THE IMPACT OF AUDIT QUALITY AND STATE OWNERSHIP ON ACCRUAL-BASED EARNINGS MANAGEMENT: EVIDENCE FROM VIETNAM

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Abstract

This paper examines the impact of audit quality and state ownership on accrual-based earnings management in Vietnamese listed firms. We find that firms which are audited by one of Big Four auditing companies (Deloitte, PricewaterhouseCoopers, Ernst & Young and KPMG) are less likely to engage in earnings management than those audited by Non-Big Four companies. We also find that the higher the proportion of state ownership accounts in outstanding shares, the less earnings management is. Based on the results, we conjecture that a Big Four auditor tends to restrain the use of aggressive accounting, and to make the audited financial statements in compliance with the standards. Also, enterprises with higher proportion of state ownership may have protection from the government as well as less pressure to meet the market expectations than their counterparts, resulting in less earnings management.

Keywords: audit quality; discretionary accruals; earnings management; state ownership

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1. Introduction

Accrual-based earnings management (AEM) indicates the scenario in which managers exercise their discretion relating to accrual items to inflate their reported earnings (Xie et al., 2003). Different from cash flow accounting method, accrual accounting leaves room for estimation, and also a seed of uncertainty. To distort earnings, managers can overstate assets by recording higher receivables or inventories through the adjustments of provisions of these items. The distorted component of accrual earnings is referred to discretionary accruals, distinct from non-discretionary accruals, which is a normal accrual component coming

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from increased investment. AEM is easily scrutinized by outsiders such as creditors, auditors or government regulators (Francis, 2011).

In Vietnam, there is little empirical evidence on the monitoring of outsiders over the accrual-based earnings management. Alphonse and Hang (2015) assert that the accrual component of earnings has lower persistence than the cash flow component, suggesting a sign of AEM in Vietnam stock market. They also find that firms with low financial distress risk have greater differential persistence between cash flows and accruals than firms with high financial distress risk. The findings suggest that the monitoring by creditors prevents managers of distressed firms from inflating earnings. This means that external factors do affect AEM of Vietnamese listed firms.

One of important external factors in limiting this opportunistic managerial behavior is audit service. A company may establish financial statements in a prudent and conservative manner when audited by a reputable and highly qualified firm (McNichols and Stubben, 2008). There have been many studies on the impact of auditing quality on pretax profit management behavior in financial reporting (Becker et al., 1998, Boone et al., 2010, Jenkins and Velury, 2008, Lenard and Yu, 2012). Therefore, we expect that audit quality restricts AEM in Vietnam as well. On the other hand, some papers indicate the influence of business ownership, in particular state ownership on earnings management. In contrast to the conventional belief that state ownership is a major barrier to corporate efficiency, dominated state ownership firms have better earnings quality (lower levels of earnings management) than dominated private ownership (Wang and Yung, 2011). In Vietnam, state-owned enterprises are perceived as ineffective and inefficient, and the capital contribution and support from the state lead to market distortions. In such an environment with ineffective corporate governance and inadequate market discipline, managers are likely to exercise opportunistic behavior (Wang and Yung, 2011). However, the "Information Disclosure and Transparency Assessment Program 2015 - 2016"[5] carried out by the Hanoi Stock Exchange finds that listed firms with state ownership have higher quality and transparency in published information and that the higher the state ownership, the higher the quality of information disclosure and transparency. Facing the emergence of mixed information streams related to the performance and business operations of enterprises having state ownership in Vietnam, we decide to examine the hypothesis related to the impact of state ownership on earnings management.

We find that firms which are audited by one of Big Four auditing companies (Deloitte, PricewaterhouseCoopers, Ernst & Young and KPMG) are less likely to engage in accrual-based earnings management than those audited by Non-Big Four companies. We also find that the higher the proportion of state ownership accounts in outstanding shares, the less earnings management is.

[5] TÍN, C. 2016. *Chất lượng công bố thông tin: Doanh nghiệp niêm yết có vốn nhà nước càng cao càng minh bạch* [Online]. Available: http://baodautu.vn/chat-luong-cong-bo-thong-tin-doanh-nghiep-niem-yet-co-von-nha-nuoc-cang-cao-cang-minh-bach-d54162.html [Accessed 03/02/2017.

The structure of this paper is as follows: Section 2 gives a brief review about prior studies on accrual-based earnings management, audit quality and state ownership; Section 3 introduces methodology; Section 4 illustrates data selection and presents statistic results; Section 5 provides empirical results and the last section concludes some findings.

2. Literature review

Accrual basis is the basic accounting principle in which economic transactions are recorded when they occur, not when cash is paid. This leads to the heterogeneity between the cash flow and the accounting profit of the business. The difference between accounting profit and cash flow is called accruals. Accruals adjust the recognition of cash flow over time, in order to measure accurately business performance over a given period of time. Although accounting standards prescribe the principles of recording income, expenses, assets, capitals, determining the incurring time and accounting estimates depends very much on the discretion of managers. This can cause accruals to become unreliable, distorting the accounting profit of the business (Richardson et al., 2005, Sloan, 1996).

Auditing is an effective way of external monitor employed by shareholders to solve agency problems (Jensen and Meckling, 1976). The value of auditing is great because auditing reduces the misreporting of accounting information. Kinney Jr and Martin (1994) conclude that auditing reduces the overstatement in pre-audit net earnings and net assets. Alzoubi (2016) shows that Big Four auditors restrain significantly earnings management behaviors in listed companies. Likewise, Van Tendeloo and Vanstraelen (2008) study the private sector considering differences in audit of Big Four and Non-Big Four companies. The Big Four auditors have great incentives to provide and maintain a high quality audit extent because they have more customers to take care of, thus furthering the chances to allocate important resources to auditing such as employment, technology, and training in order to protect their clients and their reputation (Rusmin, 2010, Van Caneghem*, 2004). Besides, since they have better reputation, they have more to lose if their reputation is damaged in case of inferior audit service.

The ownership structure of a firm is considered an effective managers' monitoring mechanism, so it plays a significant role in constraining earnings management. Prior literature suggests that different ownership structures imply different incentives to control and monitor a firm's management (Morck et al., 1988, Shleifer and Vishny, 1986). For example, ownership concentration implies the level of information asymmetry between managers and shareholders, and this influences the quality of earnings and managers' accounting choices (Donnelly and Lynch, 2002, Fan and Wong, 2002). The quality of earnings is also associated with different types of ownership. For example, management ownership may have a negative effect on earnings management (Warfield et al., 1995) or a positive effect due to entrenchment or expropriation effects (Cheng and Warfield, 2005). Other studies investigate whether institutional investors have an impact on earnings management (Cornett et al., 2008, Ebrahim, 2007). Wang and Yung (2011) investigate the impact of state ownership on earnings management and demonstrate that higher levels of state

ownership tend to prevent this behavior. Managers in dominated-state-ownership firms have fewer incentives to inflate earnings due to different incentive structure associated with this kind of firms, specifically guaranteed compensation plan rather than pay for performance scheme and supportive credit conditions provided by state financial institutions. Additionally, the protection by the government reduces the pressure on managers to manipulate firm-specific information in state-owned firms.

3. Methodology

Suspecting that audit quality and state ownership have an impact on earnings management, we propose the below two hypotheses:

H1: Enterprises audited by a Big Four company engage less in earnings management than do enterprises audited by a non-Big Four company.

H2: Enterprises with high proportion of state ownership engage less in earnings management than do enterprises with low proportion of state ownership.

Measurement of dependent variable

Following prior literature such as Jones (1991), Becker et al. (1998), we use discretionary accruals as proxy for earnings management. Total accruals can be divided into two components: non-discretionary accruals and discretionary accruals. We calculate total accruals using accounting information from cash flow statement:

$$TA_{i,t} = \frac{Net\_op\_profit_{i,t} - Cash\_op_{i,t}}{Asset_{i,t-1}} \quad (1)$$

where $TA_{i,t}$ is total accruals of firm i in year t, $Net\_op\_profit_{i,t}$ is operating profit of firm i in year t, $Cash\_op_{i,t}$ is cash flow from operating activities in year t, $Asset_{i,t-1}$ is total assets of firm i in year t-1.

Jones (1991) proposes the following model to estimate non-discretionary accruals and discretionary accruals:

$$TA_{i,t} = \alpha_1 \frac{1}{Asset_{i,t-1}} + \alpha_2 \frac{\Delta REV_{i,t}}{Asset_{i,t-1}} + \alpha_3 \frac{PPE_{i,t}}{Asset_{i,t-1}} + \varepsilon_{i,t} \quad (2)$$

where $TA_{i,t}$ is total accruals in year t, $Asset_{i,t-1}$ is total assets in year t-1, $\Delta REV_{i,t}$ is the change in revenues from year t-1 to year t. $PPE_{i,t}$ is fixed assets in year t. This model is estimated separately for each combination of industry and calendar year. Non-discretionary accruals is measured as the fitted value from equation (1). Discretionary accruals is defined as the difference between total accruals and non-discretionary accruals:

$$DA_{i,t} = TA_{i,t} - \left(\hat{\alpha}_1 \frac{1}{Asset_{i,t-1}} + \hat{\alpha}_2 \frac{\Delta REV_{i,t}}{Asset_{i,t-1}} + \hat{\alpha}_3 \frac{PPE_{i,t}}{Asset_{i,t-1}} \right) \quad (3)$$

Dechow et al. (1995) indicate a limitation of the Jones (1991) model related to the discretionary revenues and suggest the Modified Jones model as follows:

$$DA_{i,t} = TA_{i,t} - \left(\hat{\alpha}_1 \frac{1}{Asset_{i,t-1}} + \hat{\alpha}_2 \frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{Asset_{i,t-1}} + \hat{\alpha}_3 \frac{PPE_{i,t}}{Asset_{i,t-1}} \right) \quad (4)$$

where $\Delta REC_{i,t}$ is the change in accounts receivable from year t-1 to year t. This item is included to control for manager's discretion in recognizing accrue revenues (Dechow et al.,

1995). However, Kothari et al. (2005) show that the Jones and modified-Jones models are severely mis-specified when applied to samples experiencing non-random and thus suggest the performance-matched model as follows:

$$DA_{i,t} = TA_{i,t} - \left(\hat{\alpha}_1 \frac{1}{Asset_{i,t-1}} + \hat{\alpha}_2 \frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{Asset_{i,t-1}} + \hat{\alpha}_3 \frac{PPE_{i,t}}{Asset_{i,t-1}} + \hat{\alpha}_4 ROA_{i,t-1} \right) \quad (5)$$

where $ROA_{i,t-1}$ is income before extraordinary items scaled by total assets in year *t-1*.

In this paper, we estimate discretionary accruals separately for each combination of industry and calendar year based on each of the above methods. A combination with less than 15 observations is removed from the sample. The absolute values of discretionary accruals (denoted by ABSDA1, ABSDA2 and ABSDA3, respectively) are used as the dependent variables in our models.

Independent variables

To test our hypotheses, we use two variables: *BIG4* and *OWN_STATE*. *BIG4* takes 1 if the firm is audited by one of the four auditing companies - Deloitte, PricewaterhouseCoopers, Ernst & Young and KPMG. *OWN_STATE* is the percentage of state ownership in the firm. Additionally, to test the robustness of impact of state ownership on earnings management, following Wang and Yung (2011), we replace *OWN_STATE* by *STATE30*, which equals to 1 if a firm's state ownership is higher than 30%, and 0 otherwise.

Control variables

Corporate governance is designed to mitigate conflicts of interest between managers and shareholders, and thus is expected to reduce earnings managerial behaviors in corporations. Prior literature had provided evidence on the relationship between corporate governance on earnings management (see Ching et al., (2006); García-Meca and Sánchez-Ballesta (2009); Davidson et al. (2005); Cornett et al. (2008) and Ghosh et al. (2010)). Thus, three control variables related to characteristics of board (*DUAL-duality; IND - independence of board and BOARD_SIZE - size of board of directors*) and three variables of ownership (*OWN_MNG - ownership of managers; OWN_CON - ownership of block shareholders and OWN_FR - foreign ownership*) are included in the model. Finally, following prior literature on earnings management such as Marrakchi Chtourou et al. (2001); Ghosh et al. (2010) and Chen et al. (2011) several firm characteristics variables (*ROA-firm performance; CFOA - operating cash flows; LEV-leverage; LOSS- suspected firms; BM-Book-to-Market ratio; GROWTH - firm growth and SIZE-firm size*) are also included as control variables. Measurement of control variables are presented later. Finally, yearly and industry dummies are also included in the model. Our final model is as below:

$$EM_{i,t} = \alpha_0 + \alpha_1 BIG4_{i,t} + \alpha_2 OWN\_STATE_{i,t} + \alpha_3 BOARD\_SIZE_{i,t} + \alpha_4 IND_{i,t} + \alpha_5 DUAL_{i,t} + \alpha_6 OWN\_MNG_{i,t} + \alpha_7 OWN\_CON_{i,t} + \alpha_8 OWN\_FR_{i,t} + \alpha_9 ROA_{i,t} + \alpha_{10} CFOA_{i,t} + \alpha_{11} LEV_{i,t} + \alpha_{12} LOSS_{i,t} + \alpha_{13} BM_{i,t} + \alpha_{14} GROWTH_{i,t} + \alpha_{15} SIZE_{i,t} + \Sigma\beta_t Year_t + \Sigma\lambda_j Industry_j + \varepsilon_{i,t} \quad (6)$$

where:

EM= proxies for earnings management measured by the absolute value of discretionary accruals ABSDA1, ABSDA2

and ABSDA3, which are estimated from the Jones (1991), Modified Jones and performance-matched models, respectively.

BIG4 = 1 if the firm is audited by one of the four Big Four companies, 0 otherwise

OWN_STATE= percentage of state ownership

BOARD_SIZE= the number of members in the board

IND= the number of non-executive members in the board divided by the number of members of the board

DUAL= 1 if the chairman is the CEO, 0 otherwise

OWN_MNG= total percentage of ownership by the board of management

OWN_CON= total ownership of shareholders holding at least 5% of shares

OWN_FR= percentage of foreign ownership

ROA= Income before extraordinary items scaled by total assets

CFOA= Operating cash flow scaled by total assets at the beginning

LEV= Long-term liabilities scaled by total assets

LOSS = 1 if the earnings in the previous two years are less than zero, 0 otherwise

BM= Book-to-market ratio

GROWTH = the percentage change of sales, i.e. ($Revenues_t$ – $Revenues_{t-1}$) / $Revenues_{t-1}$,

SIZE= Natural logarithm of total assets.

H1 and H2 mean that α_1 and α_2 are expected to be negative, respectively. We use the ordinary least squares (OLS) method to test our hypotheses as this method is commonly used in prior research about accrual-based earnings management, such as in Chen et al. (2011), González and García-Meca (2014), Xie et al. (2003). For robustness check, we also employ the cross-sectional time-series feasible generalized least squares regression (FGLS) to remedy any possible bias due to heteroskedasticity and serial correlation, improving the reliability of the estimated parameters, and to make sure that the regression results from the empirical model are consistent.

4. Data and descriptive statistics

We collect financial data of all firms listed on the Ho Chi Minh Stock Exchange and Hanoi Stock Exchange from 2008 to 2015 from Vietstock website. Data on governance characteristics and ownership structure are provided by Vietstock. Data on audit firms are provided by Stoxplus, except for data in 2008 which is collected from Vietstock website. We use industry classification by Vietstock, which is based on The North American Industry Classification System. We also exclude financial firms for the particularities in their operational activities. After estimating discretionary accruals, we exclude 1% observations with smallest values and 1% observations with highest values. A total of 69 observations were excluded. Our final data include 3879 firm-year observations ranging from 2008 to 2015.

Table 1 provides a preliminary comparison in some key variables between firms audited by one of the Big Four (Big 4 firms) and the others (Non-Big 4 firms). The mean/median value of ABSDA1 in Big 4 firms (0.0801/0.0597) is significantly

lower than that in Non-Big 4 firms (0.0922/0.0702), suggesting that firms with Big 4 auditors have less discretionary accruals than those associated with other auditors. Similar results are obtained with other two proxies (ABSDA2 and ABDDA3) of earnings management. Moreover, the significant difference in ROA, LEV, BM and SIZE of the two subsamples indicates that Big 4-firms have better performance, higher leverage and higher growth and larger size than Non-Big4 firms.

Table 1. Mean/median differences between Big 4 and Non-Big 4 firms

	Big 4 firms		Non-Big 4 firms		Mean differences	Median differences
Variables	Mean	Median	Mean	Median		
ABSDA1	0.0801	0.0597	0.0922	0.0702	-0.0121*** (-3.48)	-0.0106*** (-2.83)
ABSDA2	0.0757	0.0558	0.0894	0.0694	-0.0137*** (-3.89)	-0.0136*** (-3.27)
ABSDA3	0.0708	0.0547	0.0846	0.0663	-0.0138*** (-4.09)	-0.01156*** (-2.91)
ROA	0.0676	0.0499	0.0591	0.0434	0.0085** (2.31)	0.0065** (2.27)
LEV	0.1210	0.0577	0.0988	0.0325	0.0222*** (3.65)	0.0263*** (4.41)
BM	1.4551	1.0309	1.9029	1.2048	-0.4478*** (-5.60)	-0.1739*** (-3.13)
SIZE	14.4356	14.3410	12.7152	12.7077	1.7205*** (31.49)	1.6454*** (28.48)

ABSDA1, ABSDA2 and ABSDA3 are the absolute value of discretionary accruals estimated from the Jones (1991), Modified Jones and performance-matched models (equation (3), (4) and (5)), respectively. ROA: Income before extraordinary items scaled by total assets, LEV: Long-term liabilities scaled by total assets, BM: Book-to-market ratio, SIZE: Natural logarithm of total assets. (***) and (**) indicate significance at the 1% and 5% level, respectively. T-statistics are presented in parentheses.

Table 2 provides a comparison of some key variables between firms with state ownership from 30% (STATE30 firms) and the others (non-STATE30 firms). The mean value of ABSDA1 in STATE30 firms (0.0861) is significantly lower than that in Non-STATE30 (0.0922), suggesting that firms with higher state ownership have less discretionary accruals than their counterparts. Similar results are also obtained with other two proxies (ABSDA2 and ABSDA3) of earnings management. Only the median difference of the third proxy of earnings management is significant, however, all the three median

values are lower for the STATE30 firms. Moreover, the significant difference in ROA, LEV, BM and SIZE of the two subsamples indicates that STATE30-firms have better performance, higher leverage, higher growth and larger size than Non-STATE30 firms.

Table 2. Mean/median differences between STATE30 and NON-STATE30 firms

	STATE30 firms		NON-STATE30 firms		Mean differences	Median differences
Variables	Mean	Median	Mean	Median		
ABSDA1	0.0861	0.0670	0.0922	0.0688	-0.0061**	-0.0019
					(-2.15)	(-0.67)
ABSDA2	0.0830	0.0649	0.0890	0.0678	-0.0060**	-0.0029
					(-2.06)	(-0.85)
ABSDA3	0.0754	0.0585	0.0858	0.0665	-0.0104***	-0.0080***
					(-3.73)	(-2.66)
ROA	0.0750	0.0549	0.0520	0.0388	0.0230***	0.0160***
					(7.77)	(6.21)
LEV	0.1218	0.0523	0.0915	0.0309	0.0303***	0.0213***
					(6.15)	(4.57)
BM	1.4863	1.0153	2.0215	1.2821	-0.5352***	-0.2616***
					(-8.30)	(-6.79)
SIZE	13.1125	13.0064	13.0025	12.9480	0.1100**	0.0589
					(2.19)	(0.91)

ABSDA1, ABSDA2 and ABSDA3 are the absolute value of discretionary accruals estimated from the Jones (1991), Modified Jones and performance-matched models (equation (3), (4) and (5)), respectively. ROA: Income before extraordinary items scaled by total assets, LEV: Long-term liabilities scaled by total assets, BM: Book-to-market ratio, SIZE: Natural logarithm of total assets. (***) and (**) indicate significance at the 1% and 5% level, respectively. T-statistics are presented in parentheses.

Table 3 shows the Pearson correlation matrix of the three proxies of earnings management and control variables. As expected, all three proxies of earnings management and BIG4 are negatively correlated (-0.0602, -0.0731, -0.0780). The results imply that Big 4 firms, on average, manage earnings less than Non-Big 4 firms. We also find a significantly negative correlation between OWN_STATE and three proxies of earnings management (-0.0454, -0.0425, -0.0672), indicating that higher state ownership may help reduce earnings managerial behaviors. Since we do not observe any extreme correlation among independent variables, multicollinearity should not be a concern in our regressions.

Table 2. Mean/median differences between STATE30 and NON-STATE30 firms

	ABSDA1	ABSDA2	ABSDA3	BIG4	OWN _STATE	BOARD_ SIZE	IND	DUAL	OWN _MNG	OWN _CON	OWN _FR	ROA	CFOA	LEV	LOSS	BM	GROWTHS	SIZE
ABSDA1	1																	
BIG4	**-0.0602**	**-0.0731**	**-0.0780**	1														
OWN_STATE	**-0.0454**	**-0.0425**	**-0.0672**	-0.0223	1													
BOARD_SIZE	-0.0243	-0.0267	-0.0196	**0.1379**	**-0.0695**	1												
IND	-0.0236	-0.0148	-0.0179	**0.1442**	-0.0282	**0.0851**	1											
DUAL	0.0228	0.0168	0.0298	**-0.1158**	**-0.1540**	0.0052	**-0.3625**	1										
OWN_MNG	0.0093	-0.0095	0.0154	**-0.0550**	**-0.3189**	**0.0419**	**-0.2405**	**0.4047**	1									
OWN_CON	-0.0295	**-0.0380**	**-0.0385**	**0.1895**	**0.4549**	-0.0237	**0.1082**	**-0.1798**	0.0051	1								
OWN_FR	**-0.0360**	-0.0274	-0.0281	**0.1731**	**-0.1475**	**0.2009**	**0.0790**	0.0176	**0.0623**	**0.1935**	1							
ROA	**0.0559**	**0.0407**	0.0201	**0.0391**	**0.1153**	**0.0348**	**0.0332**	-0.0190	**-0.0579**	**0.1047**	**0.0447**	1						
CFOA	0.0319	**0.0440**	0.0282	0.0284	**0.0996**	**0.0452**	**0.0441**	**-0.0608**	**-0.0603**	**0.0428**	0.0288	**0.2989**	1					
LEV	0.0073	-0.0288	-0.0032	**0.0468**	**0.0802**	-0.0012	**-0.1778**	-0.0092	0.0242	**0.0810**	**-0.0819**	**-0.3604**	**-0.1470**	1				
LOSS	-0.0265	-0.0280	-0.0053	0.0154	**-0.0391**	-0.0027	0.0326	-0.0165	-0.0193	-0.0153	-0.0127	**-0.0576**	-0.0115	0.0028	1			
BM	-0.0143	-0.0276	-0.0181	**-0.0943**	**-0.1582**	**-0.0784**	**-0.0617**	**0.0723**	**0.0488**	**-0.1796**	**-0.0843**	**-0.2287**	**-0.1786**	**0.0428**	0.032			
GROWTH	0.0291	**0.0474**	**0.0539**	**0.0498**	**-0.0452**	-0.0279	**0.0566**	-0.0213	-0.0039	-0.0048	-0.0066	0.0268	-0.0086	-0.0175	**0.0420**	0.0359	1	
SIZE	**-0.0648**	**-0.0788**	**-0.0620**	**0.4705**	**0.0790**	**0.2797**	**0.0386**	**-0.0876**	0.0059	**0.1547**	**0.1410**	**-0.0971**	-0.0088	**0.3541**	-0.0164	0.0066	0.0311	1

ABSDA1, ABSDA2 and ABSDA3 are the absolute value of discretionary accruals estimated from the Jones (1991), Modified Jones and performance-matched models (equation (3), (4) and (5)), respectively. BIG4 is a dummy, which takes 1 the firm is audited by one of the four Big 4 companies, 0 otherwise. OWN_ STATE= state ownership (counted only if state ownership is 5% or higher). STATE30 is a dummy, which takes 1 if a firm's state ownership is higher than 30%, and 0 otherwise. BOARD_SIZE= number of members in the board; IND= number of non-executive members in the board divided by the number of members of the board; DUAL is a dummy which takes 1 if the chairman is also the CEO; OWN_MNG= total ownership of the board of management; OWN_CON= total ownership of shareholders holding at least 5% of shares; OWN_FR= total foreign ownership (counted only if the foreign ownership is 5% or higher). ROA= Income before extraordinary items scaled by total assets, CFOA= Operating cash flow scaled by lagged total assets; LEV= Long-term liabilities scaled by total assets; LOSS is a dummy which takes 1 if the earnings in the previous two years are less than zero, 0 otherwise; BM= Book-to-market ratio, GROWTH = (Revenuet – Revenuet-1) / Revenuet-1, SIZE: Natural logarithm of total assets. ***Bold numbers*** *indicate significance at the 1% or 5% levels.*

5. Regression results

Table 4 reports the regression results using the OLS regression to test our hypotheses. The regression coefficients on BIG4 in all six models are negative and statistically significant at the level of 5%. These outcomes are consistent with the results in Table 1 and Table 3, which show that firms audited by one of the Big Four companies have lower discretionary accruals than the others. These results support our first hypothesis that the high auditing quality of Big Four companies reduces earnings managerial behaviors of audited firms. According to Rusmin (2010), Big Four companies have better available resources and professional training and expertise. Moreover, their reputation also motivates them to conduct high auditing quality by cautiously scrutinizing their clients' financial reports. Our finding is in line with the studies by Becker et al. (1998) in the US market, Kitiwong (2014) in the Southeast Asian countries and studies by Alzoubi (2016), Francis and Schipper (1999), Van Tendeloo and Vanstraelen (2008).

The coefficients on OWN_STATE and STATE30 in all six models are also negative and statistically significant at the level of 5% which is in line with the results in Table 2 and Table 3. This finding supports our second hypothesis regarding state ownership's impact on earnings management. This means that firms with dominated state ownership conduct less earnings management. This finding is in contrast to the common notion that companies with dominated state ownership are related to lower quality in providing accounting information. There are some possible explanations for the earnings quality of firms with dominated state ownership as mentioned in Wang and Yung (2011). Firstly, the government can act as a good monitor that helps prevent managers from earnings management. Second, the protection by the government may reduce the pressure on managers of state-owned enterprises to inflate earnings. Meanwhile, another argument in Ding et al. (2007) can also explain our results. The more privatizing firms have weaker position in the market, due to specific political and historical factors. Hence, they are under higher pressure to report a better-than-real financial performance to meet the market expectations.

The model includes the variables BOARD_SIZE, IND, DUAL, OWN_MNG, OWN_CON, OWN_FR, ROA, CFOA, LEV, LOSS, BM, GROWTH and SIZE to address the possibility that discretionary accruals are correlated with these variables. While other control variables almost show no relationship with discretionary accruals, the coefficient of LEV is negative and statistically significant at the level of 1% in six models, suggesting that highly levered firms are less likely to engage in earnings management, consistent with Park and Shin (2004), Alphonse and Hang (2015). The coefficients of BM are negative and significant in six regressions, implying that low-growth (high BM) firms are less likely to practice earnings management, in line with the studies by Chen et al. (2011) and Alzoubi (2016). Coefficients of OWN_MNG in the regression (1) and (2) are also negative and statistically significant at the levels of 5% and 10%, respectively. The result indicates that the higher the management ownership accounts in the outstanding shares, the lower the probability that a firm conducts earnings management, in accordance with González and García-Meca (2014).

Table 4. Regression results using OLS method

MODEL	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	ABSDA1	ABSDA1	ABSDA2	ABSDA2	ABSDA3	ABSDA3
BIG4	-0.0100**	-0.00912**	-0.00884**	-0.00816**	-0.0133***	-0.0124***
	(-2.45)	(-2.23)	(-2.17)	(-2.00)	(-3.40)	(-3.15)
OWN_STATE	-0.0228***		-0.0193**		-0.0252***	
	(-2.90)		(-2.49)		(-3.33)	
STATE30		-0.00805**		-0.00764**		-0.0100***
		(-2.20)		(-2.13)		(-2.85)
BOARD_SIZE	-0.000287	-0.000292	-0.000107	-0.000125	-0.00105	-0.00105
	(-0.20)	(-0.20)	(-0.07)	(-0.09)	(-0.74)	(-0.73)
IND	-0.00492	-0.00362	-0.00812	-0.00722	-0.00947	-0.00825
	(-0.56)	(-0.41)	(-0.91)	(-0.81)	(-1.09)	(-0.95)
DUAL	-0.000405	-0.000514	-0.00258	-0.00267	-0.00454	-0.00465
	(-0.11)	(-0.14)	(-0.73)	(-0.75)	(-1.29)	(-1.32)
OWN_MNG	-0.0414**	-0.0348*	-0.0277	-0.0232	-0.0275	-0.0219
	(-2.04)	(-1.76)	(-1.35)	(-1.16)	(-1.41)	(-1.15)
OWN_CON	0.00930	0.00469	0.00744	0.00433	0.0124	0.00841
	(1.08)	(0.57)	(0.86)	(0.52)	(1.45)	(1.02)
OWN_FR	-0.0192	-0.0145	-0.0152	-0.0120	-0.0178	-0.0137
	(-1.22)	(-0.94)	(-0.98)	(-0.79)	(-1.26)	(-0.98)
ROA	-0.00990	-0.0101	-0.00120	-0.00114	-0.0269	-0.0268
	(-0.40)	(-0.41)	(-0.05)	(-0.05)	(-0.83)	(-0.82)
CFOA	0.0404*	0.0404*	0.0305	0.0308	0.0405*	0.0406*
	(1.85)	(1.84)	(1.48)	(1.49)	(1.76)	(1.77)
LEV	-0.0366***	-0.0380***	-0.0407***	-0.0418***	-0.0409***	-0.0420***
	(-3.18)	(-3.31)	(-3.80)	(-3.91)	(-3.70)	(-3.80)
LOSS	-0.0167*	-0.0163*	-0.0182**	-0.0179**	-0.00558	-0.00519
	(-1.95)	(-1.90)	(-2.07)	(-2.04)	(-0.55)	(-0.51)
BM	-0.00186*	-0.00176*	-0.00206**	-0.00197**	-0.00228***	-0.00218***
	(-1.95)	(-1.85)	(-2.47)	(-2.36)	(-2.80)	(-2.66)
GROWTH	0.000445	0.000452	0.000805	0.000807	0.00203***	0.00205***
	(0.82)	(0.82)	(1.37)	(1.36)	(2.70)	(2.73)
SIZE	-0.000986	-0.00128	-0.00132	-0.00154	0.000458	0.000171
	(-0.69)	(-0.90)	(-0.93)	(-1.09)	(0.33)	(0.13)

MODEL	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	ABSDA1	ABSDA1	ABSDA2	ABSDA2	ABSDA3	ABSDA3
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.119***	0.121***	0.120***	0.122***	0.103***	0.105***
	(5.45)	(5.55)	(5.50)	(5.59)	(5.22)	(5.32)
Observations	2.709	2.709	2.702	2.702	2.428	2.428
R-squared	0.057	0.056	0.060	0.059	0.066	0.065

ABSDA1, ABSDA2 and ABSDA3 are the absolute value of discretionary accruals estimated from the Jones (1991), Modified Jones model and performance-matched model (equation (3), (4) and (5)), respectively. BIG4 is a dummy, which takes 1 the firm is audited by one of the four Big 4 companies, 0 otherwise. OWN_STATE= state ownership (counted only if state ownership is 5% or higher). STATE30 is a dummy, which takes 1 if a firm's state ownership is higher than 30%, and 0 otherwise. BOARD_SIZE= number of members in the board; IND= number of non-executive members in the board divided by the number of members of the board; DUAL is a dummy which takes 1 if the chairman is also the CEO; OWN_MNG= total ownership of the board of management; OWN_CON= total ownership of shareholders holding at least 5% of shares; OWN_FR= Total foreign ownership (counted only if the foreign ownership is 5% or higher). ROA= Income before extraordinary items scaled by total assets, CFOA= Operating cash flow scaled by lagged total assets; LEV= Long-term liabilities scaled by total assets; LOSS is a dummy which takes 1 if the earnings in the previous two years are less than zero, 0 otherwise; BM= Book-to-market ratio, GROWTH = (Revenuet – Revenuet-1) / Revenuet-1, SIZE: Natural logarithm of total assets.

(***), (**), (*) indicate significance at the 1%, 5% and 10% level, respectively. T-statistics are presented in parentheses

Table 5 reports the regression results using the FGLS method. It can be seen that compared to the OLS method, estimates using FGLS are not much statistically different. However, the coefficients of our key independent variables such as BIG4, OWN_STATE, STATE30 are still negative and statistically significant, which supports our hypotheses.

Table 5. Regression results using FGLS

MODEL	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	ABSDA	ABSDA	ABSDA1	ABSDA1	ABSDA2	ABSDA2
BIG4	-0.0100**	-0.00912**	-0.00884**	-0.00816**	-0.0133***	-0.0124***
	(-2.35)	(-2.16)	(-2.11)	(-1.96)	(-3.26)	(-3.06)
OWN_STATE	-0.0228***		-0.0193**		-0.0252***	
	(-2.95)		(-2.54)		(-3.39)	
STATE30		-0.00805**		-0.00764**		-0.00995***
		(-2.21)		(-2.13)		(-2.82)

MODEL	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	ABSDA	ABSDA	ABSDA1	ABSDA1	ABSDA2	ABSDA2
BOARD_SIZE	-0.000287	-0.000292	-0.000107	-0.000125	-0.00105	-0.00105
	(-0.20)	(-0.21)	(-0.08)	(-0.09)	(-0.77)	(-0.77)
IND	-0.00492	-0.00362	-0.00812	-0.00722	-0.00947	-0.00825
	(-0.56)	(-0.42)	(-0.95)	(-0.84)	(-1.12)	(-0.98)
DUAL	-0.000405	-0.000514	-0.00258	-0.00267	-0.00454	-0.00465
	(-0.12)	(-0.15)	(-0.75)	(-0.77)	(-1.33)	(-1.36)
OWN_MNG	-0.0414**	-0.0348**	-0.0277	-0.0232	-0.0275	-0.0219
	(-2.32)	(-1.98)	(-1.59)	(-1.36)	(-1.63)	(-1.32)
OWN_CON	0.00930	0.00469	0.00744	0.00433	0.0124	0.00841
	(1.09)	(0.57)	(0.89)	(0.54)	(1.52)	(1.06)
OWN_FR	-0.0192	-0.0145	-0.0152	-0.0120	-0.0178	-0.0137
	(-1.26)	(-0.96)	(-1.02)	(-0.81)	(-1.24)	(-0.96)
ROA	-0.00990	-0.0101	-0.00120	-0.00114	-0.0269	-0.0268
	(-0.53)	(-0.54)	(-0.06)	(-0.06)	(-1.19)	(-1.18)
CFOA	0.0404***	0.0404***	0.0305***	0.0308***	0.0405***	0.0406***
	(3.50)	(3.49)	(2.61)	(2.63)	(3.36)	(3.36)
LEV	-0.0366***	-0.0380***	-0.0407***	-0.0418***	-0.0409***	-0.0420***
	(-3.19)	(-3.31)	(-3.59)	(-3.69)	(-3.57)	(-3.67)
LOSS	-0.0167	-0.0163	-0.0182	-0.0179	-0.00558	-0.00519
	(-1.45)	(-1.42)	(-1.59)	(-1.56)	(-0.51)	(-0.48)
BM	-0.00186**	-0.00176**	-0.00206**	-0.00197**	-0.00228***	-0.00218**
	(-2.16)	(-2.04)	(-2.37)	(-2.28)	(-2.66)	(-2.55)
GROWTH	0.000445	0.000452	0.000805**	0.000807**	0.00203**	0.00205**
	(1.16)	(1.17)	(2.13)	(2.13)	(2.47)	(2.50)
SIZE	-0.000986	-0.00128	-0.00132	-0.00154	0.000458	0.000171
	(-0.73)	(-0.95)	(-1.00)	(-1.17)	(0.35)	(0.13)
Year fixed effect	Yes	Yes	Yes	Yes		
Industry fixed effect	Yes	Yes	Yes	Yes		

MODEL	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	ABSDA	ABSDA	ABSDA1	ABSDA1	ABSDA2	ABSDA2
Constant	0.119***	0.121***	0.120***	0.122***	0.103***	0.105***
	(5.68)	(5.77)	(5.84)	(5.92)	(5.21)	(5.31)
Observations	2.709	2.709	2.702	2.702		
Number of code	558	558	559	559	2,428	2,428

ABSDA1, ABSDA2 and ABSDA3 are the absolute value of discretionary accruals estimated from the Jones (1991), Modified Jones model and performance-matched model (equation (3), (4) and (5)), respectively. BIG4 is a dummy, which takes 1 the firm is audited by one of the four Big 4 companies, 0 otherwise. OWN_STATE= state ownership (counted only if state ownership is 5% or higher). STATE30 is a dummy, which takes 1 if a firm's state ownership is higher than 30%, and 0 otherwise. BOARD_SIZE= number of members in the board; IND= number of non-executive members in the board divided by the number of members of the board; DUAL is a dummy which takes 1 if the chairman is also the CEO; OWN_MNG= total ownership of the board of management; OWN_CON= total ownership of shareholders holding at least 5% of shares; OWN_FR= Total foreign ownership (counted only if the foreign ownership is 5% or higher). ROA= Income before extraordinary items scaled by total assets, CFOA= Operating cash flow scaled by lagged total assets; LEV= Long-term liabilities scaled by total assets; LOSS is a dummy which takes 1 if the earnings in the previous two years are less than zero, 0 otherwise; BM= Book-to-market ratio, GROWTH = (Revenuet – Revenuet-1) / Revenuet-1, SIZE: Natural logarithm of total assets.

(***), (**), (*) indicate significance at the 1%, 5% and 10% level, respectively. T-statistics are presented in parentheses

6. Conclusion

The results indicate that the presence of Big Four auditors helps to reduce accrual-based earnings management. Big Four auditors tend to detect aggressive and risky accounting methods, object to the use of these methods and to make the audited financial statements in compliance with the standards. We also find that firms with dominated state ownership conduct less earnings management than their counterparts. This finding is consistent with the argument by Wang and Yung (2011) that good monitor role of the government helps to prevent earnings management, or the protection by the government on these firms may reduce the pressure on managers to inflate earnings. The results support our hypotheses on the impacts of audit quality and state ownership on accrual-based earnings management in Vietnam.

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