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Does chairman education matter to accounting quality?

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ABSTRACT

We examine how chairman education influences income-smoothing decision-making in Chinese firms, a context where chairmen hold the most power in their firms. We use a dataset of firms listed in the Shanghai and Shenzhen stock exchanges during the 2001–2017 period and employ the fixed-effect model to account for firm heterogeneity, which may confound our estimation results. We find that chairmen with postgraduate degrees in business-related fields (e.g., business management, finance, accounting, or economics) tend to encourage income smoothing to improve earning informativeness, while those with undergraduate degrees and lower do not. Further analyses suggest that the chair's gender, the chair's compensation, and the presence of state ownership do not influence the newfound relationship. However, analyst coverage plays a role as the mitigating factor that reduces the positive impact of academic chairmen on income smoothing. The findings of this study imply that Chinese firms should require chairmen to have postgraduate qualifications or equivalents in business-related fields. Business schools should pay attention to accounting education to hone students' understanding of earning information. Our findings add new knowledge and emphasize the importance of higher education in forming corporate strategy and decision-making in the unique economy of China.

1. Introduction

Financial reporting is the primary means through which firms convey information relating to their operations and performance to market participants. Financial reporting itself, though, sometimes confuses investors since reported numbers fail to reflect firms' fundamental economic activities due to the ignorance of business transaction timing. Income smoothing emerges as a technique that enables firms to recognize transactions and cash flows, thus supplying end users with more useful information to assess firms' present and future performance. Though income smoothing helps reduce the variance of firms' earnings and improve future earnings predictability (Graham et al., 2005), it should be carefully consulted among key personnel inside the firms to ensure an appropriate implementation without eliminating fundamental volatility of earnings. Besides, improper smoothing practices can lead to misreporting due to the thin boundary between income smoothing and earnings manipulation (Leuz et al., 2003; Chen et al., 2017, Baik, Gunny, Jung, & Park, 2022).

The survey by Graham et al. (2005) notes that about 78 percent of participating CFOs confess their income smoothing engagement. Consequently, acquiring the knowledge to intimidate reporting-related moral risk while keeping the richness of information presented

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in financial statements is an important feature of the board of directors to ensure corporate transparency. A board of directors with strong educational backgrounds in businesses and related fields is in need because they can both provide useful income-smoothing advice and exercise adequate control to confine the smoothing practice within a reasonable limit. On top of that, a chairman's business education can shape their understanding of financial reporting complexities, governance standards, and ethical considerations, which influence the extent to which they allow income smoothing practices. These rationales lead to our research question: What is the impact of chairmen's business-related education on their firms' income smoothing practice? This compelling question is worth consideration, however, attempts to answer it remain virtually absent in the literature.

This paper aims to unveil the relationship between corporate chairmen's business education and how their firms engage in income smoothing in the context of China, a typical chairman-rules business setting. The relationship between corporate chairman characteristics and managerial decision-making is a topic that recently attracted attention in the literature. Recent studies present interesting findings on how chairmen impose their characteristics and life cycles on a variety of corporate aspects, such as financial performance, diversification strategies, environmental innovation, and corporate governance (Kayani et al., 2021; Liao et al., 2019; Strom et al., 2014; Waelchili & Zeller, 2013; Zhou et al., 2021). Some prior studies, mostly in the Western economies, have attempted to understand how education influences corporate policies and outcomes, though the subject of study is CEOs (Barker & Mueller, 2002; Beber & Fabbri, 2012; Boubaker et al., 2020, 2025; Wiersema & Bantel, 1992). Little is known about how chairmen's education affects their firm's managerial decision-making, especially in the context of contemporary China - a society with a high degree of power distance (Hofstede, 1980, 1991; Lin & Fraser, 2008), with a strong emphasis on education and characterized by a high level of competition (Mok, 1999).

China's economic system has historically been characterized by centralized control and top-down decision-making. This is reflected in the governance structure of Chinese companies, where the chairman typically holds considerable authority. This centralized approach allows for more effective coordination and execution of business strategies, particularly in large and complex organizations. Moreover, the corporate governance structure in Chinese companies may also contribute to the chairman's dominance in decision-making. The board of directors, which includes the chairman, often has a more advisory role, and chairmen generally hold more power in the firms compared to CEOs (Wang, 2012) and compared to their counterparts in the West (Chen et al., 2006). This provides a unique setting for studying how a chairman's education, rather than CEO's, affects corporate outcomes.

We argue that chairman education plays an important role in income smoothing practices of listed firms in China, a financial market with distinct institutions and business settings compared to those in the West. Following the previous studies in the emerging strand of literature on board director education (Huang et al., 2016; Jiang & Murphy, 2007; Veltrop et al., 2017), the presence of academic directors may influence corporate operations and decision-making. As income smoothness may lead to greater earning informativeness (Dechow et al., 2010; Tucker & Zarowin, 2006) that, in turn, reduces information asymmetry between corporate insiders and outsiders (Biddle et al., 2009), a highly educated chairman may encourage income smoothing to improve the informativeness of reported earnings and benefit the external users of the firm's financial reports. This is a good strategy to prevent shareholder expropriation arising from agency problems. While the current literature focuses on studying how CEO education transforms into managerial decisions and outcomes (Amore et al., 2019; Gounopoulos et al., 2021; King et al., 2016), the findings may vary significantly in the context of China, where chairmen are the most influential decision-maker in the business (Chen et al., 2006). Therefore, it is compelling to examine how chairmen's education influences income smoothing practices in Chinese firms. Our proposition is supported by the Upper Echelons Theory (Hambrick & Mason, 1984) that an organization might be viewed as the reflection of its top decision-makers. As corporate chairmen hold the most power in Chinese firms, their education likely has certain influences on corporate strategies and business ethics (Christensen et al., 2007).

We investigate the income smoothing practices in the presence of chairmen with business-related postgraduate degrees using a sample of Chinese listed firms from 2001 to 2017. The years from 2018 onwards are not included to segregate the undesired effect of the US-China trade wars and the COVID-19 health pandemic, which can introduce noise to our estimations. We find that firms with academic chairmen who major in business and related fields are subject to a higher level of income smoothing compared to those having chairmen with bachelor's degrees or lower. Our findings suggest that business-academic chairmen encourage income smoothing as a tool to mitigate information asymmetry and improve the informativeness of earnings. Our findings remain robust after controlling for various firm traits, macroeconomic factors, and model specifications. Further analyses unveil the moderating effect of analyst coverage on the newfound relationship while showing that there is no evidence of gender, compensation, or state ownership influencing the newfound relationship.

The contributions of our study are threefold. First, our study reveals the role of chairmen's education in improving corporate earnings informativeness that has not attracted attention. As studies on the role of chairmen in earnings management research are absent in the literature, this current work sheds light on the positive impact of academic chairmen on the earning management practices of firms. We highlight the role of postgraduate study in business and related fields in shaping corporate accounting policy to alleviate information asymmetry and improve analyst forecast ability. Second, the research provides how other chairman characteristics and firm traits, such as the chair's gender, chair's compensation, state ownership, and analyst coverage, influence the newfound relationship. While some studies in the literature suggest firms with female leaders may have better governance and performance (Francoeur et al., 2008; Strom et al., 2014), our study indicates that such an impact is not significant in the cases of academic chairwomen whose majors are business-related. Also, despite that state ownership generally has a positive impact on the earnings informativeness of Chinese firms (Wang & Yung, 2011), this factor does not seem to pronounce if we consider it under the presence of academic chairs. It turns out that market pressure from analyst coverage is likely to be stronger than that of firm traits, thus mitigating the impact of chairman education on income smoothing. The findings of our research add new understanding and emphasize the importance of business higher education in forming corporate strategy and decision-making in the unique economy of China.

The rest of the paper proceeds as follows. Section 2 reviews the related literature. Section 3 presents the research methodology and data used in this study. Section 4 discusses the empirical results. Section 5 concludes the study.

2. Literature review and hypothesis development

If heterogeneous executive traits matter for company performance, which characteristics outline a very good executive? The corporate governance literature has shown that the personal characteristics of executives preserve explanatory power in explaining firm performance differentials (Graham et al., 2013; King et al., 2016). A unique line of literature originating from psychology affirms the relationship between an individual's cognitive capacity, stage of educational attainment, and decision-making. Jensen (1998) argues that the cognitive ability of an individual determines her or his social and economic outcomes. The higher cognitive potential is driven by mental capacity, duration of existence, the speed of reaction, and lifelong profits. Likewise, a man's or woman's 'intelligence' influences choice-making capacity (Lubinski & Humphreys, 1997).

Education is regularly taken into consideration as a proxy for cognitive capability. Frey and Detterman (2004) argue that executives who graduated from faculties that require better entrance examination ratings generally show greater managerial ability. Chevalier and Ellison (1999) find that fund managers who graduated from better universities generate higher portfolio returns. Datta and Rajagopalan (1998) advocate that education, among other elements, provide an explanation for versions in executives' cognitive capacity. Similarly, Raimo et al. (2021) and Wan et al. (2023) find the empirical evidence of the association between corporate executives' education and improved reporting quality. Similarly, Urquhart and Zhang's (2022) empirical work suggests that firms led by CEOs with doctorate degrees outperform their peers.

Previous literature witnesses conflicting findings about the nexus between the educational backgrounds of executives and firms' overall performance (Wei, D., Luo, C., & Lu, J., 2025). Existing empirical evidence suggests that the impact of executives' education on income smoothing varies with different degrees of executives' education and education major. Chevalier and Ellison (1999) show an association between corporate managers' education and mutual fund overall performance, in which managers with higher educational qualifications (MBAs) or graduating from reputable universities (i.e., Ivy League universities) are inclined to produce higher returns. Interestingly, Bhagat et al. (2010) do not observe a statistically significant association between an executive's schooling and long-term corporate performance.

In the corporate context of China, chairmen play a vital role in driving the firm's performance as well as moulding its culture (King et al., 2016). In Chinese firms, chairmen are the most powerful decision-makers, often overpowering CEOs and regulating corporate policies (Waelchili & Zeller, 2013; Kayani et al., 2021). This is different from Western countries, where corporate governance usually separates the roles of chairman and CEO more clearly, and decision-making is shared more evenly among the board and management, limiting the power of individuals. Therefore, the cultural and business norm differences create unique impacts of chairmen's characteristics on corporate policies and management practices in China. Originally, the major duty of chairmen is to perform their supervising and monitoring roles to ensure their firms are moving in the expected direction. However, as depicted in the agency theory, being able to supervise managers' behaviors is not an easy task since the managers can exploit the information asymmetry scheme to hide information for their self-serving purposes (Jensen & Meckling, 1976). Particularly in financial reporting, since managers are the ones who deal with the daily operation of the firm, they understand the real financial situation and have hands-on experience in avoiding scrutiny from the board. Therefore, to fulfill the monitoring duty, the chairman should possess sufficient knowledge and expertise to understand and monitor the earnings management practices of corporate managers, thus affecting the corporate disclosure policy set by the upper echelons of the organization.

Income smoothing is generally regarded as a common practice that helps level out fluctuations in net income across reporting periods. Income smoothing, according to Dechow et al. (2010), can improve earnings informativeness; however, taking advantage of income smoothing to smooth permanent changes in cash flows contrarily reduce the informativeness of reported earnings. The recent study by Khurana et al. (2018) points out that real-activities earnings smoothing drives one-year-ahead stock price crash risk, indicating that real-activities earnings smoothing increases firms' risk, which potentially translates into stock performance deficiencies. Despite arguments regarding the relevance of income smoothing and earnings informativeness, the empirical evidence on the improvement of earnings informativeness in the presence of income smoothing, by relieving firms' information asymmetry problem and enhancing the predictability of firms' future earnings, outweighs the drawbacks of income smoothing (e.g., Biddle et al., 2009; Dechow et al., 2010; Jung, 2024; Tucker & Zarowin, 2006). Furthermore, this connection also depends on who initiates income smoothing. Managers, as agents, may stay between the line of shareholders' welfare and their perquisites when smoothing earnings (Tucker & Zarowin, 2006). Nevertheless, chairmen, as the principal, are the ultimate representation of shareholders within firms and are shareholders themselves; therefore, they do not overly smooth income to deteriorate information derived from financial statements. Instead, the board of directors can enforce income smoothing as contracting incentives for CEOs to improve the informativeness of the firm's earnings.

The impact of chairman education on earning informativeness can be explained by the Upper Echelons Theory (Hambrick & Mason, 1984). The Upper Echelons Theory revolves around the understanding that organizations foresee their circumstances through the personalized lenses of the top management. Noting that this extremism does not root in *strong situations* – which contain only a few stimuli – but in *weak situations*, where abundant and contradictory stimuli exist. Overseeing supervising the businesses, organizational complexity undoubtedly pushes the chairmen to *weak situations* that disallow them to reach technical rationality, hence inducing them to rely on their knowledge to resolve the current circumstance. Income smoothing, in its original form, represents a *weak situation* where firms seek to level out their earnings to better reflect their underlying economic activities while avoiding moral hazard from the management side. This complication challenges chairmen's rationality and induces them to approach this practice using what they

have learned throughout their education and career. Past education can be of great help as well-educated chairmen possess knowledge and expertise that allow them to deal with arising problems (Hambrick & Mason, 1984). Moreover, Kimberly and Evanisko (1981) assert that having a high level of education hones the complexity of individuals' cognition and their capabilities of information processing. Previous research has documented that the personal characteristics of a chairman, including mental ability, individual information, and motivational sources, influence the firm performance (Kruger et al., 2005; Lubinski & Humphreys, 1997; Wai & Rindermann, 2015). Considering the Upper Echelons Theory, being positioned in *weak situations* of income smoothing, chairmen take mental shortcuts and incorporate their education-derived knowledge into the decision-making process. The higher education they achieve, the better understanding of businesses they obtain, and that may serve as a motivation and limiter for their income smoothing engagement.

Another explanation for the relationship between academic chairmen and income smoothing is through the informativeness of financial disclosure, one of the qualitative characteristics of financial reporting. This characteristic can be achieved through the proper implementation of income smoothing that allows investors to access more insightful details of the businesses. The corporate governance standpoint views the board of directors as a strong mechanism to constrain managerial discretion and enhance the output of financial reporting (Chen et al., 2006; Wang & Campbell, 2012). Academic chairmen, with their profound understanding of business principles and processes, should be able to translate their knowledge in the field into income smoothing decisions that stimulate predictability of their firms' earnings. This point of view, therefore, suggests that chairmen with strong business-related backgrounds may make use of income smoothing to improve earnings informativeness. This connection can be more salient among Chinese firms where chairmen are considerably more powerful than their Western counterparts (Chen et al., 2006; Wang, 2012). Diagram 1 presents the theoretical framework of the relationship between chairmen education and income smoothing practices.

Despite the effort of the Chinese government to converge the Chinese accounting standards with IFRS, corporate financial reporting is a serious issue bugging Chinese regulators (Adams & Mehran, 2012). Since the regulation seems not to yield an expected effect on corporate earnings management practices, Chinese firms must come up with alternative ways to handle the issue. Huang et al. (2016) found that promoting accounting expertise to the board improves the transparency of firms' financial reports. According to Anderson and Bizjak (2003), almost half of outside directors in Chinese firms have an accounting background, whereas this percentage in the U. S. is smaller than 5 %. Furthermore, in China, auditors are not as competent as those in Western countries because of weak career orientation and development (Lin et al., 2005). Therefore, many Chinese firms appoint accounting academics to substitute for the monitoring role of professional auditors. Hoang et al. (2022) show that in China, auditors seem to be more tolerant of earnings management if the audited firm actively discloses CSR activities.

Approaching from the cultural perspective, the current literature highlights that China-prevailing Confucianism emphasizes "status" (Pollock et al., 2010) and having financial experts of high status on the board would enhance the quality of financial reporting and earning informativeness among Chinese firms (Badolato et al., 2014). O'Connell (1998) points out that academics reckon that circulating knowledge is their responsibility; therefore, we expect that highly educated chairman in Chinese firms, with their high status and educator's perception, will impose their philosophy on the board and deliver higher earning informativeness than those who only possess undergraduate or lower qualifications. Chairmen who have a background in business-related fields can comprehend and tend to be more cautious about financial reporting than those without the relevant background. Therefore, their presence as the most influential individual on board will promote surveillance within the business regarding financial reporting. Since the implementation of income smoothing can result in more earning informativeness (Biddle et al., 2009; Tucker & Zarowin, 2006), higher business-educated chairmen may be in favor of exercising income smoothing in the financial reports. Since the post-graduate degrees in business and related majors tend to focus more on problem-solving, have higher scientific contents, and are taught by superior lecturers (Herrmann & Datta, 2005), the difference between postgraduate business (and related majors) degree holders and undergraduate business degree holders are likely significant.[1]

This understanding forms our research hypothesis as follows.

Hypothesis. Corporate chairmen with higher degrees in business-related fields tend to encourage income smoothing.

3. Methodology and data

3.1. Empirical methodology

To investigate the impact of academic chairmen on corporate income smoothing practices, we use the following model:

$$SMOOTHNESS_{i,t} = \alpha + \beta HDBCHAIR_{i,t} + \gamma CONTROL_{i,t} + \varepsilon_{i,t} \quad (1)$$

[1] It is worth noting that income smoothing is not always encouraged in cyclical industries because it does not guarantee an improvement in earnings informativeness (Dichev et al., 2013). To be specific, while smoothed earnings can deliver a better accounting quality if a firm operates in an industry that has stable market demand over time, in highly cyclical industries where earnings highly fluctuate, earnings level-out can misguide market participants about the operational nature and financial picture of the firms in certain economic periods. Chairmen with business-related backgrounds, as the ultimate representatives of shareholders, perceive this threat and possibly perform a key role in controlling the smoothing behaviors. That said, every firm plays with earnings (Graham et al., 2005), so the chairman's accounting expertise does not necessarily inhibit the income smoothing practice but serves as a moderator of the income smoothing practice contingent on contemporaneous economic conditions. Hence, the rebuttal of the proposed hypothesis is relatively weak.

where *SMOOTHNESS* is the proxy of income smoothing; *HDECHAIR* is the dummy variable that equals one if the chairperson of the firm has a higher degree education (i.e., a master's or a doctorate) in business management, finance, accounting, or economics, and zero otherwise; *CONTROL* is a vector of control variables at both firm-level and macro level. We adopt several firm-level control variables from the literature on corporate chairman (Kayani et al., 2021; Waelchili & Zeller, 2013) and literature on earnings management (Becker et al., 1998; Dechow et al., 2010; Hoang, Hoang, et al., 2023; Tucker & Zarowin, 2006), including firm size (*FIRMSIZE*), financial leverage (*LEVERAGE*), financial profitability (*PROFITABILITY*), sales growth (*GROWTH*), Tobin's Q ratio (*TOBINSQ*), total accrual items (*ACCRUALS*), and audit quality (*BIG4*). As uncertainty in economic policy may affect earnings management incentives (Yung & Root, 2019), we include the Economic Policy Uncertainty Index (Baker et al., 2016), GDP growth rate (*GDPGR*), and inflation rate (*INFLATION*) into the model. The descriptions of variables are presented in Table I. Since there are always unobservable factors that are not accounted for in the empirical analysis, we use firm-fixed effects in the model to account for other firm-level unobserved factors that may confound the outcomes of data analysis.

Following the above-mentioned studies, we use the OLS estimator with fixed effects to examine the relationship between chairman education and income smoothing. To establish a causal inference of the relationship between chairman education and income smoothing, we use three alternative statistical methodologies: the instrumental variable (IV) approach, the Entropy Balancing technique, and the Propensity Score Matching (PSM) procedure. The IV approach can establish causality by creating a quasi-experimental setting where the IV affects the treatment variable but has no direct effect on the outcome, thus allowing empirical analysis to isolate the causal impact of the treatment. By using an exogenous IV that is correlated with the treatment but independent of the outcome, IV analysis can overcome issues of endogeneity and omitted variable bias, providing consistent estimates of the causal effect. Entropy Balancing creates a balanced sample between treatment and control groups by optimizing weights for the control group to match the covariate moments of the treatment group. This balanced sample allows for more credible causal inferences by mitigating the effects of observed confounding variables in observational studies (Hainmueller, 2012).

On the other hand, the PSM procedure can establish causality in empirical studies by creating a balanced sample between the treatment and control groups on observed covariates. Since the differences in firm characteristics between groups of chairman education may drive the regression results, PSM and Entropy Balancing can help isolate those differences and facilitate the "All Else Equal" assumption in hypothesis testing. This balanced sample allows for more credible causal inferences by mitigating the effects of observed confounding variables that may influence both the treatment assignment and the outcome. Entropy Balancing and PSM methods can be used as standalone methods to establish causal inferences (Caliendo & Kopeinig, 2008; Hainmueller, 2012; Shipman et al., 2017).

Following Leuz et al. (2003) and Dechow et al. (2010), income smoothness is estimated as a ratio of the standard deviations of earnings relative to that of cash flows from operations ($\sigma(Earnings)/\sigma(CFO)$). We use the three-year rolling standard deviations of EBIT and CFO to calculate the income smoothness variable (*SMOOTHNESS*). The lower the value of *SMOOTHNESS* is, the more income smoothing the firm performs, and vice versa. For the robustness check, we generate four-year and five-year rolling ratios, *SMOOTHNESS2* and *SMOOTHNESS3*, respectively, to substitute *SMOOTHNESS* in the baseline model. We also follow Tucker and Zarowin (2006) to calculate another measure of income smoothing by the five-year rolling correlation between the changes in the discretionary accrual proxy and the changes in the non-discretionary accrual proxy (*TZ_SMOOTH*). The discretionary and non-discretionary accrual proxies follow the ROA-matched model of Kothari et al. (2005). The measure is used for robustness check only, as the use of *TZ_SMOOTH* would significantly reduce our sample size. Following Tucker and Zarowin (2006), the more negative the correlation, the more the firm smooths its earnings.

In addition, as income smoothing is considered a form of earnings management that may affect accounting quality, we construct two more variables that proxy earnings quality proposed by Dechow and Dichev (2002) and McNichols (2002): the measures of discretionary accrual quality. Following Dechow and Dichev (2002) and McNichols (2002), we model discretionary accrual quality as the absolute variation of reported earnings from its cash flow patterns, then generate two variables, *DD_AQ* and *Mc_AQ*. The higher the values of *DD_AQ* and *Mc_AQ*, the more volatile the firm's discretionary accruals, meaning more discretion on the reported earnings of the firm. There is a caution note that all income smoothing and earnings quality proxies in the accounting and finance literature might be subject to certain measurement errors. It is the prevalent method limitation because income smoothing and earning quality can neither be observed directly nor measured accurately.

Furthermore, we create a dummy variable indicating if the highest degree the chairperson holds is a master's degree in business-related fields (*MASTER*) and another dummy variable indicating whether the chairperson holds a doctorate in business-related fields (*DOCTORATE*). We use these two dummies as alternatives to *HDECHAIR* to test the sensitivity of our findings.

3.2. Data and sample

Our initial sample covers all non-financial firms listed in the Shanghai and Shenzhen stock exchanges during 2001–2017. We do not cover the US-China trade war (tariffs taking effect from 2018 onwards) and the COVID-19 period (2020–2022) because of the potential unobserved confounding effects of the two long events on our analysis. Annual financial and chairman data of firms are from the China Stock Market and Accounting Research (CSMAR) database. CSMAR database provides us access to Chinese listed firms' chairmen and directors' educational backgrounds and expertise. We applied various data filter techniques for addressing the outliers in the data set, including identifying observations with values lower than that of the 1st percentile or higher than that of the 99th percentile and a boxplot method. The boxplots method considers values above the third quartile plus 1.5 times the interquartile range or below the first quartile minus 1.5 times the interquartile range as the outliers. To alleviate the impact of outliers and potential data errors on the outcomes of our analysis, all continuous variables are winsorized at the 1st and the 99th percentiles, and we exclude all outliers

identified using the boxplots method. After excluding all missing data, our final sample consists of 15,580 firm-year observations of 1816 listed firms on the two stock exchanges of China during the study period. The construction of our sample is presented in Appendix A1.

3.3. Summary statistics

Table 1 reports the summary statistics of variables used in this study. The means of income smoothness proxies are approximately 0.6 and the standard deviations range from 0.033 to 0.055, indicating that there are certain degrees of income smoothing in Chinese firms. *HDECHAIR*, *MASTER*, and *DOCTORATE* have means of 0.193, 0.176, and 0.030, respectively, meaning that 19.3 % of our firm-year observations match with chairs having higher education degrees in business or related fields. Another noteworthy feature is that BIG4 has a mean of 0.062, implying that only about 6.2 % of the firm-year observations in our sample are accompanied by a Big Four audit firm. This suggests that the audit quality of Chinese firms is generally low during the study period.

To find out the Pearson correlation, the Pairwise Pearson's correlation test is done. The correlation is carried out for all sets of variables, including dependent, independent, and control variables. The results are reported in Table 2. In general, all of the Pearson pairwise correlations in the table are lower than 0.7, thus suggesting that our model is not subject to serious collinearity problems.

4. Empirical results and discussion

4.1. Baseline results

Table 3 reports the regression results of Model (1) using different model specifications.

In Table 3, *HDECHAIR*'s coefficient remains negative and statistically significant at a 1 % level across columns 1 to 3, suggesting that there is a positive relationship between academic chairmen and income smoothness. By standardizing coefficients, we find that, on average, the level of income smoothing in firms with academic chairmen (HDECHAIR = 1) is 0.12 times higher than that of their counterparts (HDECHAIR = 0) in terms of standard deviation. This implies the economic significance of the chairman's education in forming corporate income smoothing practices. The results still hold when we use alternative measures of income smoothing (*SMOOTHNESS2* and *SMOOTHNESS3*) in columns 4–5 and when we employ the Prais-Winsten estimator to control for the potential serial correlation in Column 6. Columns 7–8 report the estimation results using *MASTER* and *DOCTORATE* dummies instead of *HDECHAIR* in the regression model. Our findings stay qualitatively unchanged after those sensitivity tests.[2] A linear fit of the data reported in Fig. 1 further support our regression analysis.

The empirics support our proposition that chairmen with higher education encourage income smoothing, thus improving earning informativeness. As income smoothing may reduce the noise of accrual accounting (Tucker & Zarowin, 2006), corporate chairmen can facilitate income smoothing by designing a compensation contract for CEOs that tolerates income smoothing. As such, chairmen can impose their will on managers to reduce information asymmetry between insiders and outsiders, thus improving the informativeness of accounting information released to the market. Intuitively, chairman education plays an important role in protecting shareholders from information asymmetry and potential expropriation from the agents. Our finding is consistent with the Upper Echelons Theory (Hambrick & Mason, 1984) and the notion that academic directors enhance corporate governance. Our finding is also in line with the broad literature on board characteristics having significant economic impacts on corporate disclosure of financial and non-financial information (Hoang, Nguyen, et al., 2023; Nguyen, Hoang, Nguyen, & Bach, 2023; Rajeevan and Ajward, 2020; Saona et al., 2020; Ye, 2014). From another perspective, one may argue that income smoothing is an aggressive strategy to enhance earnings informativeness. In this vein, our finding is also in line with the notion that managers with a better education in business have the propensity to adopt aggressive strategies (Bertrand & Schoar, 2003). Nevertheless, our study is more relevant to the cultural and business norm context of China where chairmen are the most powerful decision-makers in firms (Kayani et al., 2021; Waelchili & Zeller, 2013). This context is particularly different from the Western context where corporate governance frameworks often emphasize a clearer separation of power between the chairman and CEO roles, and where decision-making authority is more dispersed among the board and executive management, reducing the unilateral influence of any single individual. Such distinction in the corporate governance practices in China as compared to Western governance models, therefore, highlights the uniqueness of this finding.

One may argue that the baseline results may be driven by the widespread accounting or finance-related expertise of the board of directors or the CEOs. To alleviate this concern, we re-estimate our model with additional control variables to control for board composition and CEO's expertise using four additional variables including board size (*BOARDSIZE*), the ratio of independent directors in the board (*BOARDIND*), a dummy variable that indicates whether at least one director has accounting or financial expertise (*DIR_EXP*), and a dummy variable that indicates whether the current CEO has accounting or finance-related background (*CEO_EXP*). We notice that the inclusion of these variables into the model reduces our sample size by one-third, from 15,580 to 9972 firm-year observations. The results of Model (1) regression after including those variables are reported in columns (1–3), Panel A of Table 4. Column (4), Panel A, shows the regression results of Model (1) using the chairman fixed effect to control for potential unobserved

[2] The Variance Inflation Factor (VIF) test shows that the average VIF of variables in our model is 2.51, with firm size (FIRMSIZE) and GDP growth (GDPGR) variables having VIFs larger than 3 while other variables having VIFs lower than 2. This means our model does not suffer from serious multicollinearity problem. Multicollinearity problem can be safely ruled out if the variables with high (or even significantly high) VIFs are statistically significant. Based on this reference, we assume that the estimates of FIRMSIZE and GDPGR in our model are not biased.

Table 1
Variable descriptions and summary statistics.

Variable	Description	Observations	Mean	Standard deviation	Minimum	1st quartile	Median	3rd quartile	Maximum
SMOOTHNESS	Income smoothing proxy following Dechow et al. (2010).	15,580	0.604	0.055	0.541	0.550	0.570	0.622	0.750
SMOOTHNESS2	Income smoothing proxy using four-year rolling standard deviations of earnings and CFO to construct the ratio.	15,580	0.616	0.044	0.556	0.576	0.617	0.641	0.750
SMOOTHNESS3	Income smoothing proxy using five-year rolling standard deviations of earnings and CFO to construct the ratio.	15,580	0.627	0.033	0.572	0.596	0.607	0.643	0.750
TZ_SMOOTH	The five-year rolling correlation between the changes in discretionary accruals and non-discretionary accruals.	11,034	−0.752	0.348	−1.000	−0.863	−0.064	0.598	0.988
DD_AQ	Absolute value of discretionary accruals estimated from the model of Dechow and Dichev (2002).	15,580	0.161	0.283	0.002	0.039	0.074	0.145	1.837
Mc_AQ	Absolute value of discretionary accruals estimated from the model of McNichols (2002), which was a revision of Dechow and Dichev (2002)'s model.	15,580	0.159	0.279	0.002	0.039	0.074	0.143	1.817
HDECHAIR	Dummy variable that equals one if the chair holds a postgraduate degree, zero otherwise.	15,580	0.193	0.341	0	0.000	0.000	0.000	1
MASTER	Dummy variable that equals one if the highest degree the chair holds is a master degree, zero otherwise. All firm-year observations in which the chairman has doctorate degree (s) are excluded.	15,580	0.176	0.323	0	0.000	0.000	0.000	1
DOCTORATE	Dummy variable that equals one if the chair of the board holds a doctorate degree, and zero otherwise.	15,580	0.030	0.151	0.000	0.000	0.000	0.000	1.000
FIRMSIZE	Natural logarithm of total assets.	15,580	7.887	1.192	18.992	2.244	4.653	20.091	25.358
LEVERAGE	The long-term debt to total asset ratio.	15,580	0.173	0.150	0.000	0.018	0.114	0.304	0.612
PROFITABILITY	Return-on-assets ratio.	15,580	0.037	0.071	−0.225	−0.009	0.008	0.078	0.316
GROWTH	Growth of sales.	15,580	0.060	2.496	−6.922	−1.137	0.000	1.043	6.888
TOBINSQ	Tobin's Q ratio.	15,580	2.086	3.597	0.054	1.387	2.909	4.285	8.840
ACCRUALS	Total accruals.	15,580	−0.079	0.410	−2.753	−0.468	0.002	0.049	0.826
BOARDSIZE	The natural logarithm of the number of directors on the board of directors	9972	2.180	0.210	1.390	1.609	2.079	2.485	2.944
BOARDIND	The ratio of independent directors in the board of directors	9972	0.355	0.099	0.000	0.100	0.250	0.625	0.780
DIR_EXP	Dummy variable that equals one if at least one of the directors has an accounting and finance-related background, zero otherwise.	9972	0.404	0.488	0.000	0.000	0.000	1.000	1.000
CEO_EXP	Dummy variable that equals one if the current CEO has financial expertise, zero otherwise.	9972	0.161	0.334	0.000	0.000	0.000	0.000	1.000
BIG4	Dummy variable that equals one if the auditor of the firm is one of the Big Four audit firms, and zero otherwise.	15,580	0.062	0.235	0.000	0.000	0.000	0.000	1.000
GDPGR	Growth in GDP of China.	15,580	9.013	1.987	6.700	2.528	6.900	9.536	14.231
EPU	The annualized Economic Policy Uncertainty Index of China.	15,580	155.938	79.440	64.962	71.426	123/237	260.259	364.833
INFLATION	Consumer Price Index of China.	15,580	0.024	0.018	−0.007	−0.005	0.005	0.020	0.059

Note: Table 1 reports the descriptive statistics, which is based on the mean, median, standard deviation, minimum values, and maximum values. N represents the total number of observations. *SMOOTHNESS* is the proxy of income smoothing; *HDECHAIR* is the dummy variable that equals one if the

chairperson of the firm has a higher degree of education (i.e., master's or a doctorate degree) in business management, finance, accounting, or economics, and zero otherwise; *CONTROL* is a vector of control variables at both firm-level and macro level. We adopt several firm-level control variables including firm size (*FIRMSIZE*), financial leverage (*LEVERAGE*), financial profitability (*PROFITABILITY*), sales growth (*GROWTH*), Tobin's Q ratio (*TOBINSQ*), total accrual items (*ACCRUALS*), and audit quality (*BIG4*) we include the Economic Policy Uncertainty Index, GDP growth rate (*GDPGR*) and inflation rate (*INFLATION*) into the model.

confounding factors at the chairman level. Additionally, we regress Model (1) using *TZ_SMOOTH*, DD_AQ, and *Mc_AQ* as the alternative dependent variables and report the regression results in Columns (5–7), Panel A of Table 4.

In Panel A of Table 4, we document similar empirical findings compared to those reported in the baseline regression in Table 3, with only a minor deviation in the coefficient of the variable of interest, i.e., *HDECHAIR*. The empirical results suggest that our baseline findings will hold after intensive control for firm-level financial traits, macroeconomic conditions, corporate governance factors, CEO's expertise, and alternative variable measurements.

In Panel B of Table 4, we conduct cross-sectional tests to see how the impact of chairman education on income smoothing practices varies in the cross-sections of corporate characteristics. Specifically, we alternatively add to Model (1) the interaction terms between HDECHAIR and the control variables at the firm level, including firm size (*FIRMSIZE*), financial leverage (*LEVERAGE*), financial profitability (*PROFITABILITY*), sales growth (*GROWTH*), Tobin's Q ratio (*TOBINSQ*), total accrual items (*ACCRUALS*), and audit quality (*BIG4*). Collectively, the regression results suggest that the impact of chairman education on income smoothing seems to be stronger with larger firms, firms with more debt leverage, and firms with higher levels of existing accruals, while the impact seems to be weakened in firms with higher Tobin's Q. We also document that the impact does not vary with the level of profitability, revenues growth, or with the presence of a Big Four auditor.

Fig. 2 shows the distribution of the residual of the regression in Model (1). Regardless of the size of the sample (15,580 firm-year observations), we notice that the residuals are not strictly normally distributed. Therefore, to validate the findings from the regression results reported in Fig. 1, we employ the quantile estimator to re-estimate the Model (1) at different quantiles q = {0.10, 0.25, 0.50, 0.75, 0.90}. The regression results are reported in Table 5.

Interestingly, we find that the positive relationship between academic chairman and income smoothing is only pronounced in the middle and the top quantiles of *SMOOTHNESS*. Specifically, *HDECHAIR*'s coefficient is negative and significant in the regressions of Model (1) at the 50th percentile of *SMOOTHNESS* and above (i.e., less income smoothness) but remains insignificant in the lower percentile of *SMOOTHNESS* (i.e., more income smoothness). These empirics well support our proposition. As we argue that academic chairmen encourage income smoothing to improve earning informativeness, their firms are not likely to abuse such a practice, thus limiting income smoothness to a certain degree. On the other hand, firms with aggressive accrual accounting tend to reside in the left tail of *SMOOTHNESS*'s distribution. Therefore, the quantile regression results explain and back up the findings from our baseline regression.

To summarize, our empirical results imply that academic chairmen have a positive impact on income smoothing, thus supporting our proposed hypothesis.

4.2. Endogeneity treatments

To interpret the causal inference of the chairman education – income smoothing relationship and deal with the pervasive endogeneity issues in panel data, we alternatively employ the instrumental variable approach and the Entropy balancing approach to re-estimate the baseline model. We employ Lewbel's (2012) internal instrument approach to estimate the model using the IV estimation. Lewbel's (2012) internal IV estimation method is a technique for identifying causal effects in regression models with endogenous regressors without requiring external instrumental variables. The key idea is to exploit the heteroscedasticity of the errors to construct valid internal instruments. The main advantages of Lewbel's method are that it allows identification without external instruments and can improve efficiency when used in combination with external instruments. Overall, it provides a useful alternative strategy for addressing endogeneity when traditional IV approaches are not feasible. We report the results of the IV regression in Table 6.

In Table 6, Column 1 reports the first-stage regression results and Column 2 reports the second-stage regression results. The coefficient of HDECHAIR in the second-stage regression is positive and significant, which is in line with our baseline results, thus elaborating the causal inference of the chairman education – income smoothing relationship. All diagnostic tests, including under-identification, weak-identification, and over-identification tests, satisfy the instrument requirements, thus ensuring the validity of our instrumental variables. In summary, the results of the IV regression confirm the causal inference for the positive impact of chairman education on corporate financial reporting behavior.

Other than the IV approach, we employ the Entropy Balancing approach (Hainmueller, 2012) to establish the causality of the newfound relationship. Entropy Balancing aims to achieve balance in the moments of the observed covariates between treatment and control groups. By weighting the observations based on their covariate values, it can effectively mitigate selection bias and address confounding variables by eliminating the Pearson correlation between covariates (e.g., control variables) in the model. This balance enhances the comparability between the treated and control groups, making causal effects more reliable. Moreover, Entropy Balancing does not rely on strong assumptions about functional forms or parametric models. It is a nonparametric method that focuses on balancing covariates rather than explicitly modelling the treatment effect. This flexibility allows researchers to avoid misspecification concerns and potential biases linked with parametric modelling assumptions. The entropy balancing approach is relatively robust to model misspecification and distributional assumptions. It does not assume a particular form for the underlying data distribution, making it less sensitive to violations of distributional assumptions compared to other methods like propensity score matching,

Table 2
Pairwise correlation matrix.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) SMOOTHNESS	1.000										
(2) FIRM SIZE	−0.089***	1.000									
(3) LEVERAGE	−0.036***	0.099***	1.000								
(4) PROFITABILITY	−0.020***	0.284***	−0.292***	1.000							
(5) GROWTH	−0.001	0.449***	0.038***	0.309***	1.000						
(6) TOBINSQ	−0.011*	−0.048***	0.008	−0.004	−0.179***	1.000					
(7) ACCRUALS	0.025***	0.184***	−0.033***	0.202***	0.106***	−0.050***	1.000				
(8) BIG4	−0.008	0.352***	−0.028***	0.145***	0.178***	−0.008	0.040***	1.000			
(9) GDPGR	0.118***	−0.152***	0.233***	−0.122***	0.001	0.012**	0.029***	0.020***	1.000		
(10) EPU	−0.388***	0.158***	−0.121***	0.126***	−0.001	0.000	−0.011**	−0.015**	−0.673***	1.000	
(11) CPI	0.201***	0.028***	−0.004	−0.009	0.000	0.001	0.046***	−0.001	0.326***	−0.089	1.000

Note: Table 2 reports the Pearson pairwise correlation matrix of variables used in the baseline model. All variable descriptions are presented in Table 1. ***, **, and * denote statistical significance at 1 %, 5 %, and 10 %, respectively. *SMOOTHNESS* is the proxy of income smoothing. We adopt several firm-level control variables including firm size (*FIRMSIZE*), financial leverage (*LEVERAGE*), financial profitability (*PROFITABILITY*), sales growth (*GROWTH*), Tobin's Q ratio (*TOBINSQ*), total accrual items (*ACCRUALS*), and audit quality (*BIG4*) we include the Economic Policy Uncertainty Index, GDP growth rate (*GDPGR*) and inflation rate (*INFLATION*) into the model.

Table 3
Baseline results: The relationship between academic chairman and income smoothing.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Reduced model	Reduced model with fixed effect	Full model	Full model	Full model	Prais-Winsten estimator	Full model	Full model
	SMOOTHNESS	SMOOTHNESS	SMOOTHNESS	SMOOTHNESS2	SMOOTHNESS3	SMOOTHNESS	SMOOTHNESS	SMOOTHNESS
HDECHAIR	−0.004***	−0.011***	−0.010***	−0.008***	−0.007***	−0.006***		
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)		
MASTER							−0.010***	
							(0.001)	
DOCTORATE								−0.009***
								(0.003)
FIRM SIZE			−0.024***	−0.021***	−0.017***	−0.009***	−0.024***	−0.024***
			(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
LEVERAGE			0.022***	0.021***	0.023***	0.015***	0.022***	0.022***
			(0.004)	(0.004)	(0.003)	(0.003)	(0.004)	(0.004)
PROFITABILITY			0.035***	0.033***	0.022***	0.029***	0.035***	0.035***
			(0.007)	(0.006)	(0.005)	(0.006)	(0.007)	(0.007)
GROWTH			0.000**	0.000**	0.000***	0.000***	0.000*	0.000**
			(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
TOBIN'S			−0.002**	−0.001**	−0.001**	−0.001**	−0.002**	−0.002**
			(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)
ACCRUALS			0.008***	0.006***	0.005***	0.003***	0.008***	0.008***
			(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
BIG4			−0.004	−0.005**	−0.006***	0.005**	−0.005*	−0.004
			(0.003)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)
GDPGR			−0.012***	−0.014***	−0.014***	−0.008***	−0.012***	−0.012***
			(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
EPU			−0.000***	−0.000***	−0.000***	−0.000***	−0.000***	−0.000***
			(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
INFLATION			1.258***	0.973***	0.732***	0.980***	1.250***	1.248***
			(0.027)	(0.019)	(0.014)	(0.021)	(0.027)	(0.027)
Constant	0.617***	0.620***	1.254***	1.224***	1.150***	0.891***	1.258***	1.260***
	(0.000)	(0.000)	(0.021)	(0.017)	(0.015)	(0.015)	(0.021)	(0.021)
Firm FE	No	Yes	Yes	Yes	Yes	No	Yes	Yes
F-Fisher statistic	6771.85***	4867.68***	28,000.35***	603.34***	1008.50***		26,872.81***	27,712.26***
Observations	15,580	15,580	15,580	15,580	15,580	15,580	14,808	15,580
Adjusted R-squared	0.105	0.168	0.935	0.236	0.284	0.771	0.935	0.934

Note: This table reports the fixed-effect regression results of Model (1). All variable descriptions are presented in Table 1. The numbers in parentheses are robust standard errors. ***, **, and * denote statistical significance at 1 %, 5 %, and 10 %, respectively. Firm FE means firm-fixed effects. *HDECHAIR* is the dummy variable that equals one if the chairperson of the firm has a higher degree of education (i.e., master's or a doctorate degree) in business management, finance, accounting, economics, and zero otherwise; *CONTROL* is a vector of control variables at both firm-level and macro level. We adopt several firm-level control variables including firm size (*FIRMSIZE*), financial leverage (*LEVERAGE*), financial profitability (*PROFITABILITY*), sales growth (*GROWTH*), Tobin's Q ratio (*TOBINSQ*), total accrual items (*ACCRUALS*), and audit quality (*BIG4*) we include the Economic Policy Uncertainty Index, GDP growth rate (*GDPGR*) and inflation rate (*INFLATION*) into the model.

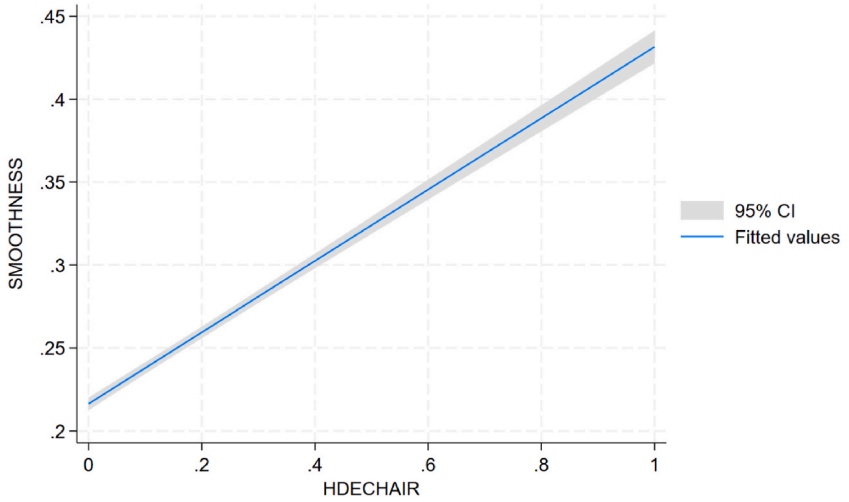

Fig. 1. Fitted values of the SMOOTHNESS-HDECHAIR relationship.

especially in the cases of linear regression and probit regression (Zhao & Percival, 2016).

We define the treated groups as the group of firms with chairmen having postgraduate degrees in business-related fields (HDECHAIR = 1), and the rest belong to the control group (HDECHAIR = 0). Then, we balance the sample using the treat Var HDECHAIR and the covariates are the firm-level control variables in our baseline model. After that, we re-estimate the model using the weight generated from the entropy balancing procedure. The balancing diagnostics and regression results are presented in Table 7.

Besides entropy Balancing, we conduct the Propensity Score Matching (PSM) procedure to generate weights that help balance the observed covariates between the treated group and the control group based on propensity scores. PSM is a standalone statistical method that estimates treatment effects and establishes causal inferences via balancing observed covariates between the treated and control groups (Caliendo & Kopeinig, 2008; Boubaker et al., 2016; Shipman et al., 2017). Like the Entropy Balancing approach, we match each observation of the treated group (HDECHAIR = 1) with an observation from the control group (HDECHAIR = 0) so that the firm-level characteristics of the two observations are similar. The successful matching procedure is evident in Fig. 3 and Appendix A2; we present the results of the PSM-sample regression of Model (1) in Table 8.[3]

The regression results are in line with those of the baseline regression reported in Table 3, thus bolstering our confidence in our baseline findings. The consistency in our empirical findings using the Entropy Balancing and Propensity Score Matching approaches further supports the causal relationship between chairman education and income smoothing.

To summarize, we treat potential endogeneity problems by conducting multiple tests addressing the three sources of endogeneity: reverse causality, measurement errors, and omitted variables. Firstly, keeping in mind that no previous studies in the literature can completely mitigate the measurement errors of earnings quality, we use a wide range of earnings quality proxies in the literature, including those proposed by Dechow and Dichev (2002), McNichols (2002), Leuz et al. (2003), Tucker and Zarowin (2006), and Dechow et al. (2010) (See Table 4, Panel A). Secondly, we employ intensive control variables at the firm level and macro-level in a fixed-effect regression to reduce the omitted variable bias in empirical research (See Table 3, Table 4). Thirdly, we use multiple methods to address the causality of the newfound relationship, including the commonly-used instrumental approach (i.e., IV regression) in accounting and finance literature to establish causal inference, two covariate matching methods (i.e., PSM and Entropy Balancing) to facilitate the "All else equal" assumption and causal inferences as in Chen et al. (2023) (See Tables 6–8). From those tests, we show that our main finding remains unchanged across a wide range of endogeneity treatments, thus bolstering our confidence in the validity of the finding.

4.3. Further analyses

The relationship between business leaders' characteristics and corporate governance may be sensitive to different confounding factors, for instance, the gender of the chair and directors (Harakeh et al., 2019; Strom et al., 2014), ownership structure (Chen et al., 2006, 2008), and analyst coverage (Yu, 2008). Specifically, firms with female leaders may have better governance and performance (Francoeur et al., 2008; Strom et al., 2014); however, they may adopt more conservative earnings management strategies (Liu et al., 2016) compared to their counterparts. There is an important note that this line of research focuses on the gender of CEOs, but not the gender of the chairs of the board of directors. Also, higher compensation may reduce independent directors' effectiveness in financial

[3] The results of the analysis in Appendix A2 suggest that after matching, the values of the variables used in the PSM procedure show no significant difference between the treated group and the control group. The reduction in bias (i.e., divergence) between the two groups is quite large, for example, more than 77 % for FIRMSIZE, LEVERAGE, and TOBIN'S Q.

Table 4
Robustness and cross-sectional tests.

Panel A. Alternative variable measurements and additional control variables

VARIABLE	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	SMOOTHNESS	SMOOTHNESS2	SMOOTHNESS3	SMOOTHNESS	*TZ_SMOOTH*	DD_AQ	*Mc_AQ*
HDECHAIR	−0.012***	−0.011***	−0.009***	−0.042**	−0.004**	0.002*	0.002*
	(0.003)	(0.002)	(0.002)	(0.020)	(0.002)	(0.001)	(0.001)
FIRM SIZE	−0.021***	−0.018***	−0.014***	−0.028***	−0.016***	−0.047***	−0.047***
	(0.003)	(0.004)	(0.003)	(0.010)	(0.004)	(0.004)	(0.004)
LEVERAGE	0.021***	0.015***	0.012***	0.029***	0.015***	−0.017	−0.019
	(0.004)	(0.003)	(0.005)	(0.011)	(0.004)	(0.019)	(0.019)
PROFITABILITY	0.022**	0.030***	0.019***	0.026***	0.022***	0.380***	0.343***
	(0.012)	(0.008)	(0.006)	(0.009)	(0.002)	(0.034)	(0.034)
GROWTH	0.002***	0.001**	0.000***	0.001***	0.001**	0.000	−0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)
TOBIN'S	−0.002**	−0.001**	−0.001**	−0.003**	−0.001*	0.002	0.002
	(0.001)	(0.001)	(0.000)	(0.001)	(0.000)	(0.002)	(0.002)
ACCRUALS	0.003**	0.003***	0.003***	0.007***	0.001	−0.435***	−0.432***
	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)	(0.013)	(0.013)
BIG4	−0.003	−0.004**	−0.005***	−0.001	−0.003***	−0.000	0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.010)	(0.010)
BOARDSIZE	−0.004***	−0.004***	−0.003***				
	(0.000)	(0.000)	(0.001)				
BOARDIND	−0.013***	−0.012***	−0.010***				
	(0.003)	(0.003)	(0.004)				
DIR_EXP	−0.003*	−0.002	−0.002*				
	(0.001)	(0.001)	(0.001)				
CEO_EXP	0.002**	0.002*	0.002**				
	(0.000)	(0.001)	(0.000)				
GDPGR	−0.012***	−0.014***	−0.014***	−0.012***	−0.014***	−0.016***	−0.016***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)
EPU	−0.000***	−0.000***	−0.000***	−0.000***	−0.000***	0.000***	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
INFLATION	1.258***	0.973***	0.732***	1.258***	0.732***	0.748***	0.726***
	(0.027)	(0.019)	(0.014)	(0.027)	(0.014)	(0.090)	(0.091)
Constant	1.254***	1.224***	1.150***	1.254***	1.150***	1.234***	1.241***
	(0.021)	(0.017)	(0.015)	(0.021)	(0.015)	(0.092)	(0.093)
Firm FE	Yes	Yes	Yes	No	Yes	Yes	Yes
Chairman FE	No	No	No	Yes	No	No	No
F-Fisher statistic	1542.08***	1455.61***	1092.89***	822.16***	669.05***	409.01***	387.12***
Observations	9972	9972	9972	15,580	11,034	15,580	15,580
Adjusted R-squared	0.952	0.348	0.345	0.202	0.607	0.698	0.695

Note: This table reports the robustness test results for Model (1) using the fixed-effect estimation. Four additional control variables include board size (BOARDSIZE), the ratio of independent directors in the board (BOARDIND), a dummy variable that indicates whether at least one independent director has accounting or financial expertise (DIR_EXP), and a dummy variable that indicates whether the current CEO has accounting or finance-related background (CEO_EXP). An alternative variable measurement for income smoothing is the measure proposed by Tucker and Zarowin (2006) – *TZ_SMOOTH*, Dechow and Dichev (2002)'s discretionary accrual quality measure – DD_AQ, and McNichols (2002)'s discretionary accrual quality measure – *Mc_AQ*. All variable descriptions are presented in Table 1. The numbers in parentheses are robust standard errors. ***, **, and * denote statistical significance at 1 %, 5 %, and 10 %, respectively. *HDECHAIR* is the dummy variable that equals one if the chairperson of the firm has a higher degree of education (i.e., master's or a doctorate degree) in business management, finance, accounting, economics, and zero otherwise; *CONTROL* is a vector of control variables at both firm-level and macro level. We adopt several firm-level control variables including firm size (*FIRMSIZE*), financial leverage (*LEVERAGE*), financial profitability (*PROFITABILITY*), sales growth (*GROWTH*), Tobin's Q ratio (*TOBINSQ*), total accrual items (*ACCRUALS*), and audit quality (*BIG4*) we include the Economic Policy Uncertainty Index, GDP growth rate (*GDPGR*) and inflation rate (*INFLATION*) into the model.

Panel B. Cross-sectional analysis

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	SMOOTHNESS	SMOOTHNESS	SMOOTHNESS	SMOOTHNESS	SMOOTHNESS	SMOOTHNESS	SMOOTHNESS
HDECHAIR × FIRMSIZE	−0.0012***						
	(0.0002)						
HDECHAIR × LEVERAGE		−0.0682***					
		(0.0118)					
HDECHAIR × PROFITABILITY			−0.0077				
			(0.0240)				
HDECHAIR × GROWTH				−0.0007			
				(0.0007)			
HDECHAIR × TOBIN'S					0.0014**		

(*continued on next page*)

Table 4 (*continued*)

Panel B. Cross-sectional analysis							
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	SMOOTHNESS	SMOOTHNESS	SMOOTHNESS	SMOOTHNESS	SMOOTHNESS	SMOOTHNESS	SMOOTHNESS
					(0.0007)		
HDECHAIR × .ACCRUALS						−0.0081*	
						(0.0046)	
HDECHAIR × BIG4							−0.0045
							(0.0092)
HDECHAIR	−0.0046***	−0.0058***	−0.0083***	−0.0084***	−0.0085***	−0.0014	−0.0083***
	(0.0014)	(0.0014)	(0.0013)	(0.0013)	(0.0013)	(0.0012)	(0.0013)
Constant	0.0051***	0.0049***	0.0049***	0.0049***	0.0049***	0.0048***	0.0049***
	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0004)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
F-Fisher statistic	26,057.05***	25,974***	25,672.04***	25,673.13***	25,703.54***	43,045.87***	25,671.26***
Observations	20,580	20,580	20,580	20,580	20,580	17,685	20,580
Adjusted R-squared	0.9346	0.9346	0.9345	0.9345	0.9345	0.9481	0.9345

Note: This table reports the cross-sectional test for Model (1) using the fixed-effect estimation and interaction terms for cross-sectional analysis. All variable descriptions are presented in Table 1. The numbers in parentheses are robust standard errors. ***, **, and * denote statistical significance at 1 %, 5 %, and 10 %, respectively. *HDECHAIR* is the dummy variable that equals one if the chairperson of the firm has a higher degree of education (i.e., master's or a doctorate degree) in business management, finance, accounting, economics, and zero otherwise; *CONTROL* is a vector of control variables at both firm-level and macro level. We adopt several firm-level control variables including firm size (*FIRMSIZE*), financial leverage (*LEVERAGE*), financial profitability (*PROFITABILITY*), sales growth (*GROWTH*), Tobin's Q ratio (*TOBINSQ*), total accrual items (*ACCRUALS*), and audit quality (*BIG4*) we include the Economic Policy Uncertainty Index, GDP growth rate (*GDPGR*) and inflation rate (*INFLATION*) into the model.

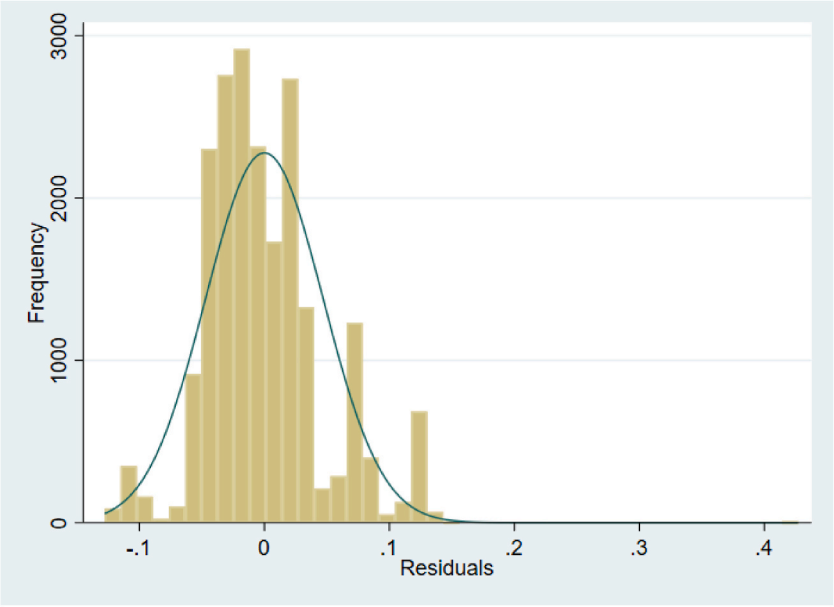

Fig. 2. The distribution of the residuals of Model (1).

report oversight (Ye, 2014). As the dominance of state ownership is a prominent feature of the Chinese economy, it may also have a certain impact on corporate financial reporting activities. Wang and Yung (2011) and Wang and Campbell (2012) show that Chinese state-owned firms tend to engage less in earnings management compared to their counterparts. In addition, firms with more analysts following have the propensity to manage earnings less (Yu, 2008). Other studies conducted in international markets (Degeorge et al., 2013; Irani & Oesch, 2016) and China (Cang et al., 2014; Jin et al., 2022) also suggest the importance of analyst coverage as an effective monitoring mechanism. Consequently, analyst coverage may play an important role in the chairman education – income smoothing relationship. To provide a better understanding of the impact of academic chairman on earning informativeness, we dwell on the investigation of how such chairman characteristics and firm traits affect the newfound relationship.

The empirical model to investigate the impact of chairs' gender, chair's compensation, state ownership, and analyst coverage on the academic chairman-income smoothing relationship is as follows:

Table 5
Quantile regression.

VARIABLES	(1)	(2)	(3)	(4)	(5)
	q10	q25	q50	q75	q90
HDECHAIR	−0.005	−0.007	−0.009**	−0.013***	−0.016**
	(0.007)	(0.005)	(0.004)	(0.005)	(0.007)
Control variables	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
Observations	15,580	15,580	15,580	15,580	15,580

Note: This table reports the quantile regression results of Model (1). All variable descriptions are presented in Table 1. The numbers in parentheses are robust standard errors. ***, **, and * denote statistical significance at 1 %, 5 %, and 10 %, respectively. *HDECHAIR* is the dummy variable that equals one if the chairperson of the firm has a higher degree of education (i.e., master's or a doctorate degree) in business management, finance, accounting, economics, and zero otherwise; *CONTROL* is a vector of control variables at both firm-level and macro level. We adopt several firm-level control variables including firm size (*FIRMSIZE*), financial leverage (*LEVERAGE*), financial profitability (*PROFITABILITY*), sales growth (*GROWTH*), Tobin's Q ratio (*TOBINSQ*), total accrual items (*ACCRUALS*), and audit quality (*BIG4*) we include the Economic Policy Uncertainty Index, GDP growth rate (*GDPGR*) and inflation rate (*INFLATION*) into the model.

Table 6
Instrumental variable regression.

VARIABLES	(1)
	SMOOTHNESS
HDECHAIR	−0.0105***
	(0.0032)
FIRM SIZE	−0.0072***
	(0.0011)
LEVERAGE	−0.0048
	(0.0048)
PROFITABILITY	0.0468***
	(0.0075)
GROWTH	−0.0000
	(0.0002)
TOBINSQ	−0.0010**
	(0.0005)
ACCRUALS	0.0000
	(0.0013)
BIG4	−0.0015
	(0.0040)
GDPGR	−0.0098***
	(0.0002)
EPU	−0.0002***
	(0.0000)
INFLATION	1.6619***
	(0.0324)
Firm FE	Yes
Observations	11,220
R-squared	0.309
Kleibergen-Paap rk LM statistics	773.822***
Kleibergen-Paap rk Wald F-statistics	85.032***
Hansen J test Chi-sq statistic	8.512

Note: This table reports Lewbel's (2012) internal instrumental variable regression results of Model (1). All variable descriptions are presented in Table 1. The numbers in parentheses are robust standard errors. ***, **, and * denote statistical significance at 1 %, 5 %, and 10 %, respectively. *HDECHAIR* is the dummy variable that equals one if the chairperson of the firm has a higher degree of education (i.e., master's or a doctorate degree) in business management, finance, accounting, economics, and zero otherwise; *CONTROL* is a vector of control variables at both firm-level and macro level. We adopt several firm-level control variables including firm size (*FIRMSIZE*), financial leverage (*LEVERAGE*), financial profitability (*PROFITABILITY*), sales growth (*GROWTH*), Tobin's Q ratio (*TOBINSQ*), total accrual items (*ACCRUALS*), and audit quality (*BIG4*) we include the Economic Policy Uncertainty Index, GDP growth rate (*GDPGR*) and inflation rate (*INFLATION*) into the model.

$$SMOOTHNESS_{i,t} = \alpha + \beta HDECHAIR_{i,t} \times X_{i,t} + \gamma + \gamma HDECHAIR_{i,t} + \lambda CONTROL_{i,t} + \varepsilon_{i,t} \quad (2)$$

Table 7
Entropy balancing for causal inference.

Panel A. Balancing diagnostics

Before balancing	**Treat**			**Control**		
	Mean	Variance	Skewness	Mean	Variance	Skewness
FIRMSIZE	21.870	1.469	0.574	21.570	1.336	0.694
LEVERAGE	0.173	0.022	0.713	0.170	0.225	0.734
PROFITABILITY	0.041	0.005	0.690	0.036	0.005	0.339
GROWTH	0.250	6.12	0.001	−0.030	5.936	−0.030
TOBIN'S	1.863	3.915	4.014	2.158	17.290	41.780
ACCRUALS	−0.061	0.125	−4.522	−0.085	0.183	−3.934
BIG4	0.075	0.069	3.226	0.055	0.052	3.897
After balancing	**Treat**			**Control**		
	Mean	Variance	Skewness	Mean	Variance	Skewness
FIRMSIZE	21.870	1.469	0.574	21.860	1.560	0.6562
LEVERAGE	0.173	0.022	0.713	0.173	0.022	0.708
PROFITABILITY	0.041	0.005	0.690	0.041	0.005	0.470
GROWTH	0.250	6.12	0.001	0.248	6.120	−0.054
TOBIN'S	1.863	3.915	4.014	1.869	5.078	20.790
ACCRUALS	−0.061	0.125	−4.522	−0.062	−0.142	−4.340
BIG4	0.075	0.069	3.226	0.075	0.069	3.228

Panel B. Baseline regression using the balancing weight

VARIABLES	(1)	(2)
	SMOOTHNESS	SMOOTHNESS
HDECHAIR	−0.009***	−0.009***
	(0.001)	(0.001)
FIRM SIZE		−0.023***
		(0.001)
LEVERAGE		0.007
		(0.004)
PROFITABILITY		0.048***
		(0.007)
GROWTH		0.000
		(0.000)
TOBIN'S		−0.005***
		(0.000)
ACCRUALS		0.005***
		(0.001)
BIG4		0.001
		(0.003)
GDPGR		−0.011***
		(0.000)
EPU		−0.000***
		(0.000)
INFLATION		1.287***
		(0.030)
Constant	0.629***	1.237***
	(0.001)	(0.019)
Entropy-balancing	Yes	Yes
Firm FE	Yes	Yes
F-Fisher statistic	1175.62***	23,867.80***
Observations	15,580	15,580
Adjusted R-squared	0.030	0.934

Note: This table reports fixed-effect regression results of Model (1) and its reduced-form specification using the entropy-balanced weights. All variable descriptions are presented in Table 1. The numbers in parentheses are robust standard errors. ***, **, and * denote statistical significance at 1 %, 5 %, and 10 %, respectively. *HDECHAIR* is the dummy variable that equals one if the chairperson of the firm has a higher degree of education (i.e., master's or a doctorate degree) in business management, finance, accounting, economics, and zero otherwise; *CONTROL* is a vector of control variables at both firm-level and macro level. We adopt several firm-level control variables including firm size (*FIRMSIZE*), financial leverage (*LEVERAGE*), financial profitability (*PROFITABILITY*), sales growth (*GROWTH*), Tobin's Q ratio (*TOBINSQ*), total accrual items (*ACCRUALS*), and audit quality (*BIG4*) we include the Economic Policy Uncertainty Index, GDP growth rate (*GDPGR*) and inflation rate (*INFLATION*) into the model.

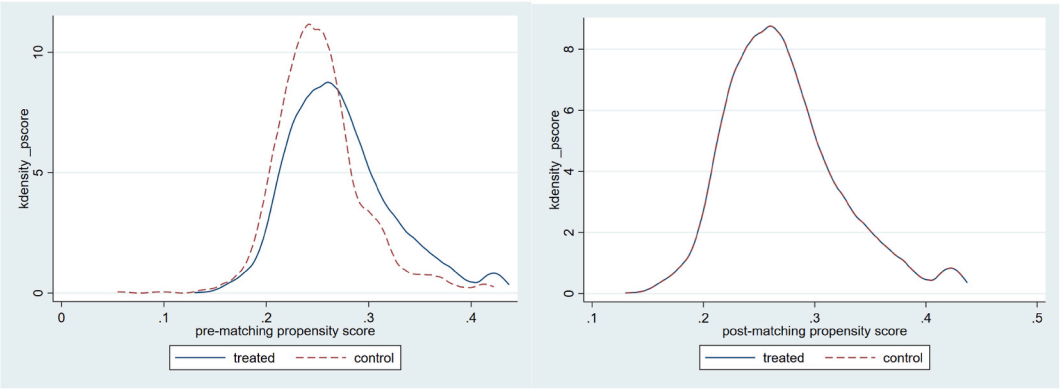

Fig. 3. Pre-match and post-match Propensity score diagnostics.

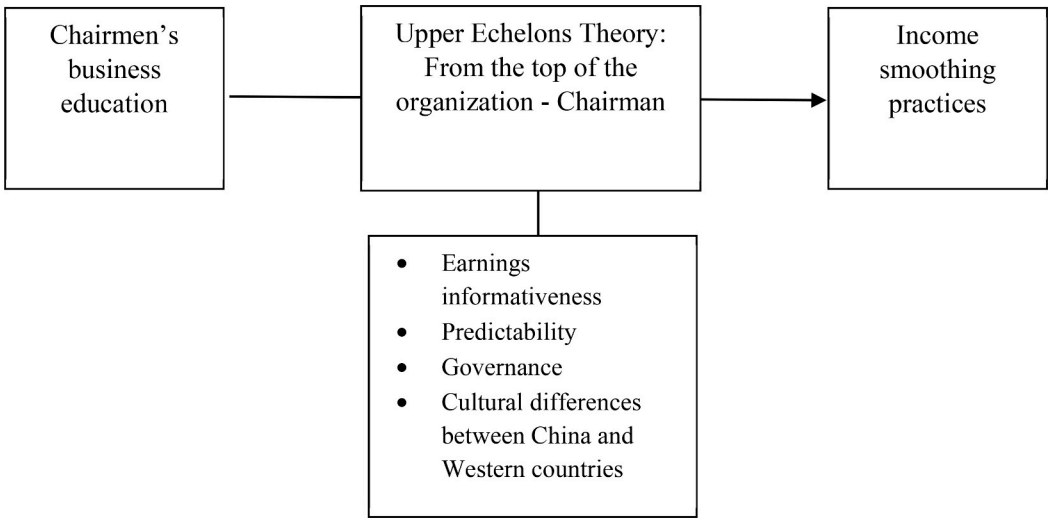

Diagram 1. Theoretical framework.

where $X_{i,t}$ is the proxy of the chair's gender (*GENDER*), chair's compensation (*COMPENSATION*), state ownership (*SOE*), and analyst coverage (*ANALYST*). *GENDER* is a dummy variable that equals one if the chair of the firm is a female and zero otherwise. *COMPENSATION* is the natural logarithm of one plus the total compensation of the chair. *SOE* is a dummy variable that equals one if the firm is a state-owned enterprise and zero otherwise. *ANALYST* is the natural logarithm of one plus the number of analysts following the firm. Table 9 presents the regression results.

In Table 9, the coefficients of the interaction terms *HDECHAIR* × *GENDER*, *HDECHAIR* × *COMPENSATION*, and *HDECHAIR* × *SOE* are statistically insignificant in columns 1–3 of Table 9, implying that chairs' gender, chair's compensation, and the presence of state ownership do not affect how academic chairman stimulates income smoothing in Chinese firms. The finding of the chairs' gender analysis is in line with Harris et al. (2019) that business leaders' gender may not determine the accounting quality of their firms, especially at higher levels of CEO compensation. The finding of the chair compensation analysis is contrary to that of Ye (2014), suggesting that high compensation does not make chairs compromise and does not affect the effectiveness of highly educated chairs with business expertise in terms of financial reporting oversight. Also, the finding from ownership structure analysis adds understanding that the impact of business-academic chairs on income smoothing decision-making is not determined by the presence of state ownership, thus confirming the strong influence of chairman education on corporate behaviors.

Nevertheless, *HDECHAIR* × *ANALYST*'s coefficient is positive and significant in Columns 4, Table 9, indicating that analyst coverage exerts a mitigating effect on the relationship between academic chairman and income smoothing as an external mechanism of corporate monitoring. This finding is in line with the proposition that analyst coverage puts constraints on earnings management practices (Chen et al., 2017; Yu, 2008). While firm traits (e.g., internal factors) do not seem to influence much, the evidence of analyst coverage analysis emphasizes the impact of the market on how academic chairs determine accounting practice in Chinese firms. The findings highlight the significant role of external monitoring mechanisms in corporate reporting.

In summary, further analyses indicate the role of analyst coverage in mitigating the impact of chairman education on the

Table 8
Regression using the Propensity Score matched sample.

VARIABLES	(1)	(2)
	SMOOTHNESS	SMOOTHNESS
HDECHAIR	−0.008***	−0.008***
	(0.002)	(0.002)
FIRM SIZE		−0.022***
		(0.001)
LEVERAGE		−0.008
		(0.006)
PROFITABILITY		0.053***
		(0.010)
GROWTH		−0.000
		(0.000)
TOBIN'S		−0.007***
		(0.000)
ACCRUALS		0.004**
		(0.002)
BIG4		−0.000
		(0.004)
GDPGR		−0.011***
		(0.000)
EPU		−0.000***
		(0.000)
INFLATION		1.151***
		(0.041)
Constant	0.629***	1.217***
	(0.001)	(0.027)
Propensity Score Matching	Yes	Yes
Firm FE	Yes	Yes
F-Fisher statistic	806.95***	10,811.86***
Observations	10,614	10,614
Adjusted R-squared	0.098	0.936

Note: This table reports fixed-effect regression results of Model (1) and its reduced-form specification using the Propensity-score matched weights. All variable descriptions are presented in Table 1. The numbers in parentheses are robust standard errors. ***, **, and * denote statistical significance at 1 %, 5 %, and 10 %, respectively. *HDECHAIR* is the dummy variable that equals one if the chairperson of the firm has a higher degree of education (i.e., master's or a doctorate degree) in business management, finance, accounting, economics, and zero otherwise; *CONTROL* is a vector of control variables at both firm-level and macro level. We adopt several firm-level control variables including firm size (*FIRMSIZE*), financial leverage (*LEVERAGE*), financial profitability (*PROFITABILITY*), sales growth (*GROWTH*), Tobin's Q ratio (*TOBINSQ*), total accrual items (*ACCRUALS*), and audit quality (*BIG4*) we include the Economic Policy Uncertainty Index, GDP growth rate (*GDPGR*) and inflation rate (*INFLATION*) into the model.

accounting practices of Chinese firms whilst showing that such an impact does not vary in the cross-sections of chair gender, levels of chair compensation, and ownership structure of firms. The findings provide a better understanding of the channels through which chairman education impacts the accounting quality of Chinese firms.

5. Conclusion

Appropriate earnings management practices call for not only business leaders' ethics but also business-related expertise. Our findings show that academic chairmen (who major in business and related areas) in China tend to encourage income smoothing, which is a good way to mitigate information asymmetry between the agents and the principal (Tucker & Zarowin, 2006). Such behavior is not observed in the groups of corporate chairmen with lower levels of education and chairmen majoring in non-business-related fields. Interestingly, such a difference remains qualitatively consistent across genders, degrees of emoluments, and the presence of state ownership. Further analysis indicates the role of analyst coverage in mitigating the impact of business-academic chairmen on corporate accounting practice.

This study unveils the impact of chairman education on earnings informativeness of Chinese listed firms during the 2001–2017 period. The data is extracted from the Shanghai and Shenzhen stock exchanges. The CSMAR database has been used for extracting the Annual financial and chairman data of firms. Initially, all listed firms were considered, and accordingly, their data was extracted. We have applied various econometric techniques for our baseline and robustness analysis. The endogeneity problem is considered while applying the 2SLS regression. Our finding has implications for corporate policy and accounting education in business schools at the undergraduate level. Based on our findings, it is necessary to improve or require business-related education at the postgraduate level or equivalents for corporate chairmen and chairman candidates in the context of Chinese firms. For business schools in China, it is

Table 9
Further analysis.

VARIABLES	(1)	(2)	(3)	(4)
	Gender of the chair	Chairperson's compensation	State-owned enterprises	Analyst coverage
	SMOOTHNESS	SMOOTHNESS	SMOOTHNESS	SMOOTHNESS
HDECHAIR × GENDER	−0.004			
	(0.007)			
GENDER	0.001			
	(0.004)			
HDECHAIR × COMPENSATION		0.000		
		(0.000)		
COMPENSATION		0.000		
		(0.000)		
HDECHAIR × SOE			0.005	
			(0.003)	
SOE			−0.025***	
			(0.002)	
HDECHAIR × ANALYST				0.002*
				(0.001)
ANALYST				0.002***
				(0.001)
HDECHAIR	−0.013***	−0.005**	−0.010***	−0.006**
	(0.001)	(0.002)	(0.001)	(0.003)
Constant	1.242***	1.013***	1.245***	1.087***
	(0.022)	(0.028)	(0.021)	(0.022)
Control variables	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
F-Fisher statistic	2018.97***	2566.67***	2.810.43***	2998.18***
Observations	15,234	12,196	15,580	13,400
Adjusted R-squared	0.935	0.891	0.935	0.932

Note: This table reports the regression results of further analysis. All variable descriptions are presented in Table I. Numbers in parentheses are robust standard errors. ***, **, and * denote statistical significance at 1 %, 5 %, and 10 %, respectively. *HDECHAIR* is the dummy variable that equals one if the chairperson of the firm has a higher degree of education (i.e., master's or a doctorate degree) in business management, finance, accounting, economics, and zero otherwise; *CONTROL* is a vector of control variables at both firm-level and macro level. We adopt several firm-level control variables including firm size (*FIRMSIZE*), financial leverage (*LEVERAGE*), financial profitability (*PROFITABILITY*), sales growth (*GROWTH*), Tobin's Q ratio (*TOBINSQ*), total accrual items (*ACCRUALS*), and audit quality (*BIG4*) we include the Economic Policy Uncertainty Index, GDP growth rate (*GDPGR*) and inflation rate (*INFLATION*) into the model.

important to incorporate sufficient accounting education in business and business-related programs at undergraduate levels to enhance students' understanding of accounting quality. The main limitation of this study is that the sample is based only on firm data from a single country.

5.1. Practical implications

The practical implications of this study are twofold. First, chairmanship positions in Chinese companies should go to individuals with advanced degrees in areas relevant to business. As a result, corporations should prioritize individuals who have obtained advanced degrees in fields like business management, finance, accounting, or economics when selecting a new chairman. By doing so, businesses may make use of the skills and information that come with college degrees, especially when it comes to making calculated choices about how to best smooth out their revenue. Firms whose current chairpersons lack formal higher education in business-related disciplines may collaborate with universities to develop tailored executive programs. Such initiatives, designed specifically for chairpersons and board members, can enhance the strategic and monitoring capacities of corporate leadership by providing advanced knowledge in management, finance, and governance.

Second, institutions of higher education for business must appreciate the impact that accounting courses may have on company strategy and management. Based on the results of this research, business schools need to include accounting courses that help students comprehend the informativeness of earnings and the consequences of income smoothing. Business schools may help foster the growth of capable and well-informed decision-makers by providing students with the accounting education they need to succeed in the corporate world. Beyond the provision of conventional accounting knowledge, universities should incorporate case-based pedagogy grounded in real-world events. By engaging with authentic accounting scenarios, students can cultivate practical problem-solving skills and critical judgment that better prepare them for the complexities of professional practice.

The findings of this research stress the relevance of accounting knowledge and education for Chinese company chairmen. The ramifications of this finding include that companies should give preference to chairmen with advanced degrees in business-related subjects and that accounting education should be prioritized in business schools to foster more sound decision-making. By putting these suggestions into practice, Chinese companies may raise the bar on accounting quality and boost financial reporting transparency,

creating a more secure business climate. The findings of this study also yield important implications for firms operating in emerging markets where weak regulatory enforcement exacerbates information asymmetries. In such contexts, elevating educational qualifications as a criterion for corporate leadership may function as an alternative governance mechanism, thereby mitigating agency concerns and enhancing the confidence of investors.

5.2. Future research directions

In the context of chairman education and accounting quality, there are several scientific avenues for future study to investigate. First, studies might look at what roles mediators and moderators play in the connection between board education and income smoothing choices made by the chairman. Additional research is needed to determine the extent to which this link is influenced by factors such as business size, industry characteristics, and corporate governance processes.

Second, international or regional comparisons of the impact of chairman education on accounting quality would be quite illuminating. Understanding cross-cultural disparities in accounting practices and the generalizability of conclusions may be aided by comparing the findings from China to those from other nations with different cultural, institutional, and regulatory settings. For future consideration, we recommend that this study be considered in different parameters, such as for emerging and frontier markets, to ascertain whether this kind of behavior exists or not.

In addition, the long-term benefits of chairman education on other aspects of accounting quality beyond income smoothing might be investigated in future studies. To fully grasp the effect of chairman education on financial reporting practices and results, the ramifications for earnings management, financial reporting transparency, and business performance must be investigated.

It would also be instructive to investigate how board education might influence financial reporting. To further understand the mechanisms behind the observed connections, researchers might examine how different types of postsecondary education affect decision-making processes and financial reporting practices.

Finally, a more comprehensive knowledge of the variables impacting accounting quality would be achieved by broadening the focus of the study beyond the effect of chairman education to other areas of corporate governance and CEO qualities. By delving into the relationships between chairman training, board make-up, executive pay, and other governance systems, policymakers may get a deeper understanding of the complex dynamics at play in determining financial reporting standards.

Overall, these potential avenues for further study would deepen the knowledge of the causal processes between chairman education and accounting quality, as well as cross-cultural variances and wider governance and executive traits.

Author contributions statement

This study, " Does chairman education matter to accounting quality?" is the result of a collaborative effort where each author contributed significantly and equally across all stages of the research. Umar Kayani, Khanh Hoang, Huy Viet Hoang and Riadh Manita all played pivotal roles in the conception and design of the study, data collection and analysis, and interpretation of results. Each author was involved in drafting the manuscript and revising it critically for important intellectual content.

Furthermore, all authors have read and approved the final version of the manuscript to be published. They agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. Their collective expertise, spanning economics, finance, management sciences, and Islamic finance, enriched the research process and contributed to the comprehensive exploration of the study's objectives.

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Conflict of interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Huy Viet Hoang reports financial support was provided by University of Economics Ho Chi Minh City (UEH), Vietnam. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix

Appendix A1
Sample construction

Sample construction steps	Number of firms	Number of observations	Sources
Chinese non-financial firms financial data (2001-2017) from Shanghai and Shenzhen stock exchanges	3,482	68,587	CSMAR – Financial statements sub-database
Merging with Chinese firms' chairman data (2001-2017)	3,482	24,816	CSMAR – Corporate Governance sub-database
Excluding missing values after constructing variables			
Final sample	**1,816**	**15,580**	

This table presents the sample construction steps of the final sample used in empirical analysis in this study. The data are collected from the China Stock Market and Accounting Research (CSMAR) database via a licensed subscription for Lincoln University, New Zealand. The initial sample covers all non-financial firms listed in the Shanghai and Shenzhen stock exchanges of China during 2001-2017. The periods of the US-China trade war (tariffs taking effect from 2018 onwards) and the COVID-19 period (2020 to 2023) are excluded because of the potential unobserved confounding effects of the two long events on the outcomes of empirical analysis. As a common practice, financial firms (banks, insurance companies, investment funds, and other credit or financial institutions) are not considered in this study as they have significantly different business characteristics compared to non-financial firms.

Appendix A2
Comparison of variables pre-match and post-match

Variable	Full sample				Propensity score matched sample				
	Treated group	Control group	Difference in means [t-stat] (treated minus control)	Standardized bias (%)	Treated group	Control group	Difference in means (t-stat) (treated minus control)	Standardized bias (%)	Reduction in bias (%)
FIRMSIZE	7.2601	8.3002	-1.0401*** [-6.35]	-10.6 %	7.2893	7.1781	0.1112 [0.09]	1.89 %	82.18 %
LEVERAGE	0.0502	0.0675	-0.0601*** [-7.44]	-13.32 %	0.0250	0.0247	0.0003 [0.12]	0.26 %	98.08 %
PROFITABILITY	0.0136	0.0157	-0.0020** [-2.03]	-3.38 %	0.0025	0.0015	0.0010 [1.02]	2.10 %	37.92 %
GROWTH	-0.0018	0.0307	-0.0325 [-0.96]	-1.63 %	-0.0068	0.0199	-0.0267 [-0.70]	-1.45 %	11.23 %
TOBINSQ	1.0216	0.7810	0.2406 [0.81]	-1.67 %	0.1055	0.1001	0.0054 [0.18]	0.38 %	77.42 %
ACCRUALS	-0.0191	-0.0178	-0.0012 [0.23]	-0.48 %	0.0021	0.0028	-0.0007 [-0.93]	-0.27 %	31.66 %
BIG4	0.0203	0.0192	0.0012 [0.47]	-0.78 %	0.0098	0.0093	0.0005 [0.63]	0.42 %	45.84 %

Note: This appendix compares the mean values of the firm-level characteristic variables between the treated group (HDECHAIR =1) and the control group (HDECHAIR =0) using the full sample and the propensity score matched sample. Firm-level variables taken into consideration including firm size (*FIRMSIZE*), financial leverage (*LEVERAGE*), financial profitability (*PROFITABILITY*), sales growth (*GROWTH*), Tobin's Q ratio (*TOBINSQ*), total accrual items (*ACCRUALS*), and audit quality (*BIG4*). The standardized bias of each variable is the difference in means of the variable between two groups scaled by the average standard deviation of the variable for the two groups, as in Rosenbaum and Rubin (1985) and Boubaker et al. (2016). Variable definitions are presented in Table 1. *, **, and *** denote statistical significance at 10%, 5%, and 1, respectively. Numbers in squared brackets are t-statistics of the mean-difference t-test.

Data availability

Data will be made available on request.

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