

Ownership Concentration, Corporate Social Responsibility, and Real Earnings Management: Evidence from China

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Abstract

China exhibits a prevalent high degree of ownership concentration, leading to frequent principal-principal conflicts, also known as the type II agency problem. This study investigates the type II agency costs when significant shareholders infringe on the rights of minority shareholders through earnings management. Although several earnings management practices exist, managers have favored real earnings management due to its inherent opacity and considerable manipulability. Thus, this study took a comprehensive model as a proxy for real earnings management. The sample comprises 22,053 firm-year from China's Shanghai and Shenzhen A-share listed companies between 2011 and 2020. The results indicate a positive effect of ownership concentration on real earnings management among Chinese firms due to higher type II agency costs. The results also show that corporate social responsibility can mitigate the positive effect of ownership concentration on real earnings management. This study offers valuable insights into the ownership concentration that firms with better CSR are less likely to engage in earnings management. Thus, policymakers and shareholders should monitor the ownership structure and, at the same time, encourage the corporate social responsibility of the firms.

Keywords: Real Earnings Management, Ownership Concentration, Corporate Social Responsibility, Agency Theory, Stakeholder Theory

Introduction

Earnings management refers to the actions taken by managers to manipulate reported earnings that align with their self-interests to influence other stakeholders (Healy & Wahlen, 1999). Enron and WorldCom illustrate two of the most flagrant cases of opportunistic earnings management that led to the largest bankruptcies in U.S. history (Jiraporn et al., 2008). Similarly, earnings management is a common practice for publicly listed Chinese companies that has drawn more attention from academic studies (Guo & Ma, 2015). Chinese firms frequently fudge their earnings numbers via accrual procedures, non-operating transactions with connected parties, tunneling, and others (Aharony et al., 2010; Ding et al., 2007). For instance, companies such as Letv, Geeya Technology, and Zonoco Group have been exposed for engaging in earnings management and even accounting fraud (Fushun, 2018; Mo, 2020; Zeng et al., 2021), causing substantial losses to investors.

In June 2017, the Chinese Academy of International Trade and Economic Cooperation released the “2016 Safety Assessment Report of Non-Financial Listed Companies in China”, which showed that among the 2,629 sample listed companies, 1,139 listed companies had varying degrees of suspicion of financial statement falsification, accounting for 43.32% of all sample listed companies. These earnings management events demonstrate the diverse ways these companies manipulate earnings. Financial reporting is an essential tool that represents a company's financial health and delivers information that affects investor decisions (Alawadi & Rashid, 2023). However, earnings management substantially undermines the reliability of the company's financial statements, undermines the interests of small and medium-sized investors, and interferes with the securities market's ability to allocate resources efficiently. Additionally, it can cause investors to lose faith in the Chinese stock market (Fushun, 2018).

Earnings management activities can be primarily categorized into two types. The first type, also known as accrual-based earnings management (hereafter AEM), involves using accounting policies and estimates by the company's management to manipulate accrual earnings (Jones, 1991). The second type of earnings management is called real earnings management (hereafter REM). REM manipulates actual business activities to change reported earnings (Roychowdhury, 2006). AEM operates within certain accounting principles and policies, making it more prone to attracting attention from regulators such as auditors and government audit departments. In contrast, REM offers a higher level of concealment (Roychowdhury, 2006). Thus, an increasing body of research supports the notion that corporate management tends to manipulate earnings through actual business operations rather than manipulating accruals (Graham et al., 2005). Moreover, companies with close-to-zero earnings might engage in REM through sales, discretionary expense, and production manipulation to avoid losses.

REM can lead companies astray from normal business operations, which harms corporate performance and stock prices (Cohen & Zarowin, 2010), and these effects persist in the long term (Wang, 2006). REM is negatively associated with market expectations for CEO successions, implying that new CEOs may use REM to overcome investors' initial negative impressions (Young et al., 2015). According to (Roychowdhury, 2006), the adverse effects of REM on companies are specifically evident in sales, cost, and expense manipulation, which can directly boost current profit levels. The reasons behind the prevalence of REM are various internal and external factors, including ownership concentration (Dong et al., 2020). In China, a relatively high proportion of ownership is held by major shareholders, leading to a lack of adequate checks and balances on their power (Liu & Lu, 2007). Consequently, major

shareholders may exploit this power imbalance to the detriment of the interests of the minority shareholders, leading to type II agency conflicts.

In contrast to the USA, China has a highly concentrated ownership structure for listed companies (Yang et al., 2012). Fan et al. (2023) discovered that, from 2007 to 2019, the largest shareholder's average shareholding was 34.72%, a very high value that shows the largest shareholder's shareholding ratio of listed companies in China is greater than one-third. The controlling shareholders still own sizable interests in listed companies notwithstanding the progressive fall in ownership concentration over the past three decades of the Chinese stock market's development due to share sales and the issuing of new shares (Jiang & Kim, 2015).

On the other hand, corporate social responsibility (hereafter, CSR) was formally introduced by (Bowen, 1953), who believed that CSR should reflect societal values and make decisions that align with social objectives. Subsequently, in 1991, stakeholder theory was introduced by Wood (1991) into the study of CSR. Companies are expected to undertake social responsibility actively, meet the expectations of various stakeholders, and engage in charitable activities while pursuing economic interests. Nowadays, the idea of CSR includes environmental practice in addition to the traditional focus on social issues (Bani-Khalid & Ahmed, 2017).

Several CSR efforts have been launched by the Chinese government which reflect the government's belief that CSR may help with "building a harmonious society," a major objective articulated at the National People's Congress in 2006 (Marquis & Qian, 2014). The 2006 Chinese Company Law included a provision requiring businesses to engage in social responsibility as part of normal company operations. In 2008, both the Shanghai Stock Exchange (SSE) and Shenzhen Stock Exchange (SZSE) started requiring CSR disclosure for a portion of the corporations listed on their respective exchanges in order to ensure that businesses are publicly transparent about their CSR. These measures are intended to reward businesses with great CSR records and penalize businesses with inadequate CSR (Chen et al., 2018).

Although the relationship between ownership concentration and REM has been studied, research in China is limited. Taking into consideration the above issues, the objectives of this study are:

- to examine the impact of ownership concentration on REM.
- to investigate the role of CSR in moderating the relationship between ownership concentration and REM.

Literature review and hypotheses development

Agency theory

The agency theory is one of the significant theories explaining the conflicts among different interest groups within the modern institutional framework of enterprises (Wasserman, 2006). With the progression of the economy, the United States witnessed a separation of ownership and control (Berle & Means, 1932). Jensen & Meckling (1976) and Ross (1973) proposed that in the corporate system, ownership of the company is held by shareholders (principals), who entrust their rights to managers (agents) to administer the enterprise on their behalf. However, the principal-agent relationship gives rise to agency problems (Berle & Means, 1932). The type I agency problem arises when shareholders do not directly participate in the decision-making processes of the company's daily operations (Sen, 1976). Instead, the management team acts as agents entrusted by the shareholders to handle the day-to-day affairs of the enterprise. The core of the type I agency problem lies in the

divergent interests of both parties. Williamson (1985) claimed that due to the asymmetry of information between shareholders and the management, the management team is motivated to pursue their self-interest, potentially causing harm to the shareholders' interests. Thus, it is important for shareholders to monitor management behavior (Kharashgah et al., 2019; Putra & Mela, 2019)

In contrast, the type II agency problem arises between controlling and minority shareholders within a company (Fama & Jensen, 1983). When ownership is concentrated in the hands of a small number of individuals or with family owners, type II agency problems arise, making it difficult for minority shareholders to protect their interests or wealth (Demsetz & Lehn, 1985). Major shareholders hold actual control over the company, having significant influence and involvement in its operations and management (Dong et al., 2020). When ownership and management rights coincide, the conflict of interest between managers and owners diminishes, while minority shareholders are in a weak position. However, a conflict arises between major shareholders and minority shareholders (Demsetz & Lehn, 1985), wherein the former can engage in actions detrimental to the interests of the latter, seeking personal gains.

Ownership Concentration and Real Earnings Management

Dechow et al. (1996) found that major shareholders can actively supervise the management and reduce the company's earnings management level. Jung & Kwon (2002) found a significant positive correlation between ownership concentration and the amount of earnings information disclosed by Korean firms, reducing information asymmetry and facilitating adequate supervision. Similarly, Alves (2012) researched Portugal's capital market, highlighting the supervisory governance effect of ownership concentration, which can effectively curb earnings management in companies. Thus, ownership concentration might overcome the Type I agency problem.

In contrast, Liu & Lu (2007) discovered that the ownership of the top shareholder has a positive relation with earnings management. According to (Saona et al., 2020), firms with significant ownership concentration are incentivized to manipulate earnings in opportunistic ways. Similarly, Firth et al. (2007) also found the higher the concentration of ownership in listed companies, the greater the likelihood of earnings management.

The conflict between minority and majority shareholders is more severe in emerging economies than between managers and stockholders (Lei et al., 2013). Consistent with Shleifer & Vishny (1997), who challenges the notion that corporate ownership is dispersed and argues there is a growing trend towards concentrated ownership structures in most countries. As an emerging economy, empirical evidence shows a positive correlation between ownership concentration and the probability of earnings manipulation in Brazil's capital market (Sousa & Galdi, 2016). Thus, the type II agency problems between major shareholders and minority shareholders are more significant than those between managers and shareholders in emerging markets (Allen et al., 2005; Enriques & Volpin, 2007; Lei et al., 2013).

Given this discussion, based on the Type II agency problem, the first hypothesis is on the effect of ownership concentration on REM.

Hypothesis 1 (H1): Ownership concentration positively impacts the real earnings management of Chinese firms.

Stakeholder Theory

The concept of stakeholders was first introduced in 1963 as “those groups without whose support the organization would cease to exist” by the Stanford Research Institute (Cohen, 1996). According to Freeman (1984), stakeholders provide information and resources to the company and can influence its interests and legitimacy. Further, a company’s survival relies on the support of its stakeholders, and the more influential the stakeholders are, the more the company will strive to satisfy their interests (Ullmann, 1985; Roberts, 1992). Tagesson et al. (2013) pointed out that a company’s stakeholders include anyone or organization related to the company’s value creation.

Corporate Social Responsibility and Earnings Management

Corporate social responsibilities have become an essential indicator for evaluating business performance (Dhaliwal et al., 2012). Companies engaging in CSR activities and disclosing CSR information have increased the transparency of their operations, which benefits them by reducing their equity costs and enhancing their overall corporate image, thereby generating valuable reputational capital. This view is supported by McWilliams et al. (2006), who argued that companies aim to create a positive social image and reputation by actively engaging in CSR activities and disclosures. According to the signaling theory proposed by Cespa and Cestone (2007), corporate management might utilize CSR activities to mask speculative behavior, thereby avoiding meticulous scrutiny from shareholders. Similarly, Prior et al. (2008) also found that managers engaging in earnings management for personal gain may use CSR activities as a shield to protect themselves.

Conversely, Faisal et al. (2018) reported that companies prioritizing CSR tend to disclose significant financial data and engage less in earnings management. According to the stakeholder theory, companies with more CSR activities have higher employee satisfaction and customer loyalty; therefore, they are more likely to transmit transparent and reliable earnings information to the public (Jaggi & Tsui, 2007). Similarly, Ajina et al. (2019) also pointed out that a positive attitude towards social responsibility increases the trust of stakeholders, leading to a reduction in earnings manipulation practices. In the same vein, managers who engage in CSR reporting are less likely to engage in earnings management because a decreased earnings quality does not reflect stakeholders’ interests (Boubaker et al., 2018).

Based on the preceding discussions, the conclusions remain inconsistent despite the extensive research on the relationship between CSR and earnings management. Moreover, scant literature has addressed the moderating effect of CSR as a variable. This study bases on the stakeholder theory and posits the following hypothesis:

Hypothesis 2 (H2): Corporate social responsibility mitigates the positive effect of ownership concentration on real earnings management.

Data and Methodology

Sample and Data Collection

This study selected A-share listed companies on the Shanghai and Shenzhen Stock Exchanges from 2011 to 2020. To ensure greater accuracy, the samples were filtered and classified as follows: 1. Exclusion of samples from the financial insurance industry; 2. Removal of B-class stocks traded in foreign currencies; 3. Exclusion of samples from companies with Special Treatment (ST) status in the same year; 4. Elimination of samples with incomplete

financial data. This study's financial and ownership data were sourced from the China Stock Market and Accounting Research (CSMAR) database. A total of 22,053 samples were included in this research. As for the CSR data, this study uses CSR ratings from Hexun, the most complete social responsibility rating database for Chinese listed companies (Cheng et al., 2022; Yi et al., 2021).

Dependent Variable

Roychowdhury (2006) indicates that there are three types of REM: abnormal cash flow from operation (A_CFO), abnormal production costs (A_PROD), and abnormal discretionary expenses (A_DISX). Firstly, Equation (1) is used to regress all samples in the same industry in the same year, and the residual is the cash flow of abnormal operating activities. CFO_{it} is cash flow from operating activities in the current period. REV_{it} is current sales volume. A_{it-1} is the total asset size of one phase behind. Then, using Equations (2) and (3) in the same way, the abnormal production costs and abnormal discretionary expenses are estimated, where $PROD_{it}$ is the total production cost of the current period, equal to the sum of the current operating cost and current inventory changes. $DISX_{it}$ is the total discretionary expenses of the current period, equal to the sum of selling expenses and administrative expenses:

$$\frac{CFO_{it}}{A_{it-1}} = a_0 + a_1 \left(\frac{1}{A_{it-1}} \right) + a_2 \left(\frac{REV_{it}}{A_{it-1}} \right) + a_3 \left(\frac{\Delta REV_{it}}{A_{it-1}} \right) + \varepsilon_{it} \quad (1)$$

$$\frac{PROD_{it}}{A_{it-1}} = b_0 + b_1 \left(\frac{1}{A_{it-1}} \right) + b_2 \left(\frac{REV_{it}}{A_{it-1}} \right) + b_3 \left(\frac{\Delta REV_{it}}{A_{it-1}} \right) + b_4 \left(\frac{\Delta REV_{it-1}}{A_{it-1}} \right) + \varepsilon_{it} \quad (2)$$

$$\frac{DISX_{it}}{A_{it-1}} = c_0 + c_1 \left(\frac{1}{A_{it-1}} \right) + c_2 \left(\frac{REV_{it-1}}{A_{it-1}} \right) + \varepsilon_{it} \quad (3)$$

The abnormal cash flow (A_CFO), abnormal production costs (A_PROD) and abnormal discretionary expenses (A_DISX) are computed as the industry-year residuals from the above regression equations (Roychowdhury, 2006). Only the three separate measurements were used in the first study (Roychowdhury, 2006) to approximate REM.

As observed by Cohen et al. (2008), enterprises typically refrain from employing a single method among the three for conducting REM activities. Therefore, it becomes imperative to consider these three factors together comprehensively.

Additionally, Cohen and Zarowin (2010) produced two thorough measurements of REM. They multiply A_DISX by a negative one to get the first comprehensive measure, which they then add to A_PROD. In order to calculate the second comprehensive proxy, A_CFO and A_DISX were first multiplied by a negative one, and then they were combined into a single measure. The likelihood that the company is using REM increases with the extent of this comprehensive metric (Cohen & Zarowin, 2010).

It appears that the usage of the three distinct measures has given way to the use of comprehensive measures in the literature (Haga et al., 2015). Kim and Park (2014) also employ a comprehensive measure to provide a more understandable metric. They multiply A_CFO and A_DISX by negative one before combining the three distinct metrics into a single proxy.

Therefore, this paper uses the comprehensive variable, denoted as REM_{it} serving as an overarching metric for measuring REM. Refer to the method of Kim and Park (2014); Wang et

al. (2021), A_PROD is added after multiplying A_CFO and A_DISX by a negative number as shown in equation (4).

$$REM_{it} = A_PROD_{it} - A_CFO_{it} - A_DISX_{it} \quad (4)$$

Once more, the likelihood that the firm engages in REM increases with the complete measure (Kim & Park, 2014).

Independent Variable

Top, which is used to represent the ownership concentration of an enterprise, is measured by the percentage of shares held by the top 1 large shareholder (Yang et al., 2022). The impact of ownership concentration on REM is examined in this research.

The Moderating Effect of Corporate Social Responsibility

The study's moderating variable is CSR performance, and as a proxy, it used Hexun.com's assessments of publicly traded corporations. Hexun.com began providing CSR rankings and ratings for all Chinese listed companies in 2010. The assessments are based on the annual CSR reports that the companies submit and the annual reports that are released to the public by the Shanghai Stock Exchange (SSE) and Shenzhen Stock Exchange (SZSE). The majority of listed firms are included in the Hexun CSR data, which is the most comprehensive independent social responsibility grading agency in China (Cheng et al., 2022). Hexun analyzes CSR performance across four dimensions: shareholder, employee, environmental, and social responsibility, based on the annual reports of listed firms (Yi et al., 2021).

Control Variables

Several control variables that affect earnings management are covered in this study. According to other studies (Alves, 2012; Chen et al., 2015; Dong et al., 2020), firm size (Size), calculated as the natural logarithm of total assets, has a positive relationship with earnings management. Additionally, earlier studies revealed that earnings management activity is higher in companies with lesser profitability (Firth et al., 2007; Velte, 2019). Profitability is determined in this study using Return on Assets (ROA). According to Gao and Shrieves (2002), managerial compensation (MC), which is scaled by the natural log of total management compensation, may impact managers' incentive to manage earnings more conservatively. Furthermore, this analysis uses board independence (Blnd) as a control variable because, according to various studies (Chen et al., 2015; Khalil & Ozkan, 2016), higher board independence is linked to a lesser degree of earnings management. The number of independent directors divided by the total number of directors is used in the current study to calculate the board's independence.

Empirical Methodology

This study begins the investigation by examining whether ownership concentration significantly affects REM. All continuous variables were winsorized at 1% (top and bottom) to mitigate the effects of outliers. Data analysis was conducted using Stata 16.0 statistical software. In general, there are three regression methods: Ordinary Least Squares (OLS), Random Effects Model (REM), and Fixed Effects Model (FEM). In this study, the LM test and Hausman test results indicate that Fixed Effects Model (FEM) yields the best outcomes among the three estimation methods.

The linear regression model's Breusch-Pagan test was run in order to search for any potential heteroskedasticity problems, and the null hypothesis of homoscedasticity was rejected. In order to avoid heteroskedasticity, the estimation commands specify Eicker-White heteroskedastic-consistent standard errors, and robust standard errors are reported (Ling & Abdul Wahab, 2019).

Model 1 explains the association between ownership concentration and REM. Model 2 investigates how ownership concentration and the REM link are moderated by CSR. The same control variables are applied to both models. The baseline models are as follows:

$$REM_{it} = a_0 + a_1Top_{it} + a_2Size_{it} + a_3MC_{it} + a_4ROA_{it} + a_5Blnd_{it} + \varepsilon_{it} \quad (\text{Model 1})$$

$$REM_{it} = a_0 + a_1Top_{it} + a_2CSR_{it} + a_3Top_{it} \times CSR_{it} + a_4Size_{it} + a_5MC_{it} + a_6ROA_{it} + a_7Blnd_{it} + \varepsilon_{it} \quad (\text{Model 2})$$

Where:

REM = Real earnings management, calculated according to equation (1)-(4).

Top = Ratio of shares held by top 1 largest shareholder.

CSR = Dummy variable for CSR (value taking of 1 for CSR > MEDIAN, otherwise 0). CSR is an index measured as the Hexun CSR score for the firm based on corporate social responsibility.

Size = Natural log of total assets.

MC = Natural log of all managerial compensation.

ROA = Net income divided by total assets.

Blnd = Board Independence is calculated as the number of independent directors divided by the total directors.

Empirical Results and Discussion

Descriptive Statistics

Table 1(a) presents the descriptive statistics of the continuous variables. The maximum value of the dependent variable REM is positive, while the minimum value is negative. This indicates that Chinese listed companies engage in upward and downward accounting earnings adjustments through REM. The maximum value of ownership concentration (Top) is 0.742, and the minimum value is 0.093, indicating significant variation in the shareholding levels of the first major shareholder among Chinese listed companies. The mean value of 0.344 suggests that, on average, ownership concentration in China is at a relatively high level. Furthermore, the maximum value of the board independence (Blnd) index is 0.571, and the minimum value is 0.333, with a mean value of 0.375. This means that, on average, independent directors constitute more than one-third of the board members in Chinese listed companies. Table 1(b) shows that 11,038 (50.05 percent) firms' Hexun CSR scores based on corporate social responsibility are larger than the median value. Furthermore, 11,015 (49.95 percent) firms report smaller Hexun CSR scores than the median value.

Table 1(a)

Descriptive statistics of the continuous variables

VARIABLES	Obs	mean	Std.Dev	Min	Max
REM	22,053	-0.005	0.220	-0.805	0.587
Top	22,053	0.344	0.146	0.093	0.742
Size	22,053	22.270	1.270	19.930	26.190
MC	22,053	15.260	0.721	13.410	17.210
ROA	22,053	0.034	0.062	-0.274	0.188
BInd	22,053	0.375	0.054	0.333	0.571

Table 1(b)

Descriptive Statistics for the Dummy Variables

VARIABLES	Numbers of public listed companies Frequency of 1s	Frequency of 0s
CSR	11,038 (50.05%)	11,015 (49.95%)

Correlation Analysis

The Pearson correlation matrix for variables is presented in Table 2. From Table 2, it can be observed that ownership concentration (Top) has a significant negative impact on REM, which contradicts the initial hypothesis. Further regression tests should be conducted to explore this relationship in more detail. Furthermore, there is a positive relationship between firm size (Size) and REM. The variable of managerial compensation (MC) shows a significant negative correlation with REM, indicating that an increase in managerial compensation is beneficial for reducing agency costs and, consequently, decreasing REM in the company. Additionally, a significant negative correlation exists between ROA and REM, suggesting that an increase in ROA leads to a reduction in REM within the company. As for the relationship between board independence (BInd) and REM, there is no clear linear correlation.

Table 2

Pearson Correlation Matrix

	REM	TOP	Size	MC	ROA	BInd
REM	1					
TOP	-0.050***	1				
Size	0.046***	0.227***	1			
MC	-0.165***	0.00800	0.507***	1		
ROA	-0.361***	0.130***	0.031***	0.200***	1	
BInd	0.00500	0.042***	0.00300	-0.050***	-0.029***	1

Notes: ***, ** and * indicate significant at 1%, 5% and 10%, REM= Real earnings

management, calculated according to equation (1)-(4). *Top*= Ratio of shares held by the top 1 largest shareholder. *Size*= Natural log of total assets. *MC*= Natural log of all managerial compensation. *ROA*= Net income divided by total assets. *BInd*= Board Independence calculated as the number of independent directors divided by total directors.

Empirical Tests and Discussion of the Impact of Ownership Concentration on Real Earnings Management

The regression results in Model 5 reveal that after controlling for time and firm level fixed effects, ownership concentration (Top) has a positive and significant impact on REM at a 1% significance level, with a coefficient of 0.0691. This suggests that higher ownership concentration is associated with greater levels of REM, thus confirming hypothesis H1, which posits that ownership concentration increases REM. Our empirical findings show that ownership concentration in China positively correlates with REM, which matches previous research (Dong et al., 2020; Firth et al., 2007), supporting the occurrence of type II agency problems.

Regarding the control variables, firm size (Size) positively and significantly affects REM at a 1% significance level, indicating that larger companies are more inclined to engage in REM, which is similar to previous studies (Alves, 2012; Chen et al., 2015; Dong et al., 2020). Managerial compensation (MC) exhibits a negative and significant impact on REM at a 1% significance level, signifying that higher managerial compensation reduces the likelihood of REM, which is consistent with the findings of Gao and Shrieves (2002). Return on Assets (ROA) has a negative and significant effect on REM at a 1% significance level, indicating that ROA acts as an inhibitor of REM activities, which agrees with the research of Firth et al. (2007) and Velte (2019).

Model 6 shows the results of the moderating effect. The interaction term between ownership concentration and CSR negatively affects REM with a coefficient of -0.0485 at a 5% significance level. The result indicates that CSR negatively moderates the positive impact of ownership concentration on REM, implying that higher CSR suppresses the positive effect of ownership concentration on REM. This result confirms hypothesis H2, indicating that higher CSR leads to a more pronounced inhibitory effect on the relationship between ownership concentration and REM.

Table 3

The effect of ownership concentration on real earnings management

VARIABLES	OLS Model 1	OLS Model 2	REM Model 3	REM Model 4	FEM Model 5	FEM Model 6
Top	-0.0624*** (0.0100)	-0.0308** (0.0130)	-0.0162 (0.0191)	0.0102 (0.0211)	0.0691*** (0.0261)	0.0940*** (0.0276)
CSR		-0.00949 (0.00700)		0.0151** (0.00766)		0.0230*** (0.00760)
Top×CSR		-0.0545*** (0.0188)		-0.0531** (0.0208)		-0.0485** (0.0210)
Size	0.0273*** (0.00127)	0.0289*** (0.00128)	0.0289*** (0.00248)	0.0291*** (0.00248)	0.0369*** (0.00411)	0.0366*** (0.00412)
MC	-0.0549*** (0.00253)	-0.0546*** (0.00252)	-0.0386*** (0.00371)	-0.0387*** (0.00371)	-0.0293*** (0.00419)	-0.0291*** (0.00419)
ROA	-1.153*** (0.0314)	-1.122*** (0.0314)	-0.698*** (0.0340)	-0.701*** (0.0342)	-0.570*** (0.0285)	-0.582*** (0.0288)
Blnd	-0.0478* (0.0255)	-0.0475* (0.0254)	-0.0578* (0.0343)	-0.0579* (0.0342)	-0.0504 (0.0363)	-0.0521 (0.0363)
Constant	0.305*** (0.0333)	0.265*** (0.0337)	-0.00873 (0.0561)	-0.0190 (0.0563)	-0.356*** (0.0942)	-0.363*** (0.0943)
Observations	22,053	22,053	22,053	22,053	22,053	22,053
R-squared	0.156	0.161			0.631	0.631
Firm FE	NO	NO			YES	YES
Year FE	NO	NO			YES	YES

Notes: ***, ** and * indicate significant at 1%, 5% and 10%, *REM*= Real earnings management, calculated according to equation (1)-(4). *Top*= Ratio of shares held by the top 1 largest shareholder. *CSR*= dummy variable for CSR (value taking of 1 for *CSR* > MEDIAN, otherwise 0). *Size*= Natural log of total assets. *MC*= Natural log of all managerial compensation. *ROA*= Net income divided by total assets. *Blnd*= Board Independence calculated as the number of independent directors divided by total directors. Robust standard errors grouped at the firm level are reported in parentheses.

Robustness Test

To test the robustness of the empirical analysis, this study employs modified variable measurement and replaces control variables for examination. The independent variable, *Top*, is replaced by using the proportion of shareholding by the top 3 largest shareholders instead of the top 1. The dependent variable, *REM*, is replaced with *A_PROD – A_DISX* (Cohen & Zarowin, 2010). As for the moderating variable, *CSR* is replaced with the original score data instead of using dummy variables. Moreover, the control variable *MC*, representing the logarithm of total managerial compensation, is replaced with the managerial shareholdings (*MH*), because previous studies indicated that managerial shareholdings, like managerial compensation, can also inhibit earnings management (Alves, 2012; Teshima & Shuto, 2008).

Table 4 shows that the proportion of shareholding by the top 3 largest shareholders has a positive correlation with *REM*¹ at a 5% significance level, indicating that ownership concentration exacerbates *REM* behavior, thus validating hypothesis H1. After introducing *CSR*¹, the interaction term between the proportion of shareholding by the top 3 largest shareholders and *CSR*¹ (*Top*¹ × *CSR*¹) exhibits a negative correlation with *REM*¹ at a 5% significance level, with a coefficient of -0.00379. This suggests that *CSR* can mitigate the impact of ownership concentration on *REM*, further validating hypothesis H2.

Table 4
Robustness Test

VARIABLES	FEM Model 1	FEM Model 2
<i>Top</i> ¹	0.0391** (0.0175)	0.0575*** (0.0189)
<i>CSR</i> ¹		0.00171** (0.000846)
<i>Top</i> ¹ × <i>CSR</i> ¹		-0.00379** (0.00181)
<i>Size</i>	0.0197*** (0.00282)	0.0197*** (0.00282)
<i>MH</i>	-0.00597 (0.0134)	-0.00681 (0.0134)
<i>ROA</i>	-0.383*** (0.0206)	-0.385*** (0.0211)
<i>Blnd</i>	-0.00670 (0.0266)	-0.00683 (0.0266)
Constant	-0.434*** (0.0638)	-0.443*** (0.0640)
Observations	22,053	22,053
R-squared	0.697	0.697
Firm FE	YES	YES
Year FE	YES	YES

Notes: ***, ** and * indicate significant at 1%, 5% and 10%, *REM*¹= Real earnings

management, calculated as $A_PROD - A_DISX$. Top^1 = Ratio of shares held by top 3 largest shareholder. CSR^1 = Index measured as the Hexun CSR score for the firm based on corporate social responsibility. $Size$ = Natural log of total assets. MH = managerial shareholdings. ROA = Net income divided by total assets. $Bind$ = Board Independence measured by the ratio of independent directors to the number of board members. Robust standard errors grouped at the firm level are reported in parentheses.

Conclusion

Concentrated ownership is present in a huge number of Chinese listed companies, which can have a considerable impact on real earnings management (REM). Meanwhile, Corporate Social Responsibility (CSR) has a substantial impact on REM as well. In this study, we investigate how ownership concentration affects the level of REM in China. According to earlier research by Cohen and Zarowin (2010) and Roychowdhury (2006), this study evaluates REM through abnormal cash flow from operation, production costs, and discretionary expenses. The findings from the empirical results support that ownership concentration increases the REM, and CSR mitigates the positive impact of ownership concentration on REM.

However, this study has certain limitations. Specifically, it focused primarily on the impact of ownership concentration on REM without considering the mutual restraint effect between multiple significant shareholders. Future research could explore the influence of other factors on REM and investigate the moderating effects of other variables, thus gaining a more comprehensive understanding of the factors influencing REM. Furthermore, as the global economy continues to develop, research on REM can also be expanded to include other countries.

This study makes three contributions to previous research. First, in contrast to the USA, China's listed corporations have a highly concentrated ownership structure (Yang et al., 2012), which causes type II agency problems and makes it challenging for minority shareholders to protect their interests. Second, this study expands the stakeholder theory by introducing CSR as a moderator, demonstrating that CSR reduces the impact of ownership concentration on REM, which means managers who are stakeholder-focused will be more cautious in conducting REM. Finally, by presenting actual data from China, this study helps to improve the understanding of REM in developing countries. Given that the Morgan Stanley Capital International (MSCI) opted to incorporate China's mainland stocks in its indices in 2018 (Dong et al., 2020), the findings in this paper are also significant and pertinent. Potential investors in MSCI indexes that include Chinese companies should be aware that REM is strongly tied to the financial performance of these firms.

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