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Article

Internationalization of enterprises and quality of financial reports in China: Moderating roles of audit committee characteristics

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Abstract: In the process of seeking sustainable development, enterprises have chosen international business strategy. The purpose of this study is to examine the relationship between the degree of internationalization of Chinese listed firms and financial reporting quality, as well as whether audit committees can moderate the impact of enterprise internationalization on financial reporting quality. The empirical analysis results of Chinese listed manufacturing firms from 2014 to 2018 show that: the degree of corporate internationalization has a significant U-shaped relationship with earnings management. This new finding solves the problem that scholars have inconsistent views on the internationalization of enterprises and the quality of financial reporting. The study also found that audit committees with experience working in accounting firms can inhibit firm earnings management behavior in the early stage of internationalization; audit committees with experience working overseas can inhibit firm earnings management behavior in the later stage of internationalization; the higher the remuneration of audit committee experts, the more it can inhibit firm earnings management behavior in the early stage of internationalization. In the later stage of internationalization, the higher the remuneration of audit committee experts, it helps the earnings management behavior of firms. This provides new evidence on the functioning of the audit committee's role; however, the independence of the audit committee and the proportion of financial experts do not have a significant effect on the inhibition of earnings management.

Keywords: firm internationalization; audit committee characteristics; earnings management; quality of financial reporting

1. Introduction

In the process of enterprises' growth and pursuit of sustainable development, more and more enterprises adopt geographical diversification, that is, international operation strategy (Chen, 2014). A report published in 2014 by the United Nations Conference on Trade and Development (UNCTAD) approximated that roughly 50% of the worldwide Gross Domestic Product (GDP) originates from the international branches of multinational corporations and that 70 percent of the world's 100 largest multinationals have their total assets invested abroad. According to the Statistical Bulletin of China's Outward Foreign Direct Investment 2021 jointly released by the Ministry of Commerce, the National Bureau of Statistics and the State Administration of Foreign Exchange, China's outward foreign direct investment flows reached US $178.82 billion in 2021, ranking among the top three in the world for ten consecutive years. Therefore, given its economic importance, the financial reporting quality of multinational companies deserves careful attention (Beuselinck et al., 2019).

Financial reporting information distortion is a world-class problem. Previously, the downfall of several major corporations, including Enron, WorldCom, and

Adelphia Communications, profoundly startled investors and stakeholders. These companies engaged in aggressive earnings management tactics to manipulate financial statements and provide bias to investors and stakeholders, and investors suffer huge losses (Florencea and Susanto, 2019). To this end, the United States formulated the Sarbanes-Oxley Act, an important measure of which is to make more specific and clear provisions on the functions of the audit committee of listed companies, strengthen the independence of the audit committee, the supervision of the company's internal control and the review of financial reports.

Although China's listed companies have only a history of more than 30 years, the financial fraud cases are shocking. The financial fraud cases of qiongminyuan, Zheng Baiwen, liming stock, Lantian stock, Yinguangxia and other enterprises have caused a very bad social impact. To enhance the corporate governance framework of publicly traded firms and elevate accounting information quality, the Ministry of Finance introduced fundamental guidelines for enterprise internal controls in 2008. These guidelines explicitly mandated the establishment of audit committees within the board of directors of listed companies. These committees were tasked with evaluating internal controls, overseeing their effective implementation, and conducting self-assessments of internal control systems. Furthermore, in 2013, the Shanghai Stock Exchange in China issued comprehensive operational guidelines for board of directors' audit committees in listed companies, which made clear and specific provisions on the appointment, composition, professional requirements and responsibilities of the members of the audit committee, and strengthened the supervision of the audit committee on the authenticity, completeness and accuracy of financial reports.

In 2013, China put forward the "belt and road" initiative, with a primary focus on addressing issues related to investment and trade facilitation, eliminating barriers to investment and trade, expanding and doing a good job in cooperation "cake", so more and more Chinese enterprises have carried out international operations, but enterprises will face different political environments, economic environments, legal systems, accounting standards and regulatory methods in different countries or regions (Li and Sheng, 2020), which will affect the quality of enterprise financial report preparation to varying degrees (Fu and Yang, 2019).

At present, there are few studies on whether the international operation of enterprises can improve financial reporting quality, and opinions are different. Most scholars believe that the international operation of enterprises will make the management of enterprises easy to take advantage of the institutional differences and regulatory differences in different countries to carry out earnings management (Beuselinck et al., 2019; Fan, 2008; Krull, 2004; etc.), thus reducing the quality of corporate financial reporting (Durnev et al., 2017). Some scholars also proved that the international operation of enterprises can learn from the advanced management experience of developed countries, so as to restrain the earnings management behavior of enterprises and improve financial reporting quality (Wang, 2020; Zheng, 2018). Audit committees play a pivotal role in upholding the integrity of financial reporting through their supervisory and regulatory functions (Fama, 1980). Existing studies have confirmed that audit committee independence, financial professional background, accounting firm background, overseas background, salary incentive and so on will promote the improvement of corporate financial reporting quality (Abbott and Parker, 2000; Sultana and Mitchell Van der Zahn, 2015; Zhou et al., 2020; etc.). It is worth exploring whether the audit committee is effective in supervising the financial reporting quality of internationalized enterprises. Therefore, our objective is to address two research questions: (1) How does the international operation of enterprises affect financial reporting quality? (2) Can characteristics such as audit committee independence, financial professional background, accounting firm background, overseas background and salary incentive inhibit the impact of enterprises' international operation on financial reporting quality?

The contributions of this study include: firstly, the problem of inconsistent research views of scholars on the internationalization of enterprises and the quality of financial reports has not been solved. This study has established a mathematical model that can reflect the different stages of enterprise internationalization, solving this gap, strongly supporting the theory of enterprise internationalization, information asymmetry theory, and principal-agent theory, and enriching the research on the economic consequences of enterprise internationalization. Secondly, scholars have not paid attention to whether the audit committee can regulate the relationship between the degree of internationalization of enterprises and financial reporting quality. This study fills this gap and provides new evidence for the role of the audit committee, enriching corporate governance theory, imprinting theory, the behavioral consistency theory, and contract theory. In addition, the results provide useful reference for policy makers to improve the audit committee system of listed companies and improve the corporate governance of international enterprises.

2. Literature review and hypothesis development

2.1. Firm internationalization and quality of financial reporting

Information asymmetry theory and principal-agent theory are the mainstream theory to explain the relationship between enterprises' international operation and financial reporting quality (Raimo et al., 2020). Adverse selection and moral hazard caused by information asymmetry exist widely in enterprise operation and management activities (Pucheta-Martínez et al., 2021). The existence of information asymmetry between corporate managers and external investors gives rise to a cascade of issues concerning the quality of accounting information. The division of ownership and management rights within contemporary enterprises results in a situation where the agent possesses greater decision-making authority and information advantages compared to the principal. Given that both parties aim to maximize their individual interests, the agent's decisions and actions may not always align with the interests of the principal, thus resulting in the principle-agent problem. This leads to the emergence of agency costs (Jensen and Meckling, 1976).

Compared with developing countries, developed countries have advantages in knowledge, technology and production efficiency, and entering developed countries or regions has become one of the characteristics of Chinese enterprises in the early stage of international operation (Zheng, 2018). Developed countries are more advanced and perfect in investor protection (Morck and Yeung, 1991), laws and regulations(Fernandes and Ferreira, 2009), system design (Khanna and Rivkin, 2001) and other aspects, with high market openness and information transparency. It can weaken the information asymmetry problem of internationalized enterprises, and thus alleviate the agency problem between shareholders (principals) and managers (agents) (Shroff et al., 2014). Due to the existence of risks in natural environment, government policies, laws and regulations, market competition, cultural differences and other aspects (Grant, 1987), the uncertainty in the early stage of international operation is prominent, at the same time, the market regulation of developed countries is stricter, and the cost of enterprise violation is higher, the incentive for managers to manage earnings is dampened. In order to carry out international operation, enterprises should first internationalize their accounting, and supply accurate, equitable, and comparable accounting information that aligns with international accounting standards to fulfill the requirements of both domestic and foreign investors and creditors. In the early stage of internationalization, businesses frequently encounter the practical quandary of limited capital sources and elevated capital expenses. Research indicates that enhancing the quality of accounting information is conducive to mitigating the cost of capital for enterprises and alleviating financing constraints (Botosan, 1997; Guo et al., 2014), which will encourage enterprises to consistently enhance financial reporting quality and reduce earnings management behaviors. With the deepening of the international operation of enterprises, enterprises have mastered more market information and accumulated richer market knowledge and experience (Johanson and Vahlne, 1977), so as to better cope with the complex situation in the process of international operation, leverage their inherent strengths to continuously enhance the financial performance of enterprises. The motivation of corporate earnings management is further weakened.

The level of information asymmetry escalates as the number of international operation branches expands (Bushman et al., 2004), and the complexity of operation increases with the proportion of international business and business dispersion. As a result, the degree of information asymmetry between shareholders and managers is aggravated, and the transparency of corporate information is reduced. Managers with international operations have greater discretion(Roth and O'Donnell, 1996), information advantages can be used to reduce the degree of information disclosure, and institutional differences and regulatory differences in different countries can also be used to manage earnings (Beuselinck et al., 2019), so as to increase the possibility of managers' moral hazard and adverse selection. When the internationalization of an enterprise exceeds the appropriate degree, it will produce excessive information processing burden, organizational complexity, management difficulties, inefficient resource allocation, and familiar obstacles in the political and cultural environment of multiple host countries (Chen, 2014). Transaction costs, coordination costs and supervision costs for managers will increase significantly (Griffiths and Zammuto, 2005), which will lead to disharmony in scale and decline in profits. With the decline of corporate financial performance, managers are likely to conduct earnings management for the purpose of maximizing their own interests, which leads to the decline of financial reporting quality. Based on theoretical framework and previous research, the following hypotheses are posited:

H1: when the degree of internationalization is low, the degree of internationalization is significantly negatively correlated with earnings management; as the degree of internationalization increases, there is a significant positive correlation between the two, and the relationship between them is a significant U-shaped relationship.

2.2. The moderating role of the audit committee

As a vital component within the corporate governance structure, the audit committee plays a significant role in enhancing the quality of both internal control and the disclosure of financial information, and effectively alleviate the principle-agent problem caused by the contractual relationship (Song, 2022). An independent audit committee can maintain an objective and fair working attitude, effectively supervise managers' modification of financial statements, and restrain the occurrence of financial fraud (Abbott and Parker, 2000). Based on theoretical framework and previous research, the following hypotheses are posited:

H2: The stronger the independence of audit committee is, the more it can reduce the influence of enterprise internationalization on earnings management.

Financial expertise and ability of audit committee members are the key for the audit committee to play its role (Lutfi et al., 2022). The more professional the audit committee is, the more timely and comprehensive it can find the defects of internal control (Zheng and Liu, 2008) and effectively supervise the authenticity of financial information (Dellaportas et al., 2012) and inhibit managers' earnings manipulation (Sultana and Mitchell Van der Zahn, 2015). The financial experts of the audit committee can provide a professional perspective to examine the information provided by the financial statements, find and correct problems in a timely manner, and more importantly, the audit committee can effectively communicate with external audit institutions, even if there are differences of opinion, the audit committee can make full use of its own financial knowledge to make independent judgment and scientific decision, and improve the quality of financial information disclosure. Based on theoretical framework and previous research, the following hypotheses are posited:

H3: The greater the percentage of financial experts on the audit committee, the more it can diminish the influence of enterprise internationalization on earnings management.

The working background of accounting firms enables audit committee experts to have expertise in financial accounting and auditing (Du and Lu, 2015), enabling them to more easily detect the company's financial risks and fraud risks (Zhang and Hu, 2013), and timely stifle managers' motivation of earnings manipulation in the beginning. Moreover, they have a natural affinity and tacit understanding with auditors, and can communicate with auditors efficiently, strengthen cooperation with external auditors, and jointly restrain managers' opportunistic behaviors and give full play to their supervisory functions. On the other hand, benefiting from the previous audit experience, they are more sensitive to risks, and in order to reduce the reputation loss caused by the disclosure of corporate earnings management, they are more cautious in the supervision of financial reporting quality (Gong and Kang, 2016). Therefore, audit committee experts with firm experience can play their supervisory role and restrain corporate earnings management. Based on theoretical framework and previous research, the following hypotheses are posited:

H4: Audit committees with experience in accounting firms can reduce the influence of firm internationalization on earnings management.

According to the contract theory, reasonable compensation incentives help audit committee members better play the role of governance (Zheng et al., 2017). Incentive compensation for audit committee experts can improve their work enthusiasm and effort (Yermack, 2004) and enhance the supervision efficiency of the company's management (Hermalin and Weisbach, 1995), and they are willing to devote sufficient working time and energy to perform their duties (Du and Zhang, 2004). The salary level of audit committee experts to a certain extent represents their reputation and ability. A reasonable and fair salary level can encourage audit committee experts to pay more attention to their reputation, effectively supervise internal control and financial reporting quality, timely detect and correct managers' opportunistic behavior, prevent fraud risks, strengthen communication and exchange between internal and external audits, and improve audit quality, suppress earnings manipulation behavior. Based on theoretical framework and previous research, the following hypotheses are posited:

H5: The higher the remuneration of the audit committee is, the more it can reduce the influence of enterprise internationalization on earnings management.

The effectiveness of the audit committee in carrying out its responsibilities largely hinges on the personal characteristics and competencies of its expert members. Based on the imprinting theory and the behavioral consistency theory, it can be seen that the overseas work experience of audit committee experts is their unique life experience, which is obviously also a process of being imprinted. Audit committee experts with overseas work experience usually have good educational background and professional knowledge, strong sense of ethics and social responsibility, rich experience and forward-looking vision, and have certain "star effect" in China's capital market (Song and Wen, 2016). Public opinion and themselves have higher requirements and expectations for them, so they have stronger motivation to maintain their social status and reputation, and can play a more effective governance role. The working experience and learning background of audit committee experts with overseas work experience are more focused on overseas. Overseas developed capital markets have a more perfect legal system, a higher level of investor protection and a higher efficiency of contract execution, so they are affected by the overseas environment. These experts in the audit committee have a stronger sense of ethics and investor protection (Conyon et al., 2019), and are better able to prevent financial fraud and other immoral behaviors. At the same time, they have a better understanding of overseas business markets and the ability to curb managers' earnings manipulation. Based on theoretical framework and previous research, the following hypotheses are posited:

H6: Audit committees with overseas work experience can reduce the impact of firm internationalization on earnings management.

3. Data and methodology

3.1. Sample and data collection

More than half of China's listed enterprises with international operations are listed enterprises in the manufacturing industry. China put forward the Belt and Road Initiative in 2013 to help Chinese enterprises "go global" and carry out international operations. At the end of 2019, the COVID-19 virus began to spread in China, and the audit and disclosure of annual reports of almost all listed Chinese companies were greatly affected. To eliminate the impact of the "Belt and Road" policy and the COVID-19 epidemic on the financial reporting quality of listed companies, this study selects China's listed manufacturing companies from 2014 to 2018 as samples, excluding the enterprises with abnormal operation of st and *st, and eliminating the enterprise samples with missing data, finally obtaining 721 samples of listed manufacturing enterprises. The corporate financial data utilized in this paper is sourced from the China Stock Market & Accounting Research (CSMAR) database, and some audit committee personality data are manually collected from http://www.cninfo.com.

3.2. Measurement of variables

The dependent variable is financial reporting quality. Most scholars use earnings management to measure the quality of financial reports (Zhang et al., 2022). Dechow et al., (1995) compared the Healy model, DeAnglo model, Jones (1991) model, modified Jones model and Industry model and other linear total accruals models, and concluded that the modified Jones model had the best estimation effect on discretionary accruals. This paper uses the absolute value of discretionary accruals as an indicator to measure earnings management, using the following model:

$$\frac{TA_{i,t}}{A_{i,t-1}} = \beta_0 \frac{1}{A_{i,t-1}} + \beta_1 \frac{\Delta REV_{i.t}}{A_{i,t-1}} + \beta_2 \left(\frac{PPE_{i,t}}{A_{i,t-1}}\right) + \varepsilon_{i,t} \tag{1}$$

$$NDA_{i,t} = \beta_0 \frac{1}{A_{i,t-1}} + \beta_1 \frac{\Delta REV_{i.t} - \Delta REC_{i.t}}{A_{i,t-1}} + \beta_2 \left(\frac{PPE_{i,t}}{A_{i,t-1}}\right) \tag{2}$$

$$DA_{i,t} = \frac{TA_{i,t}}{A_{i,t-1}} - NDA_{i,t} \tag{3}$$

i: represents the company;
t: represents the time;
TA: Total accrued profit = operating profit-net cash flow from operating activities;
△ *REV*: change in operating income;
△ *REC*: changes in accounts receivable;
PPE: net fixed assets;
A_{t-1}: eliminate scale effect and use total assets at the end of t-1 year;
NDA: Non-discretionary accruals;
DA: Manipulate accrued profits.

First of all, refer to the model of Jones (1991), that is, Equation (1), regression is carried out by industry and year by year, and the regression coefficient is obtained. Secondly, according to the modified Jones model (Dechow et al., 1995), the regression coefficient in the regression Equation (1) was substituted into Equation (2) to obtain the non-discretionary accruals (NDA), which was then substituted into Equation (3) to obtain the revised discretionary accruals (DA). We use the absolute value of DA to measure the degree of earnings management, expressed as AbsDA. A larger absolute value signifies a higher degree of earnings management and consequently lower financial report quality. Conversely, a smaller absolute value suggests a lower degree of earnings management, correlating with higher financial report quality.

The independent variable is the degree of internationalization. It is expressed by Fsts, that is, the proportion of overseas sales in total sales (Contractor et al., 2003; Fan, 2008; Ruigrok et al., 2007; Tallman and Li, 1996).

The moderating variables include: 1) audit committee independence (Indepen), 2) audit committee professionalism (Fex), 3) audit committee accounting firm work background (Afe), 4) audit committee overseas work experience (Rac) and 5) audit committee compensation (Acs).

Control variables include: 1) company size (Size), 2) company age (Age), 3) asset-liability ratio (Lev), 4) profitability (Roa), 5) ratio of inventory and receivables (IR), 6) net operating cash flow (Cfo), 7) nature of ownership (Soe), 8) ownership concentration (Top1), 9) chairman and CEO are the same person (One), 10) board size (Boardsize), 11) management shareholding ratio (Mag), 12) audit firm size (Big4) and 13) auditor opinion OP).

The measurement methods of all variables are shown in **Table 1**:

Table 1. Variables definitions and measurements.

Variable types	Variable name	Measurement of variables
Dependent variable	AbsDA	Calculated by the modified Jones model
Independent variables	Fsts	Overseas sales to total sales
	Indepen	Percentage of independent directors in the audit committee
	Fex	Percentage of financial experts in the audit committee
Moderating variable	Afe	"1" If the audit committee have work experience in accounting firm, and "0"; otherwise
	Rac	"1" If the audit committee have overseas worked background, and "0"; otherwise
	Acs	Average compensation of the audit committee to the average compensation of corporate executives
	Size	Ln(total assets)
	Age	Years since the establishment of a listed company
	Roa	Net profit/average total assets
	Lev	Total liabilities/total assets
	IR	(Inventory and accounts receivable)/total assets
	Cfo	Net cash flow from operating activities to total assets
Control variables	Soe	Take 1 if it is a state-owned enterprise, otherwise take 0
	Top1	Shareholding ratio of the largest shareholder
	One	If CEO is the chairman, take 1, otherwise take 0
	Boardsize	Ln(total number of directors)
	Mag	Management shareholding Share
	Big4	Take 1 if firms were audited by Big4 firms, otherwise take 0
	Op	Take 1 if the auditor gives a standard unqualified opinion, otherwise take 0

3.3. Regression models

In order to test Hypothesis 1, referring to the previous research (Lu and Beamish, 2004; Li and Sheng, 2020), the model is set as follows:

$$AbsDA = \beta_0 + \beta_1 Fsts + \beta\Sigma Controls + \Sigma Year + \varepsilon \quad (4)$$

$$AbsDA = \beta_0 + \beta_1 Fsts + \beta_2 Fsts^2 + \beta\Sigma Controls + \Sigma Year + \varepsilon \quad (5)$$

$$AbsDA = \beta_0 + \beta_1 Fsts + \beta_2 Fsts^2 + \beta_3 Fsts^3 + \beta\Sigma Controls + \Sigma Year + \varepsilon \quad (6)$$

To investigate the moderating impact of audit committee characteristics (hypotheses 2–6), we incorporate these characteristics into the model along with an interaction term involving audit committee characteristics and the level of internationalization. Subsequently, we conduct a Hausman test on the model to determine whether the fixed-effect model or the random-effect model is more appropriate. The test result is: Prob > chi2 = 0.0000, indicating a strong preference for the fixed-effect model.

4. Findings and discussion

4.1. Descriptive statistics

In **Table 2**, we observe that the minimum value of enterprise earnings management (AbsDA) is approximately 0, while the maximum value stands at 0.549. The standard deviation is recorded as 0.0504, with a corresponding mean value of 0.0504. Generally speaking, the degree of earnings management of listed manufacturing enterprises in China is relatively low. The internationalization degree (Fsts) exhibits a minimum of almost 0 with a maximum of 0.998, a standard deviation 0.217, and a mean of 0.221. This shows that the internationalization degree of China's listed manufacturing enterprises is relatively low, and they are in the initial stage of internationalization as a whole. This is consistent with the findings of Chen and Huang, (2018).

Table 2. Descriptive statistics of variables.

Variables	N	Mean	SD	Min	Max
AbsDA	3605	0.0504	0.0504	1.22×10^{-6}	0.549
Fsts	3605	0.221	0.217	1.39×10^{-11}	0.998
Indepen	3605	0.669	0.0856	0	1
Fex	3605	0.425	0.216	0	1
Afe	3605	0.333	0.471	0	1
Rac	3605	0.176	0.381	0	1
Acs	3605	0.166	0.312	0.00259	17.72
Lev	3605	0.414	0.187	0.0174	1.290
Roa	3605	0.0404	0.0623	−0.710	0.399
IR	3605	0.272	0.127	0.0174	0.819
Soe	3605	0.269	0.443	0	1
One	3605	0.298	0.457	0	1
Mag	3605	0.134	0.182	0	0.892
Top1	3605	0.336	0.139	0	0.850

Table 2. (*Continued*).

Variables	N	Mean	SD	Min	Max
Big4	3605	0.0427	0.202	0	1
Cfo	3605	0.0477	0.0607	−0.313	0.484
Op	3605	0.987	0.115	0	1
Size	3605	22.37	1.102	19.56	26.65
Age	3605	2.801	0.324	1.609	3.932
Board size	3605	2.123	0.198	1.386	2.833

The mean value of the independence of audit committee (Indepen) is 0.669, and the mean value of the professionalism of audit committee (Fex) is 0.425, indicating that the independence and professionalism of audit committees of listed manufacturing enterprises in China are relatively high. Conversely, the mean value for audit committees' accounting firm backgrounds (Afe) is 0.333, with the overseas work background (Rac) averaging at 0.176, and compensation (Acs) at 0.166. These statistics indicate that fewer audit committees in Chinese listed manufacturing firms possess backgrounds in accounting firms or overseas work experience. At the same time, the overall compensation of the audit committee is low. The descriptive statistical outcomes for the control variables align closely with those documented in previous studies and will not be separately analyzed in this context.

Table 3 presents the correlation among all variables, and the correlation coefficients between the independent variables are below 0.529. This indicates that there is a low level of correlation among the independent variables, and no multicollinearity issues are evident.

To mitigate potential multicollinearity problems arising from squared independent variables and interaction terms, all predictor variables were mean-centered. Subsequently, a variance inflation factor (VIF) test was conducted on all variables, and the results showed VIF values below 10, further confirming the absence of multicollinearity.

Table 3. Pearson correlation.

Variable	AbsDA	Fsts	Indepen	Afe	Rac1	Acs	Size	Age	Roa	Lev	IR	Cfo	Soe	Top1	One	Boardsize	Mag	Big4	op
AbsDA	1.000																		
Fsts	−0.045***	1.000																	
Indepen	−0.005	−0.033**	1.000																
Afe	−0.021	0.013	−0.011	1.000															
Rac1	0.004	0.033**	0.022	0.013	1.000														
Acs	0.025	−0.047***	−0.013	−0.020	−0.012	1.000													
Size	−0.029*	−0.093***	0.110***	−0.104***	0.089***	−0.015	1.000												
Age	0.023	−0.008	0.052***	−0.002	0.055***	−0.047***	0.180***	1.000											
Roa	−0.168***	−0.018	−0.010	−0.001	0.021	−0.042**	0.041**	−0.043***	1.000										
Lev	0.094***	−0.030*	0.028*	−0.047***	−0.007	0.013	0.529***	0.150***	−0.306***	1.000									
IR	0.099***	0.000	−0.019	−0.015	−0.034**	−0.021	−0.068***	−0.013	−0.068***	0.227***	1.000								
Cfo	−0.142***	0.054***	−0.006	−0.017	0.035**	−0.017	0.022	−0.012	0.390***	−0.140***	−0.259***	1.000							
Soe	−0.060***	−0.090***	0.099***	−0.139***	−0.036**	−0.026	0.331***	0.230***	−0.089***	0.272***	0.084***	−0.066***	1.000						
Top1	−0.049***	−0.013	0.012	−0.029*	0.024	−0.040**	0.039**	−0.056***	0.137***	−0.044***	−0.002	0.100***	0.040**	1.000					
One	0.032*	0.058***	−0.006	0.028*	0.005	0.024	−0.143***	−0.063***	0.055***	−0.098***	−0.009	0.017	−0.260***	0.055***	1.000				
Boardsize	−0.054***	−0.055***	−0.002	0.023	−0.033**	0.006	0.302***	0.083***	0.056***	0.170***	−0.011	0.039**	0.268***	−0.060***	−0.160***	1.000			
Mag	0.006	0.104***	−0.017	0.065***	−0.021	0.042**	−0.330***	−0.237***	0.071***	−0.280***	0.032*	−0.012	−0.415***	0.080***	0.193***	−0.146***	1.000		
Big4	−0.039**	0.003	0.085***	0.017	0.100***	0.043**	0.291***	0.089***	0.031*	0.129***	−0.054***	0.073***	0.104***	0.040**	−0.057***	0.065***	−0.101***	1.000	
Op	−0.107***	−0.006	0.021	−0.005	−0.016	0.000	0.015	−0.030*	0.197***	−0.081***	0.000	0.060***	0.032*	0.076***	0.012	0.009	−0.008	0.025	1

***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

4.2. Multiple regression analysis

To test the proposed hypotheses, this study utilizes the measurement software Stata 14.0 to conduct multiple regression analysis by using the fixed effect model in the panel model. To mitigate potential disturbances caused by heteroscedasticity and serial autocorrelation on the estimation results, robust standard error estimation is employed in the subsequent regression analysis. Additionally, to minimize the influence of outliers in the sample on the study, all variables are winsorized at the 1% and 99% quantiles.

In **Table 4**, as depicted, within Model 1, the coefficient pertaining to the degree of internationalization (Fsts) exhibits statistically significant negativity at the 5% significance level, accompanied by an associated F-statistic of 4.068. Transitioning to Model 2, the coefficient concerning the first-order term for the degree of internationalization (Fsts) demonstrates statistical significance at the 1% level, while the coefficient associated with the quadratic term of internationalization ($Fsts^2$) attains significance at the 5% level, yielding an F-statistic of 4.467. In the context of Model 3, the primary term for the degree of internationalization (Fsts) exhibits significant negativity at the 1% significance level, the quadratic term ($Fsts^2$) remains statistically significant at the 10% level, while the cubic term ($Fsts^3$) fails to achieve statistical significance, yielding an F-statistic of 4.324. Notably, it is evident from the above analysis that Model 2 boasts significant coefficients and the highest F-statistic. Furthermore, the residual errors of the regression model broadly adhere to a normal distribution. In accordance with the theoretical framework and model specifications underpinning the study of enterprise internationalization, it is appropriate to select Model 2 as the preferred research model.

Table 4. Model selection.

VARIABLES	Model 1	Model 2	Model 3
	AbsDA	AbsDA	AbsDA
Fsts	−0.035**	−0.064***	−0.060***
	(−2.445)	(−4.083)	(−3.834)
$Fsts^2$		0.097**	0.165*
		(2.484)	(1.940)
$Fsts^3$			−0.126
			(−0.890)
Size	0.008*	0.008*	0.008*
	(1.810)	(1.922)	(1.921)
Age	0.014	0.012	0.013
	(0.531)	(0.474)	(0.487)
Roa	−0.154***	−0.157***	−0.157***
	(−3.602)	(−3.654)	(−3.661)
Lev	0.045***	0.044***	0.045***
	(2.811)	(2.774)	(2.777)
IR	0.037	0.038	0.038
	(1.408)	(1.457)	(1.470)

Table 4. (*Continued*).

VARIABLES	Model 1	Model 2	Model 3
	AbsDA	AbsDA	AbsDA
Cfo	−0.014	−0.016	−0.016
	(−0.460)	(−0.527)	(−0.541)
Soe	−0.014	−0.013	−0.013
	(−0.872)	(−0.836)	(−0.843)
Top1	−0.024	−0.028	−0.027
	(−1.079)	(−1.240)	(−1.203)
One	−0.003	−0.004	−0.004
	(−0.938)	(−1.029)	(−1.012)
Board size	−0.001	−0.003	−0.003
	(−0.090)	(−0.258)	(−0.269)
Mag	−0.015	−0.016	−0.015
	(−0.998)	(−1.068)	(−1.025)
Big4	−0.018**	−0.019**	−0.019**
	(−2.236)	(−2.368)	(−2.428)
Op	−0.006	−0.006	−0.006
	(−0.508)	(−0.512)	(−0.509)
Constant	−0.161	−0.167	−0.170
	(−1.466)	(−1.503)	(−1.531)
Observations	3605	3605	3605
Year	YES	YES	YES
r^2_a	0.047	0.050	0.050
F	4.068***	4.467***	4.324***

Robust t-statistics in parentheses ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

In Model 2, the coefficient corresponding to the first-order term of the internationalization degree (Fsts) exhibits noteworthy negative significance at the 1% significance level. In tandem, the coefficient associated with the quadratic term of the internationalization degree ($Fsts^2$) demonstrates meaningful positive significance at the 5% level. This observation signifies the presence of a notable U-shaped relationship between the level of internationalization among listed manufacturing enterprises and their earnings management. This can be explained by information asymmetry theory, principal-agent theory and internationalization theory. Therefore, Hypothesis 1 is verified.

Our evidence suggests that the degree of internationalization of firms has different effects on financial reporting quality at different stages. This finding solves the problem of inconsistent views of previous scholars. Specifically, in the early stage of enterprise internationalization, earnings management will be suppressed and the quality of financial reporting will be improved. In the early stage of enterprise internationalization, accounting internationalization helps to improve the quality of financial reporting. The higher market freedom in developed countries weakens the problem of information asymmetry in international enterprises, and the perfect supervision system inhibits the financial fraud of enterprises. However, in the later stage of enterprises' internationalization, the complexity of the business environment increases the degree of information asymmetry, reduces the transparency of corporate information, intensifies the principal-agent contradiction, and increases the possibility of managers' moral hazard and adverse selection. When the internationalization operation of enterprises exceeds the appropriate level, it will lead to large governance costs and diseconomies of scale, and the financial performance of enterprises will decline, so managers will conduct earnings management to maximize their own interests. This view is supported by refs.(Beuselinck et al., 2019; Dyreng et al., 2012; Sun, 2011).

Table 5 shows the regression results of introducing the characteristics of the audit committee and the interaction term between the characteristics of the audit committee and the degree of internationalization in sequence in Model 2.

Table 5. Regression results on moderating roles of audit committee characteristics.

VARIABLES	Model 4	Model 5	Model 6	Model 7	Model 8
	AbsDA	AbsDA	AbsDA	AbsDA	AbsDA
Fsts	−0.063***	−0.064***	−0.063***	−0.057	−0.062***
	(−4.090)	(−4.174)	(−4.066)	(−1.646)	(−3.986)
$Fsts^2$	0.097**	0.097**	0.095**	0.022	0.097***
	(2.510)	(2.484)	(2.474)	(0.562)	(2.646)
Indepen	0.014				
	(0.568)				
Fsts_Indepen	0.034				
	(0.294)				
$Fsts^2$_Indepen	0.076				
	(0.285)				
Fex		−0.005			
		(−0.666)			
Fsts_Fex		−0.062			
		(−1.549)			
$Fsts^2$_Fex		0.085			
		(0.700)			
Afe			−0.006		
			(−1.445)		
Fsts_Afe			−0.046**		
			(−2.471)		
$Fsts^2$_Afe			0.054		
			(0.930)		
Acs				0.015	
				(0.726)	
Fsts_Acs				−0.283*	
				(−1.839)	

Table 5. (*Continued*).

VARIABLES	Model 4	Model 5	Model 6	Model 7	Model 8
	AbsDA	**AbsDA**	**AbsDA**	**AbsDA**	**AbsDA**
$Fsts^2$_Acs				0.449**	
				(2.214)	
Rac					0.007
					(1.638)
Fsts_Rac					0.008
					(0.355)
$Fsts^2$_Rac					−0.144**
					(−2.380)
Constant	−0.170	−0.167	−0.161	−0.147	−0.147
	(−1.523)	(−1.503)	(−1.450)	(−1.309)	(−1.316)
Control	YES	YES	YES	YES	YES
Observations	3605	3605	3605	3605	3605
Year	YES	YES	YES	YES	YES
r^2_a	0.050	0.050	0.052	0.050	0.053
F	3.955***	3.924***	4.206***	3.960***	4.084***

Robust t-statistics in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

In Model 4, the first-order interaction term coefficient (Fsts_Indepen) and quadratic interaction term coefficient ($Fsts^2$_Indepen) of audit committee independence and enterprise internationalization degree are insignificant. In Model 5, the first-order interaction term coefficient (Fsts_Fex) and quadratic interaction term coefficient ($Fsts^2$_Fex) of the proportion of financial experts in the audit committee and the internationalization degree of enterprises are also insignificant. Neither Hypothesis 2 nor 3 holds. This result is supported by Fu and Qi (2012), Chen (2015).

The research results of Fu and Qi (2012) show that the independence of audit committee plays a very limited role in restraining earnings management, which will be weakened by the shareholding ratio of the largest shareholder. The research results of Chen (2015) show that there is no correlation between the proportion of financial experts on audit committees of listed companies and accounting robustness; it is not enough for audit committees to have only financial expertise to fulfill their duties, but more practical experience is needed, and financial experts with a relative lack of practical experience are not able to play an effective supervisory role.

This may be because for enterprises with international operation, it is not enough for the audit committee to have only independence and financial professional ability. The complexity of international operation limits the role of the audit committee, so the audit committee needs not only independence and professional ability, but also other characteristics.

In Model 6, the first-order interaction term coefficient (Fsts_Afe) of audit committee with working experience in accounting firms and the internationalization degree of enterprises is significantly negatively correlated at the level of 5%, while the quadratic interaction term coefficient ($Fsts^2$_Afe) of audit committee with the internationalization degree of enterprises is insignificant. This shows that audit committee experts with working experience in accounting firms can inhibit the earnings management behavior of enterprises in the early stage of internationalization, but has no significant effect on inhibiting the earnings management behavior in the later stage of internationalization. Hypothesis 4 is partially verified. This result is supported by Zhang and Hu (2013).

The reason why it does not significantly inhibit the earnings management behavior in the later stage of enterprise internationalization may be that the proportion of internationalized business, business dispersion and the number of branches increase excessively in the later stage of enterprise internationalization refs.(Bushman et al., 2004), and the uncertainty and complexity of enterprise operation increase greatly, which aggravates the degree of information asymmetry. This greatly weakens the effectiveness of audit committee supervision.

In Model 7, the first-order interaction term coefficient (Fsts_Acs) between the remuneration of experts in the audit committee and the internationalization degree of enterprises is significantly negatively correlated at the level of 10%, and the quadratic interaction term coefficient ($Fsts^2$_Acs) between the remuneration of experts in the audit committee and the internationalization degree of enterprises is significantly positively correlated at the level of 5%. This shows that the higher the remuneration of audit committee experts, the more it can inhibit the earnings management behavior of firms in the early stage of internationalization. In the later stage of internationalization, the higher the remuneration of audit committee experts, but it helps the earnings management behavior of firms. Hypothesis 5 is partially verified. This result is supported by Magilke et al. (2009), Kong (2016).

In the study of Magilke et al. (2009), experimental markets were employed to investigate the influence of stock-based compensation on the impartiality of individuals acting as audit committee members. The experiments revealed that student participants serving as audit committee members tended to favor biased reporting when they were incentivized with stock-based compensation. Audit committee members compensated with current stock-based incentives leaned towards endorsing aggressive reporting, whereas those compensated with future stock-based incentives exhibited a preference for overly conservative reporting. Notably, the study's findings indicated that audit committee members who received fixed compensation without any stock-related incentives displayed the highest level of objectivity.

The research of Kong (2016) has substantiated the existence of an inverted U-shaped relationship between the remuneration level of the audit committee and its regulatory efficacy. There exists a specific threshold salary level at which the regulatory effectiveness of the audit committee experiences enhancement as remuneration increases. Nevertheless, once this threshold is surpassed, the elevation in remuneration levels induces managers to engage in earnings manipulation. This, in turn, suggests a continuous decline in the regulatory efficiency of the audit committee.

The above results show that reasonable compensation incentives can promote audit committee members to play a better supervisory role, but when the degree of internationalization exceeds a moderate level, it will exacerbate the principal-agent problem. In order to maximize their own interests, enterprise managers may adopt higher compensation for the audit committee to achieve "audit opinion purchase".

In Model 8, the coefficient of the interaction term between the audit committee with overseas work experience and the internationalization degree of enterprises (Fsts_Rac) is not significant, and the quadratic interaction term coefficient between the audit committee with overseas work experience and the internationalization degree of enterprises (Fsts2_Rac) is significantly negatively correlated at the level of 5%. This shows that audit committee experts with overseas work experience can inhibit the earnings management behavior of enterprises in the later stage of internationalization, but has no significant effect on inhibiting the earnings management behavior of enterprises in the early stage of internationalization. Hypothesis 6 is partially verified. This result is supported by Feng (2014), Zhou et al., (2020).

Zhou et al., (2020) found that the cognition, ability and motivation of independent directors with overseas experience have advantages in participating in corporate governance. Compared with the overseas work experience of independent directors, the overseas study experience of independent directors has a stronger negative impact on real earnings management. Feng, (2014) empirically analyzed the impact of overseas returnees in the audit committee on the quality of internal control, and found that the overseas returnees in the audit committee significantly improved the quality of internal control.

Audit committees with overseas work experience are not significantly effective in suppressing earnings management behavior in the early stages of enterprise internationalization. This may be because, in the early stages of enterprise internationalization, the proportion and dispersion of overseas business branches and overseas businesses are relatively small, overseas business operations are simple, the operational risks faced are small, and the degree of information asymmetry is low. At this time, the role of audit committees with overseas work experience is not significant.

Despite the above conclusion, it is necessary to explain the low adjusted R^2. By comparing the literature on international operation and earnings management, it is found that whether studying the samples of enterprises in western developed countries or developing countries, one possible reason for the low adjusted R^2 may be due to different measurement methods of earnings management. When the modified Jones model is used to measure the degree of earnings management (Sun, 2011; Li, 2012; Zheng, 2018; Dyreng, 2012), the adjusted R^2 is generally not more than 0.15. When other measures are used, such as the earnings response coefficient (Tao, 2012; Feng, 2014) and the performance adjusted modified Jones model (Beuselinck et al., 2019), the adjusted R^2 is generally above 0.2. Another possibility is that other variables were omitted from the model, which may help explain the changes in the degree of earnings management.Therefore, although the lower adjusted R^2 does not affect the conclusions drawn in this article, it is still a potential limitation.

4.3. Robustness test

4.3.1. Replace dependent variable

To enhance result stability, we employ various dependent variables in our robustness analysis. We draw inspiration from the nonlinear accruals model as outlined in Ball and Shivakumar (2006). This model integrates asymmetry in the treatment of gains and losses and proves more adept at accounting for variations in accruals compared to its linear counterpart:

$$ACC_{i,t} = \alpha_0 + \alpha_1 CFO_{i,t-1} + \alpha_2 CFO_{i,t} + \alpha_3 CFO_{i,t+1} + \alpha_4 DCFO_{i,t} + \alpha_5 DCFO_{i,t} \times CFO_{i,t} + \varepsilon$$

$ACC_{i,t}$: operating profit - net cash flow from operating activities; $CFO_{i,t-1}$, $CFO_{i,t}$ and $CFO_{i,t+1}$ represent the net cash flows from operating activities of company i in periods $t-1$, t and $t+1$, respectively; $DCFO_{i,t}$: if $CFO_t - CFO_{t-1} < 0$, the value is 1, otherwise 0; ε: regression residuals are manipulative accruals. The greater the absolute value of the residuals (DES), the greater the space for earnings management, and the lower the quality of accounting information. The regression results of the robustness test are shown in **Table 6**.

In Model 9, the linear coefficient of the degree of internationalization (Fsts) is significantly negative at the level of 1%, and the quadratic coefficient of the degree of internationalization (Fsts2) is significantly positive at the level of 10%, indicating that there is a significant U-shaped relationship between the degree of internationalization and corporate earnings management, and the conclusion is robust. In Model 10–12, the interaction coefficient between Acs with Fsts and Fsts2 is significant, while the interaction coefficient of (Fsts_Afe) and (Fsts2_rac) is not significant, but the symbol is negative, the main conclusion remains unchanged, and it is reasonable to believe that the conclusion is robust.

Table 6. Regression results with the dependent variable replaced.

VARIABLES	**Model 9**	**Model 10**	**Model 11**	**Model 12**
	DES	**DES**	**DES**	**DES**
Fsts	−0.083***	−0.084***	−0.044	−0.076***
	(−3.162)	(−2.841)	(−1.367)	(−2.874)
$Fsts^2$	0.064*	0.063	0.007	0.064*
	(1.808)	(1.590)	(0.146)	(1.805)
Afe		−0.005		
		(−1.008)		
Fsts_Afe		−0.003		
		(0.088)		
$Fsts^2$_Afe		0.002		
		(0.046)		
Acs			0.005	
			(1.569)	
Fsts_Acs			−0.261**	
			(−2.493)	
$Fsts^2$_Acs			0.401**	
			(2.382)	
Rac				0.009
				(1.637)
Fsts_Rac				−0.026
				(−0.665)

Table 6. (*Continued*).

VARIABLES	Model 9	Model 10	Model 11	Model 12
	DES	**DES**	**DES**	**DES**
$Fsts^2$_Rac				−0.013
				(−0.255)
Control	YES	YES	YES	YES
Observations	3,590	3,590	3,590	3,590
R-squared	0.093	0.094	0.096	0.096
Number of id	720	720	720	720
Year	YES	YES	YES	YES
r^2_a	0.089	0.089	0.090	0.091
F	5.751***	5.128***	5.576***	5.164***

Robust t-statistics in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

4.3.2. Considering the influence of the four major accounting firms

The International Big Four accounting firms are the four most famous accounting firms in the world, representing high audit quality and able to timely detect and suppress corporate earnings management behavior. To mitigate the potential influence of Big Four accounting firms on the international earnings management of enterprises, we deliberately omitted companies audited by these Big Four firms from our sample. The regression outcomes are presented in **Table 7**.

Table 7. Regression results to eliminate the influence of the big four.

VARIABLES	Model 13	Model 14	Model 15	Model 16
	AbsDA	**AbsDA**	**AbsDA**	**AbsDA**
Fsts	−0.101***	−0.077***	−0.060	−0.105***
	(−3.724)	(−2.648)	(−1.630)	(−3.832)
$Fsts^2$	0.085**	0.065*	0.020	0.099***
	(2.462)	(1.852)	(0.493)	(2.995)
Afe		0.005		
		(1.005)		
Fsts_Afe		−0.071*		
		(−1.942)		
$Fsts^2$_Afe		0.059		
		(1.142)		
Acs			0.012	
			(0.550)	
Fsts_Acs			−0.301*	
			(−1.869)	
$Fsts^2$_Acs			0.489**	
			(2.304)	
Rac1				−0.002
				(−0.300)

Table 7. (*Continued*).

VARIABLES	Model 13	Model 14	Model 15	Model 16
	AbsDA	AbsDA	AbsDA	AbsDA
Fsts_Rac1				0.061
				(1.336)
$Fsts^2$_Rac1				−0.127**
				(−2.184)
Control	YES	YES	YES	YES
Observations	3,451	3,451	3,451	3,451
R−squared	0.057	0.060	0.059	0.061
Number of id	699	699	699	699
Year	YES	YES	YES	YES
r^2_a	0.052	0.054	0.053	0.055
F	4.433***	4.321***	3.976***	4.039***

Robust t-statistics in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Within Model 13, it's noteworthy that the coefficient associated with the first-order term of internationalization degree (Fsts) demonstrates significant negativity at the 1% significance level. Simultaneously, the coefficient linked to the quadratic term of internationalization degree ($Fsts^2$) exhibits meaningful positivity at the 5% significance level. This observation strongly suggests the existence of a significant U-shaped relationship between the degree of internationalization and corporate earnings management.

Furthermore, Models 14 through 16 consistently yield results where the significance of each interaction term's coefficient aligns with our research findings. This reinforces the robustness of the conclusion regarding the moderating effect of audit committee characteristics.

5. Conclusion

This study delves into the intricate relationship between internationalization and the financial reporting quality of Chinese listed manufacturing firms during the period spanning from 2014 to 2018. Additionally, it explores the potential moderating role of audit committees in the impact of internationalization on financial reporting quality. The study found that: (1) the relationship between the degree of enterprise internationalization and earnings management is a significant U-shaped relationship. In the initial stage of enterprise internationalization, with the increase of the degree of internationalization, the degree of enterprise earnings management is declining. In the later stage of enterprise internationalization, as the degree of internationalization increases, the degree of enterprise earnings management is improving. (2) Audit committee experts with experience in accounting firms can inhibit the earnings management behavior of enterprises in the initial stage of internationalization, but not significantly inhibit the earnings management behavior of enterprises in the later stage of internationalization. (3) At the beginning of internationalization, the higher the remuneration of audit committee experts, the more restrained the earnings management behavior of enterprises. In the later stage of internationalization, the higher the remuneration of audit committee experts, on the contrary, it will help enterprises' earnings management behavior. (4) The audit committee experts with overseas work experience can inhibit the earnings management behavior of enterprises in the later stage of internationalization, but not significantly inhibit the earnings management behavior of enterprises in the early stage of internationalization. (5) The independence of the audit committee and the percentage of financial experts do not play a significant role in inhibiting the effect of internationalization on earnings management.

Our evidence has several implications for policy makers, firms and stakeholders. For policy makers, these results show that the internationalization of enterprises will affect financial reporting quality, and policy makers should consider the possibility of strengthening supervision of enterprises with a high degree of internationalization. As for the characteristics of audit committee, our results can help policy makers to consider the characteristics of international operation of enterprises when formulating the audit committee system of listed companies. It is beneficial to further improve the financial reporting quality of listed companies to formulate targeted implementation rules of audit committee system, and consider the factors such as overseas work background, accounting firm experience and reasonable salary incentive. For enterprises, international enterprises should further improve their governance structure. When recruiting audit committee experts, they should first consider their overseas work experience, secondly consider the work experience of accounting firms, and give reasonable remuneration to audit committee experts, which is conducive to better playing the role of audit committee to cope with the negative impact of the complexity of overseas business environment on financial reporting quality, it helps to boost the confidence of stakeholders and facilitate the sustainable growth of enterprises.

This study has some limitations that warrant further refinement in future research. First of all, the research sample of this paper only selects listed manufacturing enterprises in China as the research sample, and does not consider other industries. Secondly, since the total amount of foreign assets, the countries where the subsidiaries are located and the number of overseas employees are rarely disclosed in the annual reports of Chinese listed enterprises, this study only uses the proportion of overseas sales to measure the internationalization degree of enterprises. Thirdly, this study only considers the moderating effect of five audit committee characteristics, and future research can consider more characteristics, for example the number of meetings held, gender, age, special professional background or work experience. Fourthly, the adjusted R^2 of this research model is relatively low. Future research can consider other potential independent variables that may affect the degree of earnings management, and other indicators can also be used to measure the quality of financial reporting. Finally, future research can focus on the moderating role of regulators other than the board of directors, for example whether the board of supervisors can moderate the impact of the internationalization degree of enterprises on the quality of financial reporting.

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