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ORIGINAL ARTICLE

Impact of ownership structure and cross-listing on the role of female audit committee financial experts in mitigating earnings management

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Abstract

This study investigates whether female Audit Committee Financial Experts (ACFEs) at Chinese listed companies reduce earnings management by examining their influence under different ownership structures and cross-listing scenarios. Our findings reveal that female ACFEs negatively affect earnings management, with their impact varying by ownership type. Specifically, female ACFEs in privately owned enterprises (non-SOEs) are more effective at reducing earnings management than those in state-owned enterprises (SOEs). Furthermore, our analysis indicates that female ACFEs in cross-listed firms are better at mitigating earnings management compared with their counterparts in domestically listed firms. These results have significant implications for regulators, market authorities, investors, and corporate managers, highlighting the crucial role of female ACFEs in improving corporate transparency across diverse ownership frameworks and cross-listing conditions.

KEYWORDS
audit committee financial experts, cross-listing, earnings management, gender diversity, ownership structure

1 | INTRODUCTION

This study critically examines the impact of female Audit Committee Financial Experts (ACFEs) on audit committees in mitigating earnings management among Chinese listed firms, with a focus on the moderating effects of ownership structure and cross-listing. Significant research has highlighted the essential role of audit committee members with financial expertise in enhancing their monitoring, advisory, and oversight capabilities (Bilal et al., 2018). These experts are crucial in navigating complex audit processes and making informed decisions based on robust data analysis (Badolato et al., 2014; Harris & Raviv, 2008). Their expertise is particularly valued for its role in detecting and preventing earnings manipulation (Badolato et al., 2014; Dhaliwal et al., 2006; Ezeani, Salem, et al., 2023; Salem et al., 2021; Usman, Salem, & Ezeani, 2022).

Moreover, prior research underscores the unique capabilities of women in enhancing the effectiveness of monitoring roles, thereby improving organizational outcomes (Barber & Odean, 2001; Grau & Bel, 2022; Gull et al., 2018). A greater presence of women in senior management correlates with improved earnings quality and fewer instances of earnings manipulation (Krishnan & Parsons, 2008; Shawver et al., 2006). Yet, detailed

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studies on the specific contributions of female financial experts in audit committees are limited. The evidence regarding the monitoring effectiveness of female directors is mixed; some studies affirm their effectiveness (Adams & Ferreira, 2009; Konadu et al., 2022; Zalata et al., 2018), while others suggest an increase in female directors may diminish both monitoring effectiveness and firm value (Ahern & Dittmar, 2012; Bøhren & Staubo, 2014). The challenges are compounded in China, where the corporate governance environment is less developed than in many Western economies, presenting unique challenges, including Type II agency costs (Allen et al., 2005; Liu & Lu, 2007; Liu et al., 2014).

This study, therefore, investigates the comparative effectiveness of female and male financial experts on audit committees across different corporate environments in China, considering the country's specific institutional settings, evolving gender roles, and the influence of political dynamics on State-Owned Enterprises (SOEs). Prior research suggests that female directors in SOEs may be less effective due to policy distractions and political sensitivities (Wang et al., 2022; Wu et al., 2012).

Using the upper echelons theory Hambrick (2007) as a framework, which posits that demographics can influence director effectiveness, this research addresses gender differences in monitoring outcomes (Ezeani, Kwabi, et al., 2023; Gull et al., 2018) and considers the impact of government interference on the monitoring effectiveness in SOEs (Cao et al., 2017; Dong et al., 2020; Fan & Wang, 2019; Huang et al., 2011). In contrast, privately owned firms typically exhibit stronger governance with less political interference (Komal et al., 2023), prompting an analysis of the efficacy of female financial experts in SOEs versus non-SOEs in curbing earnings management.

Given that cross-listed companies are subject to stricter governance and scrutiny (Stulz, 1999), and generally possess a better reputation than local firms, impacting financial reporting quality (Cheng et al., 2021), our study extends to examine whether female financial experts in cross-listed firms are particularly effective in mitigating earnings manipulation.

Analyzing 3150 company-year records from non-financial Chinese firms from 2003 to 2015, we find that female financial experts are significantly more effective than males in controlling earnings management. The company's ownership structure and cross-listing status further influence the effectiveness of female financial experts, with those in private companies being more efficient than those in SOEs, and those in cross-listed firms outperforming those in local firms. Our findings, validated through system GMM and alternative earnings management metrics, contribute significantly to the literature on corporate governance by exploring how different ownership frameworks and cross-listing impact the oversight efficacy of female ACFEs.

Our research significantly contributes to the study of corporate governance through three distinct avenues. Initially, guided by the meta-analytical approach formulated by Bilal et al. (2018), we investigated the role of ACFEs in enhancing the quality of financial reporting, responding to an identified need for more comprehensive investigations. Additionally, our examination of how company ownership structures, specifically distinguishing between SOEs and private entities, affect the oversight efficacy of female ACFEs, introduces ground breaking insights into the complex relationship between political influence and corporate oversight mechanisms. This aspect of our study broadens the current scope beyond prior research, such as Komal et al. (2023), who analyzed the diversity of ACFE ages, and Bilal et al. (2023), who examined the impact of female ACFEs' qualifications and experiences on earnings management, by focusing on the relationship between female ACFEs and various ownership frameworks. Furthermore, our exploration into the ramifications of cross-listing on the supervisory effectiveness of female ACFEs in managing earnings management supplements the existing literature on ACFEs and emphasizes the beneficial role of cross-listing in enhancing the procedures embedded within corporate governance (Dechow et al., 1995; Liu & Lu, 2007; Zalata et al., 2018).

The study is structured as follows: Section 2 presents the institutional background, literature review, and hypothesis development; Section 3 outlines the methodology; Section 4 discusses the results; and Section 5 concludes the study.

2 | INSTITUTIONAL ENVIRONMENT, REVIEW OF LITERATURE, AND HYPOTHESES DEVELOPMENT

2.1 | Institutional background

China's transition toward a market-oriented economy has not fully adopted the Western corporate governance model, as discussed by Chen (2009). In response to previous corporate scandals, the Chinese Securities Regulatory Commission (CSRC) revised its corporate governance rules in 2021. These revisions introduced a sub-audit committee inspired by Western practices to enhance financial transparency. These committees are critical in selecting auditors and overseeing financial reports. Unlike the United States, where the 2002 Code of Corporate Governance mandates an audit committee, China does not require this.

The CSRC recommends that audit committees should include members with both professional and academic expertise, with a particular emphasis on accounting certifications. This broad definition of expertise contrasts with Western regulations such as the Sarbanes–Oxley Act, which specifies requirements for financial expertise but does not address gender composition. This distinction highlights a unique aspect of China's approach (Abernathy et al., 2014; Zalata et al., 2018). Researchers such as Ali et al. (2022) and Komal et al. (2023) have identified specific challenges in China, including political influences that may compromise the audit process, particularly in state-owned firms and organizations with political connections, potentially reducing the effectiveness of audit committees (Cao et al., 2017; Wu et al., 2012). Additionally, there is ongoing debate about whether gender diversity improves governance in policy-driven environments, with concerns that female

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directors might avoid politically sensitive issues to protect their careers (Wang et al., 2022).

Cultural factors also affect governance. Stereotypes favoring male leadership and the guanxi culture, which prioritizes personal relationships over professional ones, can undermine oversight (Li et al., 2021). Additionally, cultural norms and the lack of supportive laws for women's representation in leadership roles further reduce their presence (Liu et al., 2022; Wang et al., 2022).

Our study examines how ownership structures influence governance and the quality of financial reporting by reviewing prior research (Abdul Rahman et al., 2019; Dong et al., 2020; Tan et al., 2022; Wang & Yung, 2011). As China's capital market evolves, C-suite leaders seeking international investment through cross-listings often voluntarily adopt audit committees to demonstrate strong governance to global investors, aiming to deter earnings manipulation and enhance confidence. This analysis emphasizes the need to evaluate the impact of female ACFEs in cross-listed firms versus those only listed locally.

2.2 | Theoretical framework

Agency theory provides a framework for understanding how female financial experts on audit committees (ACFEs) influence earnings management. This theory articulates that audit committees are essential in managing company affairs due to potential conflicts or "agency issues" that arise from the misalignment of goals between managers and shareholders, often attributed to the separation of ownership and management (Jensen & Meckling, 1976). It posits that audit committees are instrumental in mitigating these conflicts by bridging information gaps and curbing practices such as earnings manipulation.

Research indicates that audit committees safeguard shareholder interests by diligently overseeing financial reporting, internal controls, and external audits. The presence of members with financial expertise significantly enhances the effectiveness of these committees. Studies show that financial experts on these committees substantially improve their oversight capabilities (Bilal et al., 2018; Zalata et al., 2018).

Regarding gender diversity, evidence suggests that female ACFEs strengthen corporate governance, enhance monitoring quality, and increase earnings accuracy. The inclusion of women on boards may improve oversight functions due to their greater likelihood of independence, as they are typically less integrated into male-dominated networks (Adams & Ferreira, 2009). Additionally, according to resource dependence theory, women bring distinct skills to audit committees, including higher education levels, ethical perspectives, and strong external connections, which boost the committee's effectiveness.

Financial experts on audit committees are associated with more conservative accounting practices. They provide superior oversight, possess deep knowledge, and are dedicated to their roles, driven by the motivation to protect their reputations and minimize legal risks. They also incur lower costs in understanding complex financial information, enhancing their effectiveness in monitoring management. According to the Sarbanes–Oxley Act, sufficient financial knowledge is crucial for audit committee members to ensure financial policy appropriateness and transparency (Zalata et al., 2018). Financially experienced members use their skills to enhance the audit committee's monitoring efficiency.

2.3 | Hypotheses development

2.3.1 | Female ACFEs and earnings management

The primary role of ACFEs is overseeing the auditing process and financial reporting within corporations. It is crucial for audit committee members to possess substantial financial expertise to enhance the committee's efficiency, as highlighted by Iyer et al. (2012) and McDaniel et al. (2002). Research indicates that the financial acumen of ACFEs is vital for understanding managerial accounting decisions and identifying instances of earnings manipulation, with significant contributions noted in studies by Alzoubi (2019), Collier and Gregory (1999), and Dhaliwal et al. (2006). These researchers also emphasize that financial expertise substantially reduces the risk of internal control deficiencies (Badolato et al., 2014; Krishnan & Parsons, 2008). However, the literature presents mixed results, potentially due to previous studies' inadequate separation of gender effects in assessing ACFEs' efficiency (Abbasi et al., 2020; Dwekat et al., 2022; Zalata et al., 2018).

Regarding gender diversity, a Deloitte China (2019) report found that women constituted only 12.5% of audit committee members in 220 surveyed Chinese listed firms, significantly below the global average of 21.1% reported by Deloitte in the same year. This discrepancy underscores the need for the China Securities Regulatory Commission (CSRC) to address gender diversity quotas. Although there was an increase in the proportion of female directors in China from 8% in 2013 to 10.9% in 2019, these figures remain lower than those in some developed countries with mandatory quotas.

Countries such as France, Norway, and Spain have enforced a 40% female quota policy, imposing sanctions such as fines and penalties for non-compliance, including on state contracts (Terjesen & Sealy, 2016). Conversely, Finland, the United Kingdom, and Sweden employ a voluntary "comply or explain" principle, where companies must disclose their gender-diversity policies and explain any non-compliance. Despite its voluntary nature, the UK has exerted pressure on companies to achieve a 33% female representation by 2020 among FTSE 350 firms (Davies, 2015). China, however, has not adopted a clear mandatory or voluntary approach regarding gender diversity.

Gender diversity enriches boards with varied attributes and skills, enabling effective governance (Robinson & Dechant, 1997). Gender differences influence risk preferences and decision-making processes, often leading to less biased decisions and enhanced governance structures (Gull et al., 2018; Wahid, 2019).

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Female directors, often more risk-averse and cautious, are proactive in mitigating risks related to legal issues and reputational damage (Barber & Odean, 2001; Gul et al., 2009; Krishnan & Parsons, 2008).

Aligned with resource dependence theory, female board members typically exhibit greater diligence, ethical orientation, and risk aversion, contributing significantly to decision-making. They are also more likely to attend meetings and hold CEOs accountable, reducing information asymmetry and managerial opportunism (Arun et al., 2015; Chou et al., 2013; Gul et al., 2011). Consequently, female ACFEs are expected to enhance financial statement credibility by limiting opportunistic activities such as earnings management, especially in the Chinese context where the influence of political factors on monitoring effectiveness is significant (Ezeani, Salem, et al., 2023; Usman, Nwachukwu, & Ezeani, 2022). Recent evidence suggests that female directors significantly outperform their male counterparts in monitoring financial reporting quality in China (Chen et al., 2023; Wang et al., 2022).

2.3.2 | Ownership structure, female ACFEs, and earnings management

China's transition from a centrally planned economy to market-oriented reforms has spurred its rapid growth, establishing it as one of the world's largest economies. Research indicates that the effectiveness of corporate governance in China is heavily influenced by the ownership structure of firms (Abdul Rahman et al., 2019; Dong et al., 2020; Tam et al., 2019). Wei (2007) notes a stark contrast in corporate governance between China and Anglo-American countries, primarily due to differing ownership structures. In China, state-owned enterprises (SOEs) dominate, with significant shares held by large state-owned entities. This concentration of ownership often reduces the efficacy of boards and treats independent directors merely as ornamental (Xu & Wang, 1999). In contrast, Western countries typically feature dispersed ownership without dominant shareholders, where independent directors and market mechanisms play crucial roles in governance (Shleifer & Vishny, 1997). Similarly, major banks control large corporations in Japan and Germany, while many European and Latin American firms remain family-owned (Wei, 2007).

The landscape is evolving in China, however, with private and family businesses burgeoning; these accounted for approximately 60% of China's GDP by 2009 (Cai et al., 2012). Yet, these family-run firms are often entrenched in traditional Confucian values, which emphasize harmony and defined gender roles, potentially stifling women's career ambitions in favor of family interests (Yan & Sorenson, 2004).

Divergent findings exist regarding the relationship between earnings management and ownership structure. Some studies suggest that SOEs are less likely to engage in earnings manipulation due to government support, which reduces the pressure on managers to alter earnings and provides additional resources such as subsidies and preferential financing (Dong et al., 2020; Hope, 2013; Wang & Campbell, 2012). However, the involvement of the government in SOEs can also lead to poor financial reporting quality due to reduced managerial incentives and conflicting objectives (Abbas et al., 2023; Ding et al., 2007; Einig, 2022; Liu & Lu, 2007). These issues are compounded by inadequate monitoring and significant agency conflicts (Fan & Wang, 2019).

Conversely, managers in private firms are perceived as more ethical and disciplined due to greater scrutiny from shareholders and stronger governance structures, which enhance transparency and reduce earnings management (Komal et al., 2023; Zhang et al., 2004). This environment facilitates the role of female ACFEs in mitigating information asymmetry and agency costs in non-SOEs (Raimo et al., 2021). Based on these observations, we propose the following hypothesis:

> **Hypothesis 1.** Ownership structure moderates the relationship between female ACFEs and earnings management.

2.3.3 | Cross-listing, female ACFEs, and earnings management

The decision of C-suite leaders to cross-list their company's shares typically involves evaluating the potential benefits against the associated costs, including the need to comply with various corporate governance regulations. Liao et al. (2022) noted that cross-listing entails substantial costs, such as those associated with adhering to stricter regulatory standards and investor reluctance to hold foreign securities. Nonetheless, a primary motivation for firms to list shares abroad is often the presence of a weaker corporate governance system at home. In countries such as China, where investor protection is low and transparency is limited, internal governance mechanisms such as board independence may be insufficient to prevent managers from pursuing personal gains. This insufficiency can deter external investors from providing capital, thus increasing the costs associated with obtaining external financing (Shleifer & Vishny, 1997). To counteract this, managers might "bond" themselves to higher standards by cross-listing in markets with stringent governance regulations, thereby demonstrating their commitment to minimizing the extraction of private benefits and facilitating access to external funds (Li et al., 2015). Cross-listing in developed markets, therefore, meets the governance criteria of Anglo-American countries in addition to Chinese CSRC regulations.

Previous research indicates that the accuracy of earnings reports improves in firms that are cross-listed in jurisdictions with strict external oversight (Coffee, 1998; Stulz, 1999). Jia et al. (2005) suggested that adopting Western management practices through cross-listing could be transformative for Chinese firms, pushing them toward global corporate standards. Moreover, cross-listing represents a significant shift in the equity internationalization strategies of Chinese companies, moving away from traditional business

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approaches (Jian et al., 2011; Lin et al., 2015). This shift suggests that adherence to stringent corporate governance norms in developed markets potentially enhances financial oversight.

In China, despite facing challenges such as low social status and political interference, female directors have been shown to outperform their male counterparts in monitoring financial reporting quality (Chen et al., 2023; Wang et al., 2022). Based on agency theory, our study posits that female ACFEs in cross-listed firms are likely to reduce agency costs through more effective monitoring of management activities, supported by a more transparent and improved information environment. This aligns with the findings by (Alkebsee et al., 2021), highlighting the effectiveness of female ACFEs in such settings. Consequently, we anticipate that in China, female ACFEs in cross-listed firms will be particularly effective in ensuring the quality of financial reporting. Thus, we hypothesize:

> **Hypothesis 2.** Cross-listing moderates the relationship between female ACFEs and earnings management.

3 | RESEARCH METHODOLOGY

3.1 | Data and sample

We examined non-financial firms as a sample listed between 2003 and 2015 on the Shenzhen and Shanghai stock markets. Data were extracted from 2003 because of data availability. Demographic information for ACFEs is manually gathered from profiles of audit committee members. At first, after combining two CSMAR data sets, we were able to get the demographic information for ACFEs using the CSMAR database and stock market of China: (1) "the independent directors' characteristics" data set and (2) the "audit committee members' information" by matching names of independent directors and stock code of company for the years 1999–2015. The main reason for restricting the sample up to 2015 was the cost and time to collect this data manually. Another aspect is that the formation of the audit committee is highlighted after SOX. The duration of 2003 to 2015 is quite suitable for examining the impact of female ACFEs on earnings management during this period.

We manually searched the combined file for the terms "CPA" or "Accountant" in the audit committee members' titles or designations to identify the ACFEs. Finally, in the case of companies with missing information on ACFEs, we extracted data from the profile of independent director and/or their company data on the Bloomberg website. Data for earnings management, corporate governance, and control variables were also gathered from the CSMAR database. We obtained a final sample of 3150 after excluding companies with missing data, as shown in Table 1.

TABLE 1 Sample selection criteria.

Criteria	Observations
The initial sample of non-financial companies from 2003–2015	19,248
Less: Missing data on financial experts' demographic detail	(8023)
Less: Variables with missing data	(8075)
Final firm-year observations from 2003–2015	3150

3.2 | Variables of the study

The variables are explained in detail as follows.

3.2.1 | Dependent variable

The dependent variable, earning management (EM_sdK_{it}), is calculated as the deviation of the performance-adjusted model's residual values from their average across the interval of five years prior to year t. The data for this variable were from 1998 to 2015. In the accounting literature, different discretionary accruals (DA) models were used as proxies for earnings management: the two widely used models were the Jones (1991) model and the modified Jones Dechow et al. (1995) model. However, Kothari et al. (2005) proposed a performance-adjusted model that adds an intercept and firm performance as additional control variables to address heteroskedasticity and misspecification issues. Therefore, following Kothari et al. (2005), we used the following performance-adjusted model.

$$\frac{TAccrual_{it}}{Assets_{it-1}} = \alpha_1 \frac{1}{Assets_{it-1}} + \alpha_2 \frac{(\Delta REV_{it} - \Delta AR_{it})}{Assets_{it-1}} + \alpha_3 \frac{PPE_{it}}{Assets_{it-1}} + \alpha_3 \frac{ROA_{it}}{Assets_{it-1}} + \varepsilon_{it} \quad (1)$$

where $TAccrual_{it}$ = the scaled representation of the firm's total accruals during year t by its last year's total assets (t–1), ΔREV_{it} = the variations in the firm's current year net sales as compared to the prior year (t–1), ΔAR_{it} = the variations in the accounts receivable in the current year (t) as compared to the prior year (t–1), PPE_{it} = the value of property, plant, and equipment in the current year (t), ROA_{it} = return on assets ratio in the current year (t), $Assets_{it-1}$ = the value of the total assets in the last year (t–1), and ε_{it} = the residuals in the current year (t) represents the discretionary accruals.

In addition, the modified Jones model was used as an alternative proxy for earnings management (EM_sdM), which is measured by the deviation of the residual values from their average across the interval of five years prior to year t.

3.2.2 | Independent and moderating variables

Following prior research literature, female ACFEs (ACFE_fe) measured through a dummy variable, 1 for female ACFEs and 0 for male ACFEs in the audit committee (Liu et al., 2014; Zalata et al., 2018).

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Ownership structure (OS) also calculated as a dummy variable, 1 for privately owned enterprises and 0 otherwise. Similarly, we measured the listing status (CL) using a binary variable that used a value of 1 for a cross-listed Chinese company and 0 otherwise. To test the hypotheses, we used two interaction terms, OS*ACFE_fe and CL*ACFE_fe, to examine the moderation of OS and cross-listing on the female ACFEs and earnings management relationship, respectively.

3.2.3 | Control variables

First, the top management teams (TMTs) gender diversity, including the chief executive officer (CEO), the chief finance officer (CFO), and the board of directors of the firms are controlled. We measured this variable (TMT_fe) as the proportion of females in TMT. Consistent with prior studies, we expect females in TMT mitigate earnings management significantly (Qi et al., 2018; Zalata et al., 2019). Second, following Qi and Tian (2012), we included the ACFEs' characteristics of experience (ACFE_multi) and age (ACFE_age) as control variables. We expected ACFEs' age and ACFEs' working in multiple companies to be inversely linked with earnings quality. Third, we controlled for other characteristics of the audit committee, such as size (AC_size) and meetings (AC_m), since they exhibit noteworthy relationships with earnings management (Abdul Rahman & Ali, 2006; Al-Absy et al., 2019; Klein, 2002; Qi & Tian, 2012; Saleh et al., 2007).

Fourth, we include management shareholding (OWN) to controlled for managers' earnings manipulations (Umar & Hassan, 2018) and expected it to relate negatively to earnings management since such share ownership reduces the agency problem and earnings manipulations. Fifth, financial analysts (FA) are is a further monitoring mechanism in the market that provides oversight over the financial reports quality. We expected an inverse relationship between financial analyst coverage and earnings management. Finally, the characteristics of firms, such as cash flow (CFVOL) and sales (SVOL) volatilities, audit quality (AQ), leverage (LEV), firm size (SIZE), and profitability (ROA) were controlled for by following the prior research (Klein, 2002; Qi & Tian, 2012; Usman et al., 2023). Appendix 1 provides a detailed explanation of all variables.

3.3 | Research models

Our study employs the Heckman (1976) model of two stages to test hypotheses. Consistent with prior accounting research (Zalata et al., 2019), we used Heckman (1976) model of two-stage to yield robust results after addressing possible endogeneity issues (e.g., sample-selection bias) (Larcker & Rusticus, 2010). From the probit model that was initially regressed with control and independent variables, we obtain the ratio of inverse Mills (IMR). In the first step of the Heckman model, as stated in Equation (1), the proportion of female ACFEs in the sector is utilized as an instrumental variable. Finally, in the later stage, we expand this analysis with an extra parameter (e.g., IMR), as shown in Equation (2):

$$\begin{aligned}\text{ACFE_fe}_{it} = {} & \beta_{0i} + \beta_1 \text{AC_size}_{it} + \beta_2 \text{OS}_{it} + \beta_3 \text{CL}_{it} + \beta_4 \text{TMT_fe}_{it} \\ & + \beta_5 \text{AC_multi}_{it} + \beta_6 \text{ACFE_age}_{it} + \beta_7 \text{CFVOL}_{it} + \beta_8 \text{SVOL}_{it} \\ & + \beta_9 \text{OWN}_{it} + \beta_{10} \text{AF}_{it} + \beta_{11} \text{AQ}_{it} + \beta_{14} \text{LEV}_{it} + \beta_{15} \text{SIZE}_{it} \\ & + \beta_{16} \text{ROA}_{it} + \beta_{17} \text{AC_m}_{it} + \beta_{18} \text{IV}_{it} + u_{it} \end{aligned} \quad (2)$$

where the dependent variable is female ACFEs (ACFE_fe), measured as a dummy variable which takes a "1" value for female ACFEs and for male ACFEs "0," In Equation 2, independent variables are defined as above, as well as in Appendix 1. Finally, as noted by Zalata et al. (2019), the instrumental variable (IV) was determined in the Heckman model's first stage as a proportion of female ACFEs in the firm.

$$\begin{aligned}\text{EM_sdK}_{it} = {} & \beta_{0i} + \beta_1 \text{AC_size}_{it} + \beta_2 \text{ACFE_fe}_{it} + \beta_3 \text{OS}_{it} \\ & + \beta_4 \text{OS}^{*} \text{ACFE_fe}_{it} + \beta_5 \text{CL}_{it} + \beta_6 \text{CL}^{*} \text{ACFE_fe}_{it} \\ & + \beta_7 \text{TMT_fe}_{it} + \beta_8 \text{AC_multi}_{it} + \beta_9 \text{ACFE_age}_{it} \\ & + \beta_{10} \text{CFVOL}_{it} + \beta_{11} \text{SVOL}_{it} + \beta_{12} \text{OWN}_{it} + \beta_{13} \text{AF}_{it} \\ & + \beta_{14} \text{AQ}_{it} + \beta_{15} \text{LEV}_{it} + \beta_{16} \text{SIZE}_{it} + \beta_{17} \text{ROA}_{it} \\ & + \beta_{18} \text{AC_m}_{it} + \beta_{19} \text{IMR}_{it} + u_{it} \end{aligned} \quad (3)$$

where Earnings management (EM_sdK_{it}) is the dependent variable, calculated as Appendix 1-shown the deviation of the performance-adjusted model's residual values from their average across the interval of five years prior to year t. Additionally described in Appendix 1 are both control and independent variables used in Equations 2 and 3. Lastly, IMR introduced as the extra parameter in the later stage of Heckman model.

In an additional analysis, we divided the sample into non-cross-listed and cross-listed SOEs to inquire into more evidence of female ACFE's role.

3.3.1 | Robustness analysis

First, we utilized the modified Jones model Dechow et al. (1995), an alternate earnings management proxy for robustness. Second, we used system GMM to make sure there were no endogeneity problems. The performance-adjusted model of earnings management proposed by Kothari et al. (2005) was estimated using a model of partial adjustment as follows:

$$\text{EM_sdK}_{it} - \text{EM_sdK}_{it-1} = \lambda \left(\text{EM_sdK}^{*}_{it} - \text{EM_sdK}_{it-1} \right) + \delta \text{it} \quad (3)$$

where the deviation of the performance-adjusted model's residual values from their average during year t is EM_sdK*it. This specification enabled the standard deviation of the performance-adjusted accruals to change over time. Since full adjustment rarely happens, our adjustment parameter, which is denoted by λ, is not likely to be 1 ($\lambda = 1$). Since

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a value of zero denotes no adjustment, it is generally assumed that it must be within 0 and 1 ($1>\lambda>0$).

Following Öztekin (2015), we utilized independent variables lag as instruments to solve unobserved heterogeneity issues.

$$EM_sdK^{*}_{it} = \beta X_{it-1} + F_i \quad (4)$$

where β and F_i are coefficient vectors. $X_{i,t-1}$ are control and independent variables lagged values, represented in Appendix 1 and Equation (2). We substituted Equation (4) into the model of partial adjustment in Equation (5) to get the following equation:

$$EM_sdK_{it} = (\lambda\beta)X_{it-1} + (1-\lambda)\,EM_sdK_{it-1} + \lambda F_i + \delta it \quad (5)$$

where β and F_i are coefficient vectors. To evaluate Equation (5), we analyzed the system GMM, a two-step process, as per Blundell and Bond (1998), leading to a more precise estimation.

4 | EMPIRICAL RESULTS AND DISCUSSION

The descriptive data for our investigation are displayed in Table 2. The dependent variable (EM_sdK), measured as the deviation of the performance-adjusted model's residual values from their average across the interval of five years prior to year t, has a 0.213 mean value. This mean value is relevant to prior literature in a Chinese setting, which reported 0.203 as their mean value (Qi et al., 2018). The ACFE_fe variable has a 0.137 mean value for independent variables, which is relatively more than the result previously reported for China (Du et al., 2016; Qi et al., 2018; Xiong, 2016). OS has a mean value of 0.442 and reported that more than 40% of companies' samples were non-SOE. The CL has a mean of 0.146, indicating that in Hong Kong, almost 14.6% of sample companies are cross-listed. In Table 2, the mean values of the control variables are reported.

Table 3 (Panel A) represents comparative descriptive statistics for non-SOEs and SOEs. We predict that 0.198 is the lower mean value of on-SOEs for performance-adjusted accruals compared with the reported 0.225 mean value of SOEs. In Table 4, Panel B represents that the firms related to cross-listing have a 0.179 value, a lower mean for performance-adjusted accruals than for non-cross-listed SOEs, which is 0.215. The comparative statistics of other variables are shown in Tables 3 and 4, Panels A and B.

Table 5 reported the correlation analysis among the independent and control variables. This test is useful in examining whether a multicollinearity problem exists in our study. The multicollinearity test guides that the greatest value of any relationship between the control variables and independent variable must be less than 0.70 cut-off value is, which was recommended by Gujarati and Porter (2003). Hence, no values from our table exceeds this cut-off that implies no concerns for multicollinearity in our model.

The main results are exhibited in Table 6. ACFE_fe significantly mitigates earnings management (EM_sdK) in Model 2. In line with the resource dependence theory, our findings specify that female ACFEs improve decision-making and board communication as they tend to be more careful, ethical, and less willing to take risks (Ezeani, Kwabi, et al., 2023; Jianakoplos & Bernasek, 1998; Palvia et al., 2015). Our findings contribute to the recent evidence from China regarding the influential role of female directors in improving financial reporting quality (Chen et al., 2023; Wang et al., 2022). Therefore, we concluded that Chinese corporate boards recruit female ACFEs in audit committees to mitigate earnings management.

TABLE 2 Descriptive statistics.

Variable	*N*	Mean	St. dev.	Min	Median	Max
EM_sdK	3150	0.213	0.240	0.015	0.151	2.084
AC_size	3150	1.272	0.499	0.000	1.386	1.197
ACFE_fe	3150	0.137	0.425	0.000	0.000	1.000
OS	3150	0.442	0.382	0.000	0.000	1.000
CL	3150	0.146	0.192	0.000	0.000	1.000
TMT_fe	3149	0.145	0.166	0.000	0.125	1.667
ACFE_multi	3150	0.533	0.499	0.000	1.000	1.000
ACFE_age	3150	3.916	0.155	3.367	3.912	4.369
CFVOL	3150	0.071	0.082	0.002	0.052	1.705
SVOL	3150	0.126	0.122	0.002	0.091	0.800
OWN	3150	13.084	3.531	0.000	12.379	21.177
AF	3150	1.886	0.883	0.693	1.792	4.190
AQ	3150	13.634	0.777	9.210	13.520	17.655
LEV	3150	0.488	0.204	0.049	0.500	1.590
SIZE	3150	22.263	1.221	16.520	22.097	27.294
ROA	3150	0.045	0.052	−0.338	0.040	0.206
AC_m	3150	9.225	3.758	3.000	8.000	21.000

Note: Variables' detailed description is given in Appendix 1. Continuous variables are winsorised at 1% and 99%.

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TABLE 3 Panel A: Univariate test of state-owned vs privately-owned firms.

	Privately-owned firms ($n = 1392$)					State-owned firms ($n = 1758$)					*T*-test	
Variable	Mean	St. dev.	Min	Median	Max	Mean	St. dev	Min	Median	Max	Diff.	Sig.
EM_sdK	0.225	0.235	0.015	0.162	2.084	0.198	0.246	0.015	0.138	2.084	0.027	0.002
AC_size	1.357	0.492	0.000	1.386	1.197	1.159	0.486	0.000	1.099	1.197	0.198	0.000
ACFE_fe	0.140	0.292	0.000	0.000	1.000	0.135	0.299	0.000	0.000	1.000	0.005	0.040
CL	0.198	0.244	0.000	0.000	1.000	0.105	0.148	0.000	0.000	1.000	0.093	0.000
TMT_fe	0.125	0.152	0.000	0.100	1.000	0.171	0.179	0.000	0.143	1.667	−0.046	0.000
ACFE_multi	0.556	0.498	0.000	1.000	1.000	0.515	0.500	0.000	1.000	1.000	0.041	0.039
ACFE_age	3.930	0.158	3.434	3.932	4.369	3.897	0.150	3.367	3.892	4.344	0.033	0.000
CFVOL	0.067	0.075	0.002	0.050	1.705	0.077	0.090	0.004	0.054	1.705	−0.01	0.001
SVOL	0.129	0.127	0.004	0.093	0.800	0.122	0.115	0.002	0.088	0.800	0.007	0.073
OWN	11.281	2.349	3.367	11.165	19.998	15.496	3.407	0.000	16.491	21.177	−4.215	0.000
AF	1.867	0.920	0.693	1.792	4.190	1.911	0.831	0.693	1.946	3.951	−0.044	0.162
AQ	13.751	0.867	10.714	13.592	17.655	13.477	0.604	9.210	13.430	15.538	0.274	0.000
LEV	0.529	0.186	0.049	0.542	1.590	0.433	0.214	0.049	0.438	1.590	0.096	0.000
SIZE	22.568	1.275	18.266	22.411	27.294	21.855	1.011	16.520	21.763	25.660	0.713	0.000
ROA	0.042	0.050	−0.338	0.037	0.206	0.049	0.053	−0.338	0.045	0.206	−0.007	0.001
AC_m	8.853	3.665	3.000	8.000	21.000	9.721	3.824	3.000	9.000	21.000	−0.868	0.000

Note: Variables' detailed description is given in Appendix 1. Continuous variables are winsorised at 1% and 99%.

TABLE 4 Panel B: Univariate test of cross-listed vs local firms.

	Cross-listed firms ($n = 460$)					Domestic firms ($n = 2690$)					*T*-test	
Variable	Mean	St. dev.	Min	Median	Max	Mean	St. dev	Min	Median	Max	Diff.	Sig.
EM_sdK	0.179	0.166	0.024	0.137	1.267	0.215	0.243	0.015	0.152	2.084	−0.036	0.039
AC_size	1.418	0.459	0.000	1.386	2.197	1.265	0.500	0.000	1.386	1.197	0.153	0.000
ACFE_fe	0.132	0.340	0.000	0.000	1.000	0.138	0.428	0.000	0.000	1.000	−0.006	0.003
OS	0.598	0.408	0.000	1.000	1.000	0.415	0.496	0.000	1.000	1.000	0.183	0.000
TMT_fe	0.095	0.117	0.000	0.084	0.667	0.147	0.167	0.000	0.125	1.667	−0.052	0.000
ACFE_multi	0.569	0.497	0.000	1.000	1.000	0.527	0.499	0.000	1.000	1.000	0.042	0.370
ACFE_age	4.009	0.157	3.555	4.034	4.304	3.911	0.154	3.367	3.912	4.369	0.098	0.000
CFVOL	0.061	0.049	0.002	0.042	0.280	0.071	0.083	0.004	0.052	1.705	−0.01	0.135
SVOL	0.105	0.111	0.006	0.076	0.800	0.127	0.123	0.002	0.092	0.800	−0.022	0.036
OWN	11.225	2.764	5.704	10.909	18.915	13.173	3.540	0.000	12.432	21.177	−1.948	0.000
AF	2.363	0.922	0.693	2.485	4.190	1.863	0.875	0.693	1.792	3.970	0.5	0.000
AQ	15.369	0.959	13.305	15.307	17.655	13.551	0.662	9.210	13.459	16.484	1.818	0.000
LEV	0.588	0.173	0.161	0.579	1.151	0.483	0.204	0.049	0.498	1.590	0.105	0.000
SIZE	24.073	1.387	20.688	24.163	27.294	22.176	1.143	16.520	22.049	27.028	1.897	0.000
ROA	0.052	0.047	−0.192	0.044	0.206	0.044	0.052	−0.338	0.040	0.206	0.008	0.097
AC_m	10.979	4.852	4.000	10.000	21.000	9.141	3.678	3.000	8.000	21.000	1.838	0.000

Note: Variables' detailed description is given in Appendix 1. Continuous variables are winsorised at 1% and 99%.

We also determined that OS and CL exhibit a strong negative relationship with earnings management. Table 6 (Model 3) presents the interaction results of OS*ACFE_fe. They indicate that OS moderates the association between earnings management and female ACFEs. Thus, the finding supports our first hypothesis (H1). In line with the notion of agency theory, it is female ACFEs are more potent in mitigating information asymmetry in privately owned firms, resulting in reduced agency costs (Raimo et al., 2021). The reason for insignificant results in SOEs indicates that ACFEs in SOEs are ineffective in mitigating earnings management due the political or

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TABLE 5 Correlation analysis.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
1) ACFE_fe	1.00																
2) ACFE	0.39	1.00															
3) AC_size	0.11	0.41	1.00														
4) OS	0.02	0.22	0.19	1.00													
5) CL	−0.01	0.09	0.08	0.12	1.00												
6) ACFE_multi	0.02	−0.01	−0.19	0.00	−0.01	1.00											
7) ACFE_age	−0.01	0.03	0.09	0.09	0.08	−0.21	1.00										
8) CFVOL	0.00	−0.01	−0.01	−0.02	−0.02	−0.02	0.01	1.00									
9) SVOL	0.02	0.04	0.00	0.04	−0.03	−0.01	0.01	0.30	1.00								
10) OWN	−0.02	−0.20	−0.22	−0.59	−0.08	0.00	−0.06	−0.07	−0.10	1.00							
11) AF	−0.03	−0.05	0.00	−0.04	0.11	0.00	0.05	−0.13	−0.03	0.20	1.00						
12) AQ	0.00	0.09	0.14	0.18	0.43	0.01	0.13	−0.03	0.06	−0.06	0.28	1.00					
13) LEV	0.04	0.15	0.18	0.28	0.11	0.00	0.03	0.13	0.12	−0.34	−0.07	0.31	1.00				
14) SIZE	−0.01	0.13	0.17	0.36	0.30	0.01	0.14	−0.08	0.03	−0.20	0.34	0.47	0.49	1.00			
15) ROA	−0.01	−0.03	−0.05	−0.07	0.01	0.01	0.01	−0.10	0.03	0.13	0.38	−0.05	−0.42	−0.06	1.00		
16) AC_m	0.00	−0.03	−0.01	−0.08	0.04	0.01	0.02	0.02	0.00	0.10	0.12	0.20	0.18	0.21	−0.07	1.00	
17) AC	0.05	0.17	0.38	0.03	0.04	−0.19	0.17	0.02	0.01	−0.05	0.07	0.14	0.10	0.14	−0.05	0.09	1.00

Note: Variables' detailed description is given in Appendix 1. Continuous variables are winsorised at 1% and 99%.

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TABLE 6 Main results.

	(1) EM_sdK	(2) EM_sdK	(3) EM_sdK	(4) EM_sdK
ACFE_fe		−0.019**	−0.044***	−0.021**
		(0.009)	(0.017)	(0.009)
AC_size	−0.015**	−0.014**	−0.013*	−0.014**
	(0.007)	(0.007)	(0.007)	(0.007)
OS	−0.057***	−0.058***	−0.064***	−0.058***
	(0.014)	(0.014)	(0.016)	(0.014)
OS × ACFE_fe			−0.055**	
			(0.023)	
CL	−0.081***	−0.082***	−0.082***	−0.090***
	(0.019)	(0.019)	(0.019)	(0.021)
CL × ACFE_fe				−0.106**
				(0.045)
TMT_fe	−0.028	−0.018	−0.018	−0.018
	(0.036)	(0.036)	(0.036)	(0.036)
ACFE_multi	0.006	0.006	0.006	0.006
	(0.011)	(0.011)	(0.011)	(0.011)
ACFE_age	−0.027	−0.026	−0.026	−0.026
	(0.017)	(0.017)	(0.017)	(0.017)
CFVOL	0.465***	0.464***	0.468***	0.465***
	(0.070)	(0.070)	(0.070)	(0.070)
SVOL	−0.050	−0.050	−0.051	−0.050
	(0.039)	(0.039)	(0.039)	(0.039)
OWN	0.006	0.006	0.006	0.006
	(0.004)	(0.004)	(0.004)	(0.004)
AF	−0.009	−0.009	−0.009	−0.009
	(0.010)	(0.010)	(0.010)	(0.010)
AQ	−0.048***	−0.048***	−0.049***	−0.048***
	(0.016)	(0.016)	(0.016)	(0.016)
LEV	0.117***	0.118***	0.116***	0.118***
	(0.030)	(0.030)	(0.030)	(0.031)
SIZE	0.053***	0.052***	0.053***	0.053***
	(0.016)	(0.016)	(0.016)	(0.016)
ROA	0.287***	0.288***	0.287***	0.288***
	(0.096)	(0.096)	(0.096)	(0.096)
AC_m	0.010***	0.010***	0.010***	0.010***
	(0.002)	(0.002)	(0.002)	(0.002)
IMR	−0.029**	−0.029**	−0.030**	−0.029**
	(0.011)	(0.011)	(0.011)	(0.011)
Constant	−0.606***	−0.599***	−0.599***	−0.599***
	(0.214)	(0.213)	(0.213)	(0.213)
Observations	3150	3150	3150	3150
R-squared	0.133	0.134	0.134	0.134
Clusters (firm)	1094	1094	1094	1094
Industry	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes

Note: Robust standard errors in parentheses. Continuous variables are winsorised at 1% and 99%. Variables' detailed description is given in Appendix.

***$p < .01$; **$p < .05$; *$p < .1$.

government control (Wang et al., 2017, 2022). Therefore, we concluded that ownership structure influences the association between earnings management and female ACFEs. Specifically, female ACFEs in private-owned firms are more effective in alleviating earnings management. As a result, our findings of SOEs showed that female ACFEs act as the rubber stamp due to the state involvement which is a complete contradiction of dispersed or mixed ownership in Western countries. However, we found that in the case of privately owned firms female ACFEs monitoring over financial reporting is more effective in line with Western contexts.

Similarly, Table 6 (Model 4) presents the interaction results of CL*ACFE_fe and shows that CL moderates the association between earnings management and female ACFEs. This result supports our second hypothesis (H2). In line with agency theory, we infer that female ACFEs in CL firms can mitigate agency costs via effective management monitoring due to the improved information environment (Alkebsee et al., 2021). These findings exhibit that the female ACFEs in the cross-listed firms significantly reduce earnings management than their counterpart female ACFEs in local (non-cross-listed) firms. This finding complements the prior research that claims that cross-listed firms have strong corporate governance and effective monitoring of financial reports (Jian et al., 2011; Lin et al., 2015). Therefore, the ACFEs in the cross-listed Chinese firms complying with the developed financial markets along with the Chinese CSRC regulations are producing quite similar output as the developed markets.

This study expands the contemporary literature on the gender diversity of audit committees and earnings management by highlighting the influential role of OS and cross-listing in the association between earnings management and female ACFEs. We conclude that female ACFEs in privately owned and cross-listed firms exercise their monitoring role over financial reporting quality more effectively than female ACFEs in SOEs and local firms.

Table 7 reports the additional analysis results of non-cross-listed and cross-listed privately owned and SOEs. We find that female ACFEs in cross-listed privately owned firms significantly constrain earnings management relative to their counterpart female ACFEs in cross-listed SOE firms. We further find that OS and cross-listing are moderators in the relationship between earning management and female ACFEs in privately owned cross-listed firms more than their SOE peer firms.

Table 8 presents the results of conducting a robustness analysis using an alternative proxy for earnings management. Our results are robust to the alternative earnings management proxy, the standard deviation of the modified Jones model's residual values by Dechow et al. (1995) during the five-year window before year *t*. We found similar results, which indicated that OS and cross-listing have a moderate relationship between earning management and female ACFEs. Table 9 reports the system GMM results based on Blundell and Bond (1998) estimation. We identified the same results as reported in our main findings at the first lag. Hence, that our findings remain valid and unaffected by endogeneity problems.

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TABLE 7 Additional results.

	(1) EM_sdK	(2) EM_sdK	(3) EM_sdK
ACFE_fe		−0.019**	−0.021**
		(0.009)	(0.009)
AC_size	−0.073***	−0.075***	−0.066***
	(0.020)	(0.020)	(0.019)
CLPO	−0.015**	−0.014**	−0.014**
	(0.007)	(0.007)	(0.007)
CLPO × ACFE_fe			−0.090**
			(0.044)
CL	−0.136***	−0.138***	−0.138***
	(0.027)	(0.027)	(0.027)
TMT_fe	−0.028	−0.018	−0.018
	(0.036)	(0.036)	(0.036)
ACFE_multi	0.006	0.006	0.006
	(0.011)	(0.011)	(0.011)
ACFE_age	−0.027	−0.026	−0.026
	(0.017)	(0.017)	(0.017)
CFVOL	0.465***	0.465***	0.465***
	(0.070)	(0.070)	(0.070)
SVOL	−0.051	−0.051	−0.051
	(0.039)	(0.039)	(0.039)
OWN	0.006	0.006	0.006
	(0.004)	(0.004)	(0.004)
AF	−0.009	−0.009	−0.009
	(0.010)	(0.010)	(0.010)
AQ	−0.049***	−0.049***	−0.049***
	(0.016)	(0.016)	(0.016)
LEV	0.117***	0.118***	0.119***
	(0.030)	(0.030)	(0.031)
SIZE	0.053***	0.053***	0.053***
	(0.016)	(0.016)	(0.016)
ROA	0.288***	0.290***	0.290***
	(0.096)	(0.096)	(0.096)
AC_m	0.010***	0.010***	0.010***
	(0.002)	(0.002)	(0.002)
IMR	−0.029	−0.031	−0.031
	(0.043)	(0.043)	(0.043)
Constant	−0.596***	−0.589***	−0.590***
	(0.213)	(0.212)	(0.212)
Observations	3150	3150	3150
R-squared	0.133	0.134	0.134
Clusters (firm)	1094	1094	1094
Industry	Yes	Yes	Yes
Year	Yes	Yes	Yes

Note: Robust standard errors in parentheses. Continuous variables are winsorised at 1% and 99%. Variables' detailed description is given in Appendix.

***$p < .01$; **$p < .05$;

TABLE 8 Robust analysis with an alternative proxy of earnings management.

	(1) EM_sdM	(2) EM_sdM	(3) EM_sdM	(4) EM_sdM
ACFE_fe		−0.021**	−0.046***	−0.023***
		(0.009)	(0.016)	(0.009)
AC_size	−0.010*	−0.009*	−0.009*	−0.009*
	(0.005)	(0.005)	(0.005)	(0.005)
OS	−0.056***	−0.056***	−0.062***	−0.056***
	(0.014)	(0.014)	(0.015)	(0.014)
OS × ACFE_fe			−0.057**	
			(0.022)	
CL	−0.074***	−0.073***	−0.074***	−0.081***
	(0.017)	(0.017)	(0.017)	(0.019)
CL × ACFE_fe				−0.110**
				(0.044)
TMT_fe	−0.033	−0.024	−0.024	−0.023
	(0.037)	(0.038)	(0.038)	(0.038)
ACFE_multi	0.010	0.011	0.012	0.011
	(0.011)	(0.011)	(0.011)	(0.011)
ACFE_age	−0.016	−0.014	−0.014	−0.014
	(0.017)	(0.017)	(0.017)	(0.017)
CFVOL	0.456***	0.455***	0.458***	0.455***
	(0.071)	(0.071)	(0.071)	(0.071)
SVOL	−0.044	−0.043	−0.043	−0.043
	(0.037)	(0.037)	(0.037)	(0.037)
OWN	0.005**	0.005**	0.005*	0.005**
	(0.003)	(0.003)	(0.003)	(0.003)
AF	−0.012	−0.012	−0.012	−0.012
	(0.009)	(0.009)	(0.009)	(0.009)
AQ	−0.049***	−0.049***	−0.050***	−0.050***
	(0.014)	(0.014)	(0.015)	(0.014)
LEV	0.126***	0.128***	0.127***	0.129***
	(0.042)	(0.042)	(0.042)	(0.042)
SIZE	0.053***	0.053***	0.054***	0.053***
	(0.017)	(0.017)	(0.017)	(0.017)
ROA	0.326***	0.331***	0.333***	0.333***
	(0.080)	(0.081)	(0.081)	(0.081)
AC_m	0.010***	0.010***	0.010***	0.010***
	(0.002)	(0.002)	(0.002)	(0.002)
IMR	−0.032**	−0.036***	−0.036***	−0.036***
	(0.013)	(0.013)	(0.013)	(0.013)
Constant	−0.568**	−0.552**	−0.554**	−0.551**
	(0.266)	(0.264)	(0.264)	(0.264)
Observations	3150	3150	3150	3150
R-squared	0.136	0.136	0.137	0.137
Clusters (firm)	1094	1094	1094	1094
Industry	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes

Note: EM_sdM is the alternative earnings management proxy, the standard deviation of the modified Jones model's residual values from Dechow et al. (1995) during the five-year window before year t. Robust standard errors in parentheses. Continuous variables are winsorised at 1% and 99%. Variables' detailed description is given in Appendix.

***$p < .01$; **$p < .05$; *$p < .1$.

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TABLE 9 Robust analysis using dynamic GMM.

	(1) EM_sdK	(2) EM_sdK	(3) EM_sdK	(4) EM_sdK
EM_sdK (Lag 1)	0.978***	0.978***	0.976***	0.978***
	(0.040)	(0.040)	(0.040)	(0.040)
ACFE_fe		−0.049**	−0.046**	−0.041**
		(0.023)	(0.022)	(0.019)
AC_size	−0.304***	−0.306***	−0.307***	−0.302***
	(0.081)	(0.081)	(0.081)	(0.081)
OS	−0.060**	−0.060**	−0.067**	−0.061**
	(0.024)	(0.024)	(0.028)	(0.024)
OS × ACFE_fe			−0.058**	
			(0.026)	
CL	−0.081***	−0.082***	−0.082***	−0.091***
	(0.031)	(0.031)	(0.031)	(0.034)
CL × ACFE_fe				−0.069**
				(0.032)
TMT_fe	−0.046	−0.047	−0.047	−0.044
	(0.052)	(0.052)	(0.052)	(0.052)
ACFE_multi	0.015	0.015	0.015	0.015
	(0.012)	(0.012)	(0.012)	(0.012)
ACFE_age	−0.074*	−0.074*	−0.074*	−0.073*
	(0.041)	(0.041)	(0.041)	(0.041)
CFVOL	0.214***	0.214***	0.214***	0.214***
	(0.083)	(0.083)	(0.082)	(0.083)
SVOL	0.254***	0.255***	0.256***	0.249***
	(0.055)	(0.055)	(0.055)	(0.055)
OWN	0.001	0.000	0.000	0.000
	(0.005)	(0.005)	(0.005)	(0.005)
AF	−0.007	−0.007	−0.007	−0.007
	(0.006)	(0.006)	(0.006)	(0.006)
AQ	−0.027*	−0.027*	−0.027*	−0.029*
	(0.015)	(0.015)	(0.015)	(0.015)
LEV	0.064	0.063	0.064	0.068
	(0.048)	(0.048)	(0.048)	(0.048)
SIZE	0.025**	0.026**	0.025**	0.028**
	(0.013)	(0.013)	(0.013)	(0.013)
ROA	0.326***	0.327***	0.327***	0.327***
	(0.110)	(0.110)	(0.110)	(0.110)
AC_m	−0.001	−0.001	−0.001	−0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Constant	−0.580**	−0.571**	−0.573**	−0.572**
	(0.287)	(0.285)	(0.286)	(0.285)
Observations	1579	1579	1579	1579
Clusters (firm)	601	601	601	601
Wald Chi^2	483***	484***	482***	487***
Sargan (p-value)	.418	.393	.414	.423
AR1	0.123	0.148	0.169	0.178
AR2	0.317	0.358	0.379	0.388

Note: System GMM is applied following Blundell and Bond (1998) estimation. Robust standard errors in parentheses, at the first lag of the dependent variable. Continuous variables are winsorised at 1% and 99%. Variables' detailed description is given in Appendix 1.

***$p < .01$; **$p < .05$; *$p < .1$.

5 | CONCLUSIONS

In the aftermath of major accounting scandals, such as those at WorldCom, Enron, and Thomas Cook, the call for gender diversity on corporate boards has intensified. These events have spurred discussions on corporate governance, particularly regarding the role of female directors. Studies consistently indicate that female directors are more likely to counteract earnings management, likely due to their generally more risk-averse and ethical approach to decision-making. Our research examined how ownership structure and cross-listing status influence the relationship between earnings management and the effectiveness of female ACFEs. We found that female ACFEs in private firms and cross-listed firms are more effective than those in state-owned enterprises (SOEs) and purely local firms. Particularly, female ACFEs in cross-listed, privately owned firms have a significant impact on reducing earnings management, similar to patterns observed in Western countries with robust governance structures.

Our findings have practical implications for stakeholders such as policymakers, regulators, and investors. Female ACFEs on audit committees are vital for improving financial reporting quality and enhancing the effectiveness of audit committee oversight. This effect is notably stronger in privately owned and cross-listed firms, likely due to lesser state interference and stricter governance standards. As such, establishing a female quota on boards and recruiting female ACFEs in audit committees could be beneficial, especially in mitigating earnings management. Additionally, reducing organizational and institutional barriers that hinder the monitoring capabilities of female ACFEs, particularly in SOEs, could further enhance financial reporting quality.

Our study also contributes to the understanding of how cross-listing influences information environments. Consistent with Boubakri et al. (2016) and Foucault and Frésard (2012), we found that cross-listing bolsters the monitoring effectiveness of ACFEs, an insight valuable for Chinese regulators aiming to minimize government involvement and adhere strictly to corporate governance norms.

Looking forward, while our research confirms the role of ACFEs in mitigating earnings management, the specific mechanisms through which female ACFEs enhance financial reporting quality remain underexplored. Future research could investigate how ACFEs influence auditor selection, communication of critical audit matters, and interaction with management on financial reporting. Additionally, more research is needed on the impact of cultural and institutional factors such as guanxi, political connections, and Confucian influences within the Chinese context.

Our data set, which extends only up to 2015 due to the manual nature of data collection, presents limitations. Future studies could expand this data set for a broader analysis. Exploring how various institutional barriers in emerging economies affect ACFEs' monitoring abilities and identifying strategies for navigating these challenges would offer deeper insights. Moreover, while our study relied on

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proxies to assess managerial behavior, direct interviews with ACFEs could provide richer, qualitative insights into their roles and strategies, thereby enriching the literature on corporate governance and financial oversight.

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No conflicts of interest.

DATA AVAILABILITY STATEMENT

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

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APPENDIX 1

VARIABLE DEFINITIONS

Variable type	Variable name	Definition
Dependent variable	Earnings management (EM_sdK_{it})	The deviation of the performance-adjusted model's residual values from their average across the interval of five years prior to year t. We collected the data for this variable from 1998 to 2015.
Main variables	Female audit committee financial experts ($ACFE_fe_{it}$)	A dummy variable, assigned values of 1 if a company has a female audit committee financial expert, 0 otherwise.
	Ownership structure (OS)	A dummy variable, taken as 1 for privately-owned enterprises, 0 otherwise.
	Listing status (CL_{it})	A dummy variable that took a value of 1 for a Chinese company is also listed in Hong Kong stock exchanges, 0 otherwise.
	Cross-listed privately-owned enterprises (CLPO)	A dummy variable that took a value of 1 for a privately-owned company is also listed in Hong Kong stock exchanges, 0 otherwise.
Control variables	Audit committee size (AC_size_{it})	This variable is the natural log of total members of an audit committee.
	Females in the top management team (TMT_fe_{it})	The proportion of females in the top management team of a company.
	ACFEs with multiple directorships (AC_multi_{it})	A dummy variable, assigned values of 1 if an audit committee financial expert is working in more than 1 company, 0 otherwise.
	Age of audit committee financial experts ($ACFE_age_{it}$)	This variable is the natural log of the age of the ACFEs in years.
	Cash flow volatility ($CFVOL_{it}$)	This variable is the standard deviation of cash flows scaled by total assets over the prior five years window.
	Sales volatility ($SVOL_{it}$)	This variable is the standard deviation of sales scaled by total assets over the prior five years window.
	Shareholding of the senior leadership (OWN_{it})	This variable is the natural log of the number of shares held by senior management of a company.
	Analyst following (AF_{it})	This variable is the natural log of the number of financial analysts following the company.
	Auditor quality (AQ_{it})	This variable is the natural log of the total audit fee of the company in a particular year.
	Leverage (LEV_{it})	Leverage is measured by the ratio of total debt to total assets.
	Firm size ($SIZE_{it}$)	Natural log of the total assets.
	Profitability (ROA_{it})	Profitability is measured through a ratio of net income to total assets.
	Audit committee meetings (AC_m_{it})	This variable is the frequency of audit committee meetings in a year.

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