have an insignificant relationship with earnings management. Finally, the findings show that the older ACFEs (over 60 years) working in privately-owned enterprises have a negative and significant relationship with earnings management. In contrast, we find an insignificant result in the case of older ACFEs working in SOEs. Thus, our findings support our third hypothesis and provide evidence that ACFEs working in SOEs and privately-owned enterprises constraining earnings management differently. Our findings support the prior studies that argued that board or audit committee members working in SOEs significantly constrain the earnings management than privately-owned companies (Boardman & Vining, 1989; Ding et al., 2007; L. Wang & Yung, 2011; Z. Wang et al., 2017). Thus, ACFEs working in SOEs mitigate the earnings management than ACFEs in privately-owned companies. Our findings also show that younger ACFEs working in SOEs are more effective in mitigating earnings management than

ACFEs working in privately-owned enterprises. Table 5 reports the robust analysis with alternative proxies of earnings management, and we find consistent results.

[Insert Table 4 and 5]

Corporate governance literature claims that audit committee characteristics and earnings management are endogenously determined (Badolato et al., 2014; Klein, 2002; Zalata et al., 2018). Our study employs a propensity score matching approach to address self-selection bias. We conduct the first-stage regression following Krishnan and Visvanathan (2008):

$$\Pr(\text{Age}) = \alpha_1 + \alpha_2 Size + \alpha_3 ROA + \alpha_4 LEV + \alpha_5 GROW + \alpha_6 SIZE + \alpha_7 EMP + \alpha_8 FA + \varepsilon_{it} \quad (5)$$

Where: age is a dummy variable, taken as 1 if the company has young ACFEs and 0 for older ACFEs; SIZE is the log of total assets; ROA is the last three-years average return on assets; LEV is a ratio of long-term debt to total assets; GROW is the percentage change in sales as compared to last year; SIZE is the log of the total number of directors; EMP is a measure of capital intensity, computed as a ratio of total assets to the number of employees; EVOL is earnings volatility for the past five years, and FA is the log of the age of a company which is the difference between the current year's age and the establishment year. Table 6 shows the findings of the first stage of propensity score matching. Next, we conduct a second stage regression with the matched sample. To eliminate poor candidates for matching, we use a caliper distance equal to 0.05 of the standard deviation of the propensity score's logit.

[Insert Table 6]

Table 7 shows the consistent result with higher values of coefficient, and we conclude that age diversity of ACFEs has a significant influence on earnings management. Younger ACFEs are more effective in constraining earnings management than older ACFEs. Table 8 also reports the same findings for SOEs and privately-owned enterprises. Age diversity of ACFEs and the effectiveness of younger and older ACFEs working in SOEs and privately-owned enterprises mitigate the earnings management differently.

[Insert Table 7 and 8]

Table 9 shows the results of system GMM, and we have found consistent results, as reported in Table 3. We conclude that our results are robust and not having endogeneity issues.

[Insert Table 9]

5. Conclusions

Our study aims to contribute to contemporary corporate governance literature on demographic characteristics of audit committee financial experts (ACFEs) by exploring the impact of age diversity of ACFEs on earnings management. Our study documents that ACFEs age diversity mitigates earnings management. Younger ACFEs are more effective in constraining earnings management than older ACFEs. We also find that ACFEs working in SOEs and privately-owned companies have a significantly different association with earnings management, and younger ACFEs working in SOEs are more effective in mitigating earnings management than ACFEs working in privately-owned enterprises. Our study has important implications for Chinese regulators, companies, and shareholders. The current study's findings support the Chinese regulators in making necessary reforms regarding the audit committee composition and effectiveness as an audit committee in China faces significant constraints such as the political

influence of top management, concentrated ownership, and guanxi culture under-developed legal system, and government influence. This study also implies that companies must consider financial experts' age while composing the audit committees since it influences financial reporting quality. The age of financial experts is also beneficial to shareholders since our findings imply that younger ACFEs positively impact financial reports' quality. Finally, despite the importance of our study's findings, we admit the inherent limitation of earnings management's noisy construct, which may or may not represent the actual practice. Hence, we reassure future studies to conduct in-depth interviews with the younger (older) ACFEs regarding their monitoring over financial reporting.

Data Availability Statement

"The data that support the findings of this study are available on request from the corresponding author".

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Running head: Age Diversity, Ownership Structure, and Earnings Management

Appendix 1: Variable definitions

Dependent variable	
DAk	The standard deviation of the residuals of the performance-adjusted model during the 5-year period before the year t.
DAm	The standard deviation of the residuals of the modified Jones model during the 5-year period before the year t.
DAk	The standard deviation of the residuals of the Jones model during the 5-year period before the year t.
Independent variables	
Age_ratio	Age diversity, measured by the ratio of ACFE's current age divided by the average age of ACFEs in the company.
Age45_pro	Age diversity, measured by the proportion of ACFEs with 45 years of age in the audit committee.
Age55_pro	Age diversity, measured by the proportion of ACFEs with 55 years of age in the audit committee.
Age60_pro	Age diversity, measured by the proportion of ACFEs with 60 years of age in the audit committee.
Control variables	
ACFE_gen	1 if male financial expert and 0 female financial expert.
ACFE_exp	ACFE experience, measured by the log of the tenure of the ACFE in the current company.
AC_ind	The total number of the audit committee member in a company.
MS	Management shareholding, calculated through average of different variables regarding the number of shares held by management and directors of a company.
B_size	The total number of directors in a company.
CFV	The standard deviation of cash flows scaled by total assets over the previous 5-year window.
RV	The standard deviation of sales scaled by total assets over the previous 5-year window.
BIG4	1 if the auditor is a big 4 and 0 otherwise.
LEV	Leverage, measured by the ratio of debt to total assets.
SIZE	Natural log of the total assets.
ROA	The profitability of the company, proxied by Return on Assets = Net profit after tax/ total assets)
ACM	The total number of audit committee meetings in a year.
AC	Taken as 1 if after the formally establishment of an audit committee and 0 before the voluntary establishment of an audit committee.

Table 1: Summary statistics

Variable	N	Mean	St.Dev	p1	Median	p99
DAk	6084	0.23	0.27	0.02	0.16	1.72
Age_ratio	6084	1.02	0.11	0.76	1.01	1.33
Age45_pro	6084	0.71	0.34	0.00	0.85	1.00
Age55_pro	6084	0.24	0.34	0.00	0.00	1.00
Age60_pro	6084	0.26	0.21	0.00	0.20	1.00
ACFE_gen	6084	0.78	0.41	0.00	1.00	1.00
ACFE_exp	6084	0.34	0.55	-1.06	0.00	1.66
AC_ind	6084	3.28	0.67	2.00	3.00	5.00
MS	6084	-0.03	0.71	-0.30	-0.28	3.95
B_size	6084	1.24	0.51	0.00	1.10	2.2
CFV	6084	0.10	0.19	0.00	0.06	1.26
RV	6084	0.13	0.13	0.00	0.09	0.77
BIG4	6084	0.07	0.25	0.00	0.00	1.00
LEV	6084	1.58	2.01	-2.45	1.07	12.39
SIZE	6084	21.72	1.28	18.9	21.59	25.32
ROA	6084	0.03	0.07	-0.28	0.03	0.20
ACM	6084	8.64	3.50	3.00	8.00	21.00
AC	6084	0.82	0.38	0.00	1.00	1.00

Note: Definition of the variables are given in Appendix 1.

Running head: Age Diversity, Ownership Structure, and Earnings Management

Table 2: Correlation Analysis

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
(1) DAk	1.00																	
(2) Age_ratio	-0.07*	1.00																
(3) Age45_pro	-0.03*	0.21*	1.00															
(4) Age55_pro	-0.01	0.25*	0.45*	1.00														
(5) Age_60pro	0.02*	0.02*	0.26*	0.60*	1.00													
(6) ACFE_gen	0.05*	0.02	0.04*	-0.00	0.06*	1.00												
(7) ACFE_exp	-0.01	-0.07*	-0.08*	-0.11*	-0.14*	-0.03	1.00											
(8) AC_ind	-0.06*	0.01	0.02	0.05*	0.08*	0.04*	-0.01	1.00										
(9) MS	-0.07*	-0.03*	0.02	-0.06*	-0.07*	-0.05*	-0.03*	-0.04*	1.00									
(10) AC_size	-0.01	0.09*	0.08*	0.10*	0.16*	0.09*	-0.13*	0.11*	-0.12*	1.00								
(11) CF	0.35*	0.02	-0.01	-0.03*	-0.03*	0.03*	-0.04*	-0.12*	-0.04*	-0.01	1.00							
(12) RV	0.50*	-0.02	0.02	-0.01	-0.00	0.03*	0.02	-0.07*	-0.05*	-0.01	0.20*	1.00						
(13) BIG4	-0.04*	0.03*	0.01	0.06*	0.02	0.02	0.02	0.08*	-0.03*	0.06*	-0.01	-0.05*	1.00					
(14) LEV	0.14*	0.06*	-0.01	0.03*	0.04*	0.02	-0.04*	0.06*	-0.10*	0.09*	0.03*	0.07*	0.02	1.00				
(15) SIZE	-0.01	0.16*	0.07*	0.14*	0.09*	0.02	0.05*	0.26*	0.02	0.10*	-0.33*	-0.06*	0.18*	0.25*	1.00			
(16) ROA	-0.01	0.01	0.06*	0.03*	-0.02	-0.01	0.04*	0.04*	0.09*	-0.05*	-0.19*	0.00	0.01	-0.22*	0.13*	1.00		
(17) ACM	0.03*	0.11*	0.03*	0.04*	0.03*	-0.00	-0.07*	0.00	0.09*	0.04*	-0.01	0.01	0.03*	0.15*	0.24*	-0.03*	1.00	
(18) AC	0.02	0.23*	0.12*	0.07*	0.04*	0.04*	-0.05*	-0.01	-0.02	**0.34***	0.07*	0.04*	-0.00	0.10*	0.15*	-0.08*	0.15*	1.00

Note: Definition of the variables are given in Appendix 1.* shows significance at the 0.05 level.

Running head: Age Diversity, Ownership Structure, and Earnings Management

Table 3: Main results

Variable	(1) DAk	(2) DAk	(3) DAk	(4) DAk
Age_ratio	-0.091***			
	(0.024)			
Age45_pro		-0.020**		
		(0.009)		
Age55_pro			-0.003	
			(0.009)	
Age_60pro				0.029**
				(0.014)
ACFE_gen	0.011	0.011*	0.010	0.010
	(0.006)	(0.006)	(0.006)	(0.007)
ACFE_exp	-0.011**	-0.010**	-0.012**	-0.008
	(0.005)	(0.005)	(0.006)	(0.009)
AC_ind	-0.011***	-0.011***	-0.011***	-0.011**
	(0.004)	(0.004)	(0.004)	(0.004)
MS	-0.014***	-0.012***	-0.012***	-0.012***
	(0.003)	(0.003)	(0.003)	(0.004)
AC_size	-0.004	-0.004	-0.004	-0.006
	(0.006)	(0.006)	(0.006)	(0.006)
CFV	0.445***	0.443***	0.443***	0.443***
	(0.038)	(0.038)	(0.038)	(0.016)
RV	0.892***	0.894***	0.894***	0.895***
	(0.048)	(0.048)	(0.048)	(0.024)
BIG4	-0.038***	-0.037***	-0.038***	-0.038***
	(0.010)	(0.010)	(0.010)	(0.011)
LEV	0.007***	0.007***	0.007***	0.007***
	(0.002)	(0.002)	(0.002)	(0.001)
SIZE	0.023***	0.023***	0.022***	0.022***
	(0.003)	(0.003)	(0.003)	(0.003)
ROA	0.147***	0.152***	0.146***	0.147***
	(0.052)	(0.052)	(0.052)	(0.044)
ACM	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)
AC	0.002	0.002	0.000	-0.000
	(0.008)	(0.008)	(0.008)	(0.010)
Constant	-0.310***	-0.377***	-0.382***	-0.380***
	(0.064)	(0.064)	(0.065)	(0.062)
Obs.	6,084	6,084	6,084	6,084
R-squared	0.362	0.360	0.360	0.360
Adj. R-squared	0.356	0.355	0.354	0.355
Durbin-Watson	2.055	2.043	2.028	2.019
Industry	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes

Note: Definition of the variables are given in Appendix 1. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Running head: Age Diversity, Ownership Structure, and Earnings Management

Table 4: Age diversity of ACFEs in SOEs and Privately-owned companies

Variable	SOEs				Non-SOEs			
	(1) DAk	(2) DAk	(3) DAk	(4) DAk	(5) DAk	(6) DAk	(7) DAk	(8) DAk
Age_ratio	-0.099***				-0.080**			
	(0.034)				(0.033)			
Age45_pro		-0.037***				0.004		
		(0.013)				(0.011)		
Age55_pro			-0.006				-0.001	
			(0.011)				(0.014)	
Age_60pro				0.007				0.056***
				(0.020)				(0.020)
ACFE_gen	-0.009	-0.008	-0.009	-0.009	0.033***	0.033***	0.033***	0.032***
	(0.011)	(0.011)	(0.011)	(0.010)	(0.007)	(0.007)	(0.007)	(0.009)
ACFE_exp	-0.021***	-0.019***	-0.019***	-0.018***	0.000	0.000	0.000	0.002
	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)	(0.007)	(0.007)	(0.008)
AC_ind	-0.008*	-0.009*	-0.009*	-0.009	-0.013*	-0.013*	-0.013*	-0.012*
	(0.005)	(0.005)	(0.005)	(0.006)	(0.007)	(0.007)	(0.007)	(0.007)
MS	-0.087***	-0.081**	-0.083**	-0.083***	-0.014***	-0.013***	-0.013***	-0.013***
	(0.033)	(0.033)	(0.033)	(0.032)	(0.004)	(0.004)	(0.004)	(0.004)
AC_size	0.006	0.005	0.005	0.005	-0.016	-0.017*	-0.017*	-0.019**
	(0.008)	(0.008)	(0.008)	(0.008)	(0.010)	(0.010)	(0.010)	(0.009)
CFV	0.320***	0.325***	0.322***	0.322***	0.501***	0.498***	0.498***	0.499***
	(0.040)	(0.040)	(0.040)	(0.032)	(0.051)	(0.050)	(0.051)	(0.018)
RV	0.955***	0.960***	0.961***	0.961***	0.841***	0.839***	0.839***	0.842***
	(0.063)	(0.064)	(0.064)	(0.034)	(0.070)	(0.070)	(0.070)	(0.034)
BIG4	-0.045***	-0.045***	-0.045***	-0.046***	-0.013	-0.013	-0.013	-0.011
	(0.013)	(0.013)	(0.013)	(0.014)	(0.017)	(0.017)	(0.017)	(0.018)
LEV	0.006***	0.006**	0.006***	0.006***	0.009***	0.009***	0.009***	0.009***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.002)
SIZE	0.021***	0.021***	0.021***	0.020***	0.029***	0.027***	0.027***	0.027***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.007)	(0.006)	(0.007)	(0.004)
ROA	0.053	0.062	0.054	0.054	0.174**	0.170**	0.171**	0.168***
	(0.067)	(0.067)	(0.067)	(0.072)	(0.071)	(0.072)	(0.072)	(0.053)
ACM	-0.002	-0.002	-0.002	-0.002	-0.000	-0.000	-0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
AC	0.009	0.011	0.007	0.006	-0.011	-0.013	-0.013	-0.014
	(0.012)	(0.012)	(0.012)	(0.014)	(0.012)	(0.012)	(0.012)	(0.013)
Constant	-0.254***	-0.334***	-0.343***	-0.337***	-0.454***	-0.508***	-0.507***	-0.523***
	(0.078)	(0.076)	(0.077)	(0.089)	(0.122)	(0.126)	(0.127)	(0.097)
Obs.	3,468	3,468	3,468	3,468	2,616	2,616	2,616	2,616
R-squared	0.303	0.303	0.301	0.301	0.471	0.470	0.470	0.472
Adj. R-squared	0.294	0.293	0.291	0.291	0.462	0.460	0.460	0.462
Durbin-Watson	2.059	2.047	2.039	2.013	2.109	2.110	2.108	2.112
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Definition of the variables are given in Appendix 1. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Running head: Age Diversity, Ownership Structure, and Earnings Management

Table 5: Additional results with alternative proxies of earnings management

Variable	(1) DAm	(2) DAm	(3) DAm	(4) Dam	(5) DA	(6) DA	(7) DA	(8) DA
Age_ratio	-0.097***				-0.103***			
	(0.024)				(0.024)			
Age45_pro		-0.020**				-0.019**		
		(0.009)				(0.008)		
Age55_pro			-0.004				-0.006	
			(0.009)				(0.008)	
Age_60pro				0.029**				0.028**
				(0.014)				(0.014)
ACFE_gen	0.010	0.011*	0.010	0.009	0.011*	0.012*	0.011*	0.011
	(0.006)	(0.006)	(0.006)	(0.007)	(0.006)	(0.006)	(0.006)	(0.007)
ACFE_exp	-0.011**	-0.011**	-0.010**	-0.008*	-0.010**	-0.009*	-0.009*	-0.007
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
AC_ind	-0.010**	-0.010**	-0.010**	-0.010**	-0.012***	-0.012***	-0.012***	-0.012***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
MS	-0.013***	-0.012***	-0.012***	-0.012***	-0.013***	-0.012***	-0.012***	-0.011***
	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
AC_size	-0.003	-0.004	-0.004	-0.006	-0.003	-0.003	-0.004	-0.006
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
CFV	0.443***	0.440***	0.441***	0.441***	0.404***	0.402***	0.402***	0.402***
	(0.037)	(0.037)	(0.037)	(0.016)	(0.037)	(0.037)	(0.037)	(0.016)
RV	0.898***	0.901***	0.901***	0.902***	0.883***	0.886***	0.886***	0.887***
	(0.047)	(0.047)	(0.047)	(0.024)	(0.046)	(0.046)	(0.046)	(0.024)
BIG4	-0.040***	-0.040***	-0.040***	-0.040***	-0.042***	-0.042***	-0.042***	-0.043***
	(0.010)	(0.010)	(0.010)	(0.011)	(0.010)	(0.010)	(0.010)	(0.011)
LEV	0.007***	0.007***	0.007***	0.007***	0.008***	0.008***	0.008***	0.008***
	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)	(0.001)
SIZE	0.024***	0.024***	0.023***	0.023***	0.025***	0.025***	0.025***	0.024***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
ROA	0.135***	0.139***	0.134**	0.135***	0.163***	0.167***	0.163***	0.163***
	(0.052)	(0.052)	(0.052)	(0.044)	(0.050)	(0.050)	(0.051)	(0.043)
ACM	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
AC	0.001	0.001	-0.001	-0.001	-0.005	-0.006	-0.007	-0.008
	(0.008)	(0.008)	(0.008)	(0.010)	(0.008)	(0.008)	(0.008)	(0.009)
Constant	-0.322***	-0.394***	-0.400***	-0.396***	-0.355***	-0.432***	-0.438***	-0.434***
	(0.064)	(0.064)	(0.064)	(0.061)	(0.064)	(0.063)	(0.064)	(0.060)
Obs.	6,084	6,084	6,084	6,084	6,084	6,084	6,084	6,084
R-squared	0.364	0.363	0.362	0.363	0.356	0.354	0.353	0.354
Adj. R-squared	0.359	0.358	0.357	0.358	0.351	0.349	0.348	0.349
Durbin-Watson	2.057	2.046	2.030	2.022	2.049	2.037	2.021	2.013
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Definition of the variables are given in Appendix 1. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Running head: Age Diversity, Ownership Structure, and Earnings Management

Table 6: Propensity-Score-Matching first stage

Variables	**Age49**
SIZE	0.192***
	(0.034)
ROA	1.580 **
	(0.634)
LEV	-0.305 **
	(0.154)
GROW	0.052***
	(0.020)
SIZE	0.075***
	(0.017)
EMP	0.072
	(0.045)
VOL	-0.028
	(0.014)
FA	0.429**
	(0.108)
Constant	-6.736***
	(0.802)
Obs.	6,084
Pseudo R^2	0.064
ATT	2.81***
Industry	Yes
Year	Yes

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Running head: Age Diversity, Ownership Structure, and Earnings Management

Table 7: Main results after PSM

Variable	(1) DAk	(2) DAk	(3) DAk	(4) DAk
Age_ratio	-0.103***			
	(0.027)			
Age45_pro		-0.025**		
		(0.010)		
Age55_pro			-0.001	
			(0.010)	
Age_60pro				0.047***
				(0.016)
ACFE_gen	0.005	0.006	0.005	0.004
	(0.007)	(0.007)	(0.007)	(0.008)
ACFE_exp	-0.010*	-0.009*	-0.008*	-0.006
	(0.005)	(0.005)	(0.005)	(0.006)
AC_ind	-0.005	-0.005	-0.005	-0.005
	(0.005)	(0.005)	(0.005)	(0.005)
MS	-0.017***	-0.015***	-0.015***	-0.015***
	(0.004)	(0.004)	(0.004)	(0.005)
AC_size	-0.005	-0.006	-0.006	-0.008
	(0.007)	(0.007)	(0.007)	(0.007)
CFV	0.486***	0.483***	0.484***	0.485***
	(0.044)	(0.044)	(0.044)	(0.018)
RV	0.865***	0.867***	0.866***	0.867***
	(0.051)	(0.051)	(0.051)	(0.027)
BIG4	-0.037***	-0.037***	-0.037***	-0.037***
	(0.013)	(0.013)	(0.013)	(0.013)
LEV	0.007***	0.007***	0.007***	0.007***
	(0.002)	(0.002)	(0.002)	(0.002)
SIZE	0.023***	0.022***	0.022***	0.021***
	(0.004)	(0.004)	(0.004)	(0.003)
ROA	0.169***	0.173***	0.169***	0.170***
	(0.060)	(0.060)	(0.060)	(0.049)
ACM	-0.002*	-0.002*	-0.002*	-0.002*
	(0.001)	(0.001)	(0.001)	(0.001)
AC	0.009	0.008	0.006	0.005
	(0.009)	(0.009)	(0.009)	(0.011)
Constant	-0.308***	-0.378***	-0.385***	-0.386***
	(0.074)	(0.074)	(0.075)	(0.071)
Obs.	5,432	5,432	5,432	5,432
R-squared	0.367	0.366	0.365	0.366
Adj. R-squared	0.361	0.360	0.359	0.360
Durbin-Watson	2.060	2.049	2.033	2.025
Industry	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes

Note: Definition of the variables are given in Appendix 1. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Running head: Age Diversity, Ownership Structure, and Earnings Management

Table 8: SOEs vs. Privately-owned companies after PSM

Variable	SOEs				Non-SOEs			
	(1) DAk	(2) DAk	(3) DAk	(4) DAk	(5) DAk	(6) DAk	(7) DAk	(8) DAk
Age_ratio	-0.100**				-0.114***			
	(0.040)				(0.038)			
Age45_pro		-0.032**				-0.018		
		(0.014)				(0.014)		
Age55_pro			-0.004				0.001	
			(0.013)				(0.016)	
Age_60pro				0.024				0.081***
				(0.023)				(0.023)
ACFE_gen	-0.014	-0.013	-0.014	-0.015	0.031***	0.031***	0.031***	0.031***
	(0.013)	(0.013)	(0.013)	(0.011)	(0.008)	(0.008)	(0.008)	(0.010)
ACFE_exp	-0.020***	-0.018***	-0.018***	-0.017**	0.001	-0.001	0.001	0.005
	(0.007)	(0.007)	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
AC_ind	-0.004	-0.005	-0.005	-0.004	-0.004	-0.004	-0.004	-0.003
	(0.006)	(0.006)	(0.006)	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)
MS	-0.070	-0.064	-0.067	-0.069	-0.018***	-0.016***	-0.017***	-0.016***
	(0.059)	(0.058)	(0.059)	(0.046)	(0.005)	(0.005)	(0.005)	(0.005)
AC_size	0.008	0.007	0.007	0.006	-0.028**	-0.028**	-0.029**	-0.032***
	(0.009)	(0.009)	(0.009)	(0.010)	(0.012)	(0.012)	(0.012)	(0.010)
CFV	0.439***	0.443***	0.440***	0.441***	0.513***	0.507***	0.508***	0.511***
	(0.060)	(0.060)	(0.060)	(0.044)	(0.053)	(0.052)	(0.053)	(0.018)
RV	0.899***	0.902***	0.903***	0.902***	0.843***	0.841***	0.841***	0.844***
	(0.069)	(0.070)	(0.070)	(0.038)	(0.074)	(0.074)	(0.074)	(0.038)
BIG4	-0.040**	-0.041**	-0.041**	-0.042**	-0.017	-0.016	-0.017	-0.012
	(0.016)	(0.016)	(0.016)	(0.017)	(0.021)	(0.021)	(0.021)	(0.021)
LEV	0.004	0.004*	0.005*	0.005*	0.010***	0.010***	0.010***	0.009***
	(0.003)	(0.003)	(0.003)	(0.002)	(0.004)	(0.004)	(0.004)	(0.002)
SIZE	0.019***	0.019***	0.019***	0.018***	0.032***	0.030***	0.030***	0.030***
	(0.004)	(0.004)	(0.004)	(0.005)	(0.008)	(0.008)	(0.008)	(0.005)
ROA	0.099	0.109	0.107	0.111	0.176**	0.177**	0.172**	0.165***
	(0.080)	(0.080)	(0.080)	(0.085)	(0.080)	(0.081)	(0.082)	(0.059)
ACM	-0.002*	-0.002*	-0.002*	-0.002*	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
AC	0.019	0.020	0.017	0.016	-0.006	-0.009	-0.009	-0.009
	(0.012)	(0.012)	(0.012)	(0.015)	(0.013)	(0.014)	(0.014)	(0.016)
Constant	-0.220**	-0.298***	-0.308***	-0.299***	-0.509***	-0.569***	-0.576***	-0.609***
	(0.093)	(0.091)	(0.094)	(0.106)	(0.141)	(0.145)	(0.146)	(0.106)
Obs.	3,096	3,096	3,096	3,096	2,336	2,336	2,336	2,336
R-squared	0.280	0.279	0.278	0.278	0.504	0.502	0.501	0.505
Adj. R-squared	0.268	0.267	0.266	0.266	0.493	0.491	0.590	0.494
Durbin-Watson	2.082	2.071	2.062	2.036	2.142	2.142	2.139	2.145
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Definition of the variables are given in Appendix 1. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 9: Endogeneity test

Variable	(1) DAk	(2) DAk	(3) DAk	(4) DAk
Lag	0.748***	0.752***	0.747***	0.742***
	(0.029)	(0.029)	(0.029)	(0.030)
Age_ratio	-0.102***			
	(0.025)			
Age45_pro		-0.179***		
		(0.043)		
Age55_pro			-0.057	
			(0.109)	
Age_60pro				0.233***
				(0.068)
ACFE_gen	-0.009	-0.011	-0.013	-0.010
	(0.023)	(0.023)	(0.023)	(0.023)
ACFE_exp	0.005	0.006	0.004	0.005
	(0.011)	(0.011)	(0.011)	(0.011)
AC_ind	-0.004	-0.005	-0.005	-0.005
	(0.010)	(0.010)	(0.010)	(0.010)
MS	0.004	0.004	0.004	0.004
	(0.017)	(0.017)	(0.017)	(0.017)
AC_size	-0.023	-0.023	-0.022	-0.022
	(0.016)	(0.016)	(0.016)	(0.016)
CFV	0.405***	0.399***	0.399***	0.393***
	(0.037)	(0.037)	(0.037)	(0.037)
RV	0.140**	0.143***	0.150***	0.152***
	(0.055)	(0.055)	(0.055)	(0.055)
BIG4	0.006	0.006	0.007	0.006
	(0.017)	(0.017)	(0.017)	(0.017)
LEV	0.004*	0.004*	0.004*	0.004*
	(0.002)	(0.002)	(0.002)	(0.002)
SIZE	0.081***	0.079***	0.080***	0.079***
	(0.010)	(0.010)	(0.010)	(0.010)
ROA	0.069	0.073	0.071	0.072
	(0.053)	(0.053)	(0.053)	(0.053)
ACM	-0.000	-0.000	-0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)
AC	-0.027*	-0.030**	-0.031**	-0.031**
	(0.016)	(0.015)	(0.015)	(0.015)
Constant	-1.608***	-1.612***	-1.637***	-1.590***
	(0.219)	(0.230)	(0.218)	(0.222)
Obs.	4,137	4,137	4,137	4,137
Sargan (p-value)	0.133	0.114	0.110	0.134
AR 1 (p-value)	0.201	0.213	0.203	0.198
AR 2 (p-value)	0.430	0.457	0.456	0.449

Note: Definition of the variables are given in Appendix 1. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

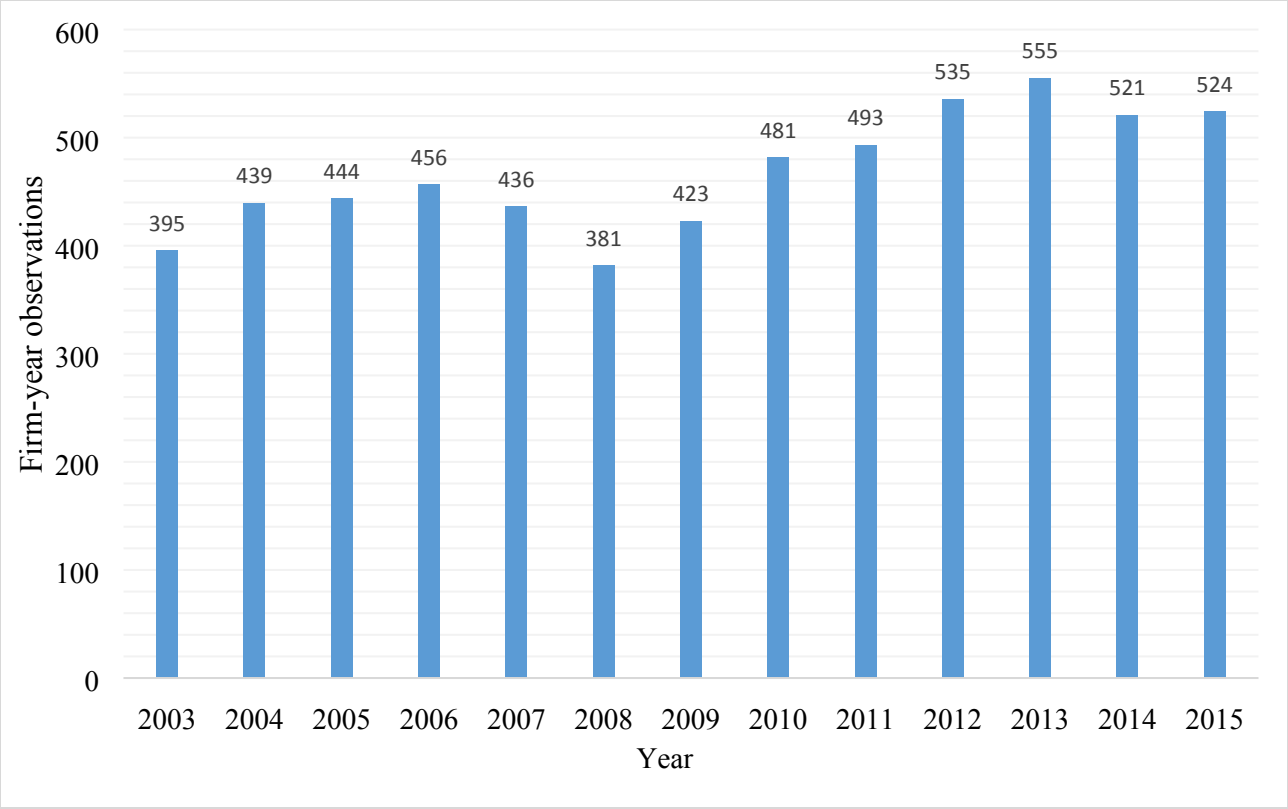

Figure 1: Sample distribution from 2003 to 2015

	Comments – Reviewer 1	Author's responses
1	Introduction and Contribution: The authors research an interesting and relevant issue, how age diversity of audit committee financial experts (ACFEs) influences the financial reporting quality of Chinese non-financial firms. The authors provide a reasonable contribution to the existing corporate governance and accounting literature. Specifically, the authors focus on the age diversity of ACFEs and its impact on earnings management. Furthermore, they contribute to the literature on ownership structure by examining ACFEs age diversity among SOEs and private-owned companies. An additional contribution is the impact of members of an audit committee, board, and top management team demographic characteristics (i.e. age diversity) on earnings management. However, on page 3, line 30, 'affect' is missing before their. Please, see the statement below: 'The issue of age diversity of directors in China is particularly important in a unique Chinese cultural environment where directors from different age groups associated with certain values which significantly their decision-making process' (Talavera et al., 2018).	1. Thank you for pointing this out to us. We have rectified the mistake on page 3, line 44.
2	Literature Review: The literature review is relevant to the issue investigated and recent articles are cited. However, the discussion of most of the cited articles is too brief. In future research, authors should be more detailed when reviewing the literature.	2. Thank you for your valuable comment. We have carefully reviewed the literature and due to length of the manuscript we have discussed the cited references briefly and will take it into consideration in future research.
3	Data and Methodology: The authors apply standard methodology. Moreover, the authors provide reasonable justification for the dependent and independent variables. However, the authors should provide a strong justification for choosing the 2003 to 2015 time period, especially why the data ends in 2015.	3. Thank you for your appreciation and compliment. We have included some explanation about the time period of sample selection on page 12, lines 18-21, and 39-44.

4	Results and Discussion: The results are interpreted correctly and the discussion of the results is linked to some previous findings in the literature. Nevertheless, the authors should provide more explanation on how their results are related to previous findings in the literature. Moreover, authors should report the autocorrelation tests and Adjusted R-square in Tables 3, 4, 5, 7, and 8. On page 15, lines 31 to 38, the 0.07 cut-point is incorrect. Do you intend to write 0.7? See the statement below: 'Likewise, Table 2 reports the correlation between independent and control variables, and we find that there is no value over 0.07 cut-point. Hence it seems that our model does not have any concern of multicollinearity'.	4.1 Thank you very much for your valuable suggestions in the important section of the manuscript. We have explained the results and linked them with prior studies as shown on: • Page 16, lines 28-33 • Page 17, lines 4-9, 44-51 4.2 As suggested we have included the Adjusted R-square and Durban-Watson in **Tables 3, 4, 5, 7, and 8.** 4.3 Thank you very much for highlighting this, we have modified it to 0.70 as shown on page 16,line 8-10.
5	Conclusion: Authors provide the implication of their findings to regulators only. The implication of the findings needs to be improved. Discuss the implication of the findings to the companies and shareholders.	5. We highly appreciate your comment. We have added implications of our findings in the conclusion section as shown on page 19 lines 48-55 and page 20, lines 04-18.
6	References: The authors should check the references carefully and ensure that they are complete. For example, the references below have missing information (i.e. page numbers missing or URL not provided) . Fair, R. C. (1991). How fast do old men slow down? (0898-2937). Retrieved from Rahman, R. A., Rahman, A., Ghani, E. K., & Omar, N. H. 2019. Government-Linked Investment Companies and Real Earnings Management: Malaysian Evidence. International Journal of Financial Research, 10(3).	6. Thank you very much pointing this out. We have corrected the references.

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