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Article

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Cogent Business & Management

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Suggested Citation: Le, Quynh Lien; Nguyen, Huu Anh (2023) : The impact of board characteristics and ownership structure on earnings management: Evidence from a frontier market, Cogent Business & Management, ISSN 2331-1975, Taylor & Francis, Abingdon, Vol. 10, Iss. 1, pp. 1-19, <https://doi.org/10.1080/23311975.2022.2159748>

This Version is available at:

<https://hdl.handle.net/10419/294204>

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To cite this article: Quynh Lien Le & Huu Anh Nguyen (2023) The impact of board characteristics and ownership structure on earnings management: Evidence from a frontier market, Cogent Business & Management, 10:1, 2159748, DOI: [10.1080/23311975.2022.2159748](https://doi.org/10.1080/23311975.2022.2159748)

To link to this article: <https://doi.org/10.1080/23311975.2022.2159748>



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Received: 07 November 2022
Accepted: 14 December 2022

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Reviewing editor:
Collins G. Ntim, Accounting,
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ACCOUNTING, CORPORATE GOVERNANCE & BUSINESS ETHICS | RESEARCH ARTICLE

The impact of board characteristics and ownership structure on earnings management: Evidence from a frontier market

Quynh Lien Le^{1*} and Huu Anh Nguyen¹

Abstract: This paper contributes to the literature by separately examining the impact of board characteristics and ownership structure on upward and downward earnings management of non-financial firms listed on Hanoi Stock Exchange and Ho Chi Minh Stock Exchange. In our research, we conduct Pooled OLS, Fixed and Random effect models, and Generalized least squares. Then, we run a regression with the System Generalized Method of Moments (System GMM) to find the most appropriate model. Firms with high average board age, high ownership concentration, and high financial leverage tend to manage earnings downward. High managerial ownership tends to reduce downward earnings management. Firms with high state ownership reduce upward earnings management. Stakeholders should be more cautious of firms with high average board age, high ownership concentration, high financial performance, and high financial leverage as they tend to manage earnings. Previous studies combined upward and downward earnings management in one regression model, therefore ignoring the chance to investigate the impact of board characteristics and ownership structure on earnings management in each case. The impact of a factor on upward and downward earnings management may be different, and the combination of them in one regression model can drive the findings of previous studies toward errors of unknown directions. Therefore, assessing the effects of board characteristics and ownership structure on earnings management in each case is necessary. To the best of our knowledge, this paper is the first to do so.

Subjects: Corporate Finance; Financial Management; Corporate Governance

Keywords: Board characteristics; ownership structure; earnings management; frontier market

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1. Introduction

Earnings management has become a major concern in numerous previous studies (e.g., Fields et al., 2001; Healy & Wahlen, 1999). Earnings management makes information about accounting earnings less reliable, so firm performance was not reflected accurately. This leads to concerns about the accuracy of financial statements and transparency in information disclosure. Previous research has shown that corporate governance may reduce the chance of earnings management, thereby enhancing the reliability of financial information and increasing the financial reporting quality in developed markets (Klein, 2002; Xie et al., 2003) and emerging markets (Kim & Yi, 2006; La Porta et al., 2000). In the literature, the board characteristics and ownership structure were typically treated as the most important factors of corporate governance in limiting accrual-based earnings management (Adams et al., 2010; L.M. Anderson et al., 2011; Shleifer & Vishny, 1997).

Most of the previous research on the impact of board characteristics (Jamaludin et al., 2015), ownership structure (Bushman & Smith, 2001) or both factors on earnings management (Epps & Ismail, 2008; Hashim & Devi, 2008; Stockmans et al., 2013) only measures earnings management by the value of discretionary accruals (Abed et al., 2012; Carcello et al., 2006). Using the value of discretionary accruals does not reflect the magnitude of downward earnings management. The magnitude of earnings management should be reflected by the absolute value of discretionary accruals. A value $-b$ of negative discretionary accruals (downward earnings management) would be considered to be smaller than the value $-a$ where $0 < a < b$. However, the magnitude of downward earnings management of $-b$ is larger than $-a$ as $|-b| > |-a|$. In other words, the company managed earnings downward more in the case of $-b$ than $-a$. This problem is not present in the case of upward earnings management because the values of discretionary accruals are positive in this case. In other words, the values of positive discretionary accruals did reflect the magnitude of upward earnings management. As a result, combining the values of positive and negative discretionary accruals in one regression model could drive the empirical findings of previous studies toward errors. For example, being audited by the Big 4 should possibly reduce the magnitude of both upward and downward earnings management. However, if you get a negative coefficient for the variable Big 4 in the regression model with both negative and positive values of discretionary accruals, it means that being audited by Big 4 would decrease the magnitude of upward earnings management but increase the magnitude of downward earnings management.

Using the absolute value of discretionary accruals when measuring earnings management (e.g., Hribar & Nichols, 2007; Warfield et al., 1995) should enable a more accurate evaluation of the influence of different factors on earnings management. Some studies on the influence of board characteristics (Klein, 2002) and ownership structure (Alzoubi, 2016) on earnings management used the absolute value of discretionary accruals to measure earnings management as the dependent variable. However, these studies combined both upward and downward earnings management in one regression model. Therefore, they ignored the opportunity to evaluate the impact of corporate governance in each case. In addition, board characteristics and ownership structure may affect upward and downward earnings management differently, and the combination of them in one regression model can drive the empirical findings of previous studies toward errors of unknown directions. To the best of our knowledge, this paper is the first to investigate the impact of board characteristics and ownership structure on upward and downward earnings management separately. We consider Vietnamese non-financial firms listed on Hanoi and Ho Chi Minh stock exchanges. An advantage of the Vietnamese setting is that there is a sizeable proportion of State ownership in companies. Moreover, Vietnam is a frontier market so foreign ownership is very important. These features enable us to investigate the impact of state ownership and foreign ownership on upward and downward earnings management. Our results show that firms with high average board age, high ownership concentration, and high financial leverage tend to manage earnings downward. High managerial ownership tends to reduce downward earnings management. Firms with high state ownership reduce upward earnings management.

2. Literature review and hypothesis development

2.1. Board characteristics

2.1.1. Board size (BOARD)

Previous studies used board size as a measure of board characteristics (Abbott et al., 2004; Coles et al., 2008). Many studies have shown that large boards can commit more time and effort to control (Lipton & Lorsch, 1992; Monks & Minow, 1995) and improve the transparency of accounting reports (Klein, 2002; Xie et al., 2003), therefore limiting earnings management (Alareeni, 2018; Alonso et al., 2000; Daghsni et al., 2016; Yermack, 1996). Other studies have found that larger boards can be subjected to bureaucracy and conflicting interests and increase earnings management or have difficulties in coordination and communication (M. Jensen, 1993; Lipton & Lorsch, 1992) which limits the ability to advise, make decisions, and participate in strategic planning (Dimitropoulos & Asteriou, 2010). However, Charfeddine et al. (2013) and Ferris and Liao (2019) found that there is no relationship between board size and earnings management. From the above analysis, we propose the following hypothesis:

H1: Board size has an impact on upward or downward earnings management.

2.1.2. Non-executive board members (NED)

Based on the Stewardship theory, Choo and Tan (2007) suggested that the lack of non-executive board members can create opportunities for managers to cheat. Other studies have shown that the presence of non-executive members on the board of directors can encourage better management compliance (Baysinger & Hoskisson, 1990), having a greater influence on management decisions in providing required financial information (Fama & Jensen, 1983) which improves the quality of financial disclosure (Forker, 1992) and limits earnings management (Klein, 2002). Thus, we propose the following hypothesis.

H2: Non-executive board member has an impact on upward or downward earnings management.

2.1.3. CEO Duality (DUAL)

Most researchers believe that the dual roles of CEO and chairman of the board increase earnings management (Abbott et al., 2004; K. Anderson et al., 2003; M. Jensen, 1993). Agency theory suggests that if the interests of the chairman differ from that of the shareholders, the dual roles of the CEO and chairman of the board can create opportunistic behaviors of managers to achieve their purposes. A chairman of the board who is also not the CEO is expected to improve the board's oversight of earnings management (Abbott et al., 2004; Fama & Jensen, 1983) and have a positive impact on the quality of accounting information (K. Anderson et al., 2003; Rajeevan and Ajward, 2020). However, some studies supported the views of the Stewardship theory that the dual role of CEO and chairman of the board helps the responsibility and authority of the executives to be better united, leading to more effective corporate governance (Bhagat & Black, 1999; Davis et al., 1997; Donaldson & Davis, 1994). In contrast, Alareeni (2018) found that CEO duality has no impact on earnings management. From the above analysis, we investigate the following hypothesis:

H3: CEO duality has an impact on upward or downward earnings management.

2.1.4. Board expertise (FAB)

According to the Upper Echelon theory, the level of education of the senior management can influence the strategic choice decisions of the managers and therefore firm performance. Directors with expertise in finance and accounting can formulate corporate strategies and have extensive

experience in setting higher requirements for audit quality (Carcello et al., 2006) and limiting earnings management (Park & Shin, 2004; Xie et al., 2003). Alzoubi (2018) found that board expertise limits earnings management. However, other studies have shown the opposite result that disputes in the board of directors are more common when there are members with expertise in financial accounting on the board (e.g., DeZoort & Salterio, 2001). This fact may lead to an increase in earnings management (Metawee, 2013). In respect of financial and accounting expertise, the following hypothesis is proposed:

H4: Board expertise has an impact on upward or downward earnings management.

2.1.5. Female directors (BSR)

Prior studies conceptualized board gender diversity as the presence of women on board. According to Gavius et al. (2012) and Arun et al. (2015), the female director variable is measured as the ratio of female board members to total board members. Female directors are characterized by better independent thinking and monitoring of the activities of executives more effectively than male managers (Adams et al., 2010; Carter et al., 2003). Many previous studies in Canada and the United States have provided evidence that female managers in general have a higher degree of ethical retention than male managers (Bernardi & Arnold, 1997; Lampe & Finn, 1992; Sweeney, 1995). Female directors generally do not like to take risks in decision-making and do not want to carry out activities that affect their reputation. Therefore, the presence of female members on the board limits earnings management (Hinz et al., 1997; Sunden & Surette, 1998). Abdullah and Ismail (2016) and Arioglu (2020) studied non-financial companies and found no impact of female directors' on earnings management. We propose the following hypothesis:

H5: The number of female directors has an impact on upward or downward earnings management.

2.1.6. Board age (AGE)

The age of managers can be considered as their own experience and knowledge (Farh et al., 1998). Older managers have more management experience, but they also tend to be more conservative and traditional than younger managers. Older managers want to ensure both career and financial security, so they tend to limit earnings management to avoid risky decisions. In addition, older managers have a higher reputation than younger managers, so they are not willing to overstate profits by managing earnings to damage their reputation (He & Liu, 2010). Older managers also have lower passion and involvement in work than younger managers and are willing to work in peaceful conditions so their decision-making tends to be stable. This fact leads to less earnings management than younger managers (Hambrick & Mason, 1984; Prendergast & Stole, 1996). Therefore, the research hypothesis is as follows:

H6: Board age has an impact on upward or downward earnings management.

2.2. Ownership structure

2.2.1. Ownership concentration (CO)

Ownership concentration is the total percentage of shares owned by large shareholders who own at least 5% of shares. Large shareholders play an important role in a firm's internal control because large ownership motivates shareholders to monitor management actions to protect their investments (Shleifer & Vishny, 1997; Yeo et al., 2002; Zhong et al., 2007) or create a special advantage such as through earnings reduction techniques to reduce bonuses to other shareholders (Claessens et al., 2000). Large shareholders may also engage in opportunistic behaviors even when it is against the interests of minority shareholders (Jensen & Meckling, 1976;

Shleifer & Vishny, 1997). In addition, according to the entrenchment hypothesis, controlling shareholders could expropriate the interests of non-controlling shareholders to increase their wealth, thus increasing earnings management (Abdullah and Ismail, 2016). Nguyen et al. (2021) used a sample from 489 non-financial companies listed on Vietnam's stock market and found that ownership concentration positively affects earnings management. However, some studies showed that shareholders who have a large proportion of shares play an important role in protecting the quality of financial statements because they care about the firm's value and reputation and have less incentive to practice earnings management, especially in family firms (Alzoubi, 2016; Tsao et al., 2019). Accordingly, we hypothesize as follows:

H7: Ownership concentration has an impact on upward or downward earnings management.

2.2.2. Managerial ownership (MO)

Previous empirical studies have demonstrated a positive relationship between managerial ownership and earnings management (Agrawal & Knoeber, 1996; Yermack, 1996). Many researchers argue that greater ownership allows managers to manage earnings (Q. Cheng & Warfield, 2005; Morck et al., 1988). However, other studies find results that are in contrast (e.g., Jensen & Meckling, 1976; Nguyen et al., 2021). Jensen and Meckling (1976) use agency theory to argue that managers with high ownership are less likely to manage earnings because their interests are in line with the interests of shareholders. Other studies also support the argument that firms with low managerial ownership are more likely to experience capital market pressures (M.C. Jensen, 1986; Stein, 1989) and therefore may exploit accounting techniques to reduce constraints in contracts to ensure work efficiency and bonuses (Alexander & Cohen, 1999; Nagy et al., 1999). From the above analyses, we suggest the following hypothesis:

H8: Managerial ownership has an impact on upward or downward earnings management.

2.3. State ownership (SO)

Public sector entities generally have a lower level of governance and audit quality (Shleifer, 1998). Their accountability chain is usually longer and wider than that of privately owned entities because state-owned enterprises' managers are directly accountable not just to the owners but also to a variety of stakeholders (Sinclair, 1995; Parker and Gould, 1999). Thus, managers may be subject to different and often contrasting interests due to the influence of different power bases reflected in the ownership (Bruton et al., 2015; Ghosh & Whalley, 2008). The fact that they have to manage conflicting interests increases the incentives to manipulate accounting information. On the other hand, the greater attention paid to state-owned enterprises as well as the greater number and variety of stakeholders is likely to result in an overall improvement in the quality of the financial statements (Burgstahler & Dichev, 1997). The rewards in terms of better conditions to raise capital on the market also create motivation to limit earnings management (Bhattacharya et al., 2003; Botosan, 1997). The consequences of falsifying accounting data in state-owned enterprises may be more serious than the privately owned firms, and the punishment for the preparer may be more severe (Capalbo et al., 2014). This leads to the incentive to reduce earnings management. In contrast, Nguyen et al. (2021) found evidence of a positive relationship between state ownership and earnings management. We hypothesize as follows:

H9: State ownership has an impact on upward or downward earnings management.

2.4. Foreign ownership (FO)

Foreign shareholders play an important role in a firm's ownership structure particularly in developing countries (Douma et al., 2006; Randoy & Goel, 2003) because they decrease the information

asymmetry and increase the reliability and credibility of financial reporting (Jiang & Kim, 2004). High foreign ownership is likely to promote the firm's performance and make corporate governance effective (Imam & Malik, 2007; Tran, 2020). In addition, previous studies have shown that the presence of foreign ownership leads to a decrease in agency costs (Abor & Biekpe, 2007; Guo et al., 2015). Using the sample from 489 non-financial companies listed on Vietnam's stock market, Nguyen et al. (2021) found that foreign ownership negatively affects earnings management. Furthermore, the long distances make it difficult for foreign investors to monitor a firm's accounting system, so they have less chance to manage earnings (Dvorak, 2005). From the above analysis, most of the previous studies showed that foreign investment helps to limit earnings management. Accordingly, we suggest the following hypothesis:

H10: Foreign ownership has an impact on upward or downward earnings management.

In addition to the above factors, earnings management is also influenced by other control variables as follows:

2.5. Firm size (SIZE)

Managers of large firms are often politically sensitive and tend to reduce political costs by choosing accounting policies to increase profits during the current period (Watts & Zimmerman, 1978). Moreover, large firms may have complex operations, so they have higher incentives and more opportunities to engage in earnings smoothing and overstate earnings (Lobo & Zhou, 2006; Shen & Chih, 2007). On the other hand, other studies have found that managers of small firms can keep information better than large firms (Lee & Choi, 2002). Information about large firms is generally more widely available and can be obtained at a lower cost than that of small firms (Sen & Bhattacharya, 2001) because larger firms are more closely scrutinized by investors or regulators. This fact limits earnings management.

2.6. Firm performance (ROE)

Return on equity was used in many studies on earnings management and corporate governance (Carter et al., 2003; Kiel & Nicholson, 2003). Chen et al. (2006) and Al-Fayoumi et al. (2010) found that listed firms with lower profitability have a higher degree of earnings management because the firms must achieve a certain level of income to issue more shares.

2.7. Leverage (LEV)

Financial leverage is used in many studies to represent a breach of the debt covenant (Efendi et al., 2007; Erickson et al., 2004). Many studies have found a positive relationship between financial leverage and earnings management because the higher the debt ratio, the more willing the firms are to engage in earnings management to reach the debt covenant requirements (DeFond & Jiambalvo, 1994; Efendi et al., 2007). In research on corporate governance and earnings management, financial leverage is widely used as a control variable (Agrawal & Knoeber, 1996; Becker et al., 1998).

2.8. Cash flow (CF)

Many studies have demonstrated that firms with strong operating cash flow are less likely to use accruals to manage earnings because they are performing well (Becker et al., 1998; Lobo & Zhou, 2006). In contrast, firms with poor operating cash flow are more likely to use earnings management to send positive signals to investors. Previous studies have used cash flow from operating activities as a control variable to examine the effect of corporate governance on earnings management (Becker et al., 1998; Lobo & Zhou, 2006).

2.9. Revenue growth (GROWTH)

Firms with high growth opportunities may have more private information about these prospects. Hence, insiders try to disclose this relevant information through financial statements where earnings have been managed to signal profitable projects for the firms (Healy & Palepu, 1993).

2.10. Big 4 auditors (BIG4)

The quality of an audit has a positive effect on the transparency and reliability of financial statements. Previous research proved that the firms audited by independent auditing firms of the Big4 group (Price Waterhouse Cooper (PWC), Deloitte, Ernst, and Young (E&Y), and KPMG) have a lower degree of earnings management than non-Big 4 auditors (Becker et al., 1998; Brown et al., 2014) because Big 4 auditors seem to provide better audit quality (Taktak & Mbarki, 2014).

3. Research design

The data were provided by Vietstock—The number one financial information portal in Vietnam. The sample is selected from 763 listed firms on the Hanoi Stock Exchange (HNX) and the Ho Chi Minh City Stock Exchange (HOSE). We exclude financial firms such as insurance, securities companies, and banks because they have different financial structures and are strictly regulated by other regulations.

Firms in our sample must be listed over 10 years with full data from 2009 to 2018. The sample consisted of 499 non-financial firms listed on Vietnam's stock market in the period 2009 to 2018. After eliminating ineligible observations due to lack of information and outlier eliminations, the remaining sample is an unbalanced panel of 3013 observations.

3.1. Measuring earnings management

Specifically, the calculation is as follows:

3.1.1. Calculation of total accruals (TA)

According to Hribar and Collins (2002), total accruals were calculated as follows:

$$TA_{it} = NI_{it} - CFO_{it} \quad (1)$$

Where: TA_{it} : Total accruals in year t of the firm i ; NI_{it} : Operating profit after tax before changes in working capital in year t of firm i ; CFO_{it} : Operating cash flow in year t of firm i .

3.1.2. Calculation of non-discretionary accruals (NDA)

After running different models to estimate discretionary accruals (DA), we choose the model by Kasznik (1999) because the R-squared of this model is the highest (R-squared = 58.15%). We run the following regression:

$$\frac{TA_{it}}{A_{it-1}} = \beta_0 \times \frac{1}{A_{it-1}} + \beta_1 \times \frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} + \beta_2 \times \frac{PPE_{it}}{A_{it-1}} + \beta_3 \times \frac{\Delta CFO_{it}}{A_{it-1}} + \varepsilon_{it} \quad (2)$$

Where: A_{it-1} : Total assets of firm i in year $t - 1$; ΔREV_{it} : Changes in the firm's revenue in year t compared to year $t-1$; ΔREC_{it} : Changes in the firm's receivables in year t compared to year $t-1$; PPE_{it} : Tangible fixed asset costs of firm i in year t ; ΔCFO_{it} : Changes in operating cash flow of firm i in year t compared to year $t-1$; ε_{it} : Error terms.

The error term ε_{it} represents the discretionary accruals (DA). Following Klein (2002), Becker et al. (1998), and Warfield et al. (1995), we use the absolute value of discretionary accruals to measure earnings management:

$$EM_{it} = |\varepsilon_{it}| \quad (3)$$

3.2. Measurement procedure

The variables and their measurements used in this study are summarized in Table 1.

Table 1. Measurement of variables in the research model

No.	Variables	Measurement
I	Dependent variables	
1	Earnings management (EM)	The absolute value of discretionary accruals
II	Independent variables	
Board chacrateristics		
2	Board size (BOARD)	Number of board members
3	Non-executive board members (NED)	Number of board members do not participate in administration and management
4	CEO duality (DUAL)	The dummy variable, which equals 1 if the CEO is also the chairman and 0 otherwise
5	Board expertise (FAD)	Number of directors with expertise in finance and accounting/Total number of board members
6	Women directors (BSR)	Number of female board members
7	Board age (AGE)	The average age of the board members
Ownership structure		
8	Ownership concentration (CO)	Percentage of shares held by shareholders owning 5% of shares or more in the firm
9	Managerial ownership (MO)	Percentage of shares owned by managers
10	State ownership (SO)	Percentage of shares held by the state
11	Foreign ownership (FO)	Percentage of shares held by foreign investors
III	Control variables	
12	Firm size (SIZE)	Log10 of the total assets of the firm
13	Firm performance (ROE)	Return on equity
14	Financial leverage (LEV)	Total debt to total assets ratio
15	Cash flow (CF)	Operating cash flow this year to total assets of the previous year
16	Revenue growth (GROWTH)	The growth rate of revenue this year compared to last year
17	Independent audit (BIG4)	The dummy variable equals 1 if the firm is audited by Big4 (KPMG, EY, PWC, Deloitte) and 0 otherwise.

We separated the data set into two sub-samples: negative discretionary accruals (DA) with 1826 observations and positive DA with 1187 observations and ran the regression model in Table 1 for each sub-sample. Then, we run the regression model for the whole data set to see the impact of combining upward and downward earnings management in one regression model.

4. Empirical results and discussion

4.1. Descriptive statistics

Table 2 shows descriptive statistics of board characteristics and ownership structure of firms listed on Vietnamese stock market from 2009 to 2018.

Table 2. Descriptive statistics of the board characteristics and ownership structure

Variables	Observations	Mean	Standard deviation	Min	Max
BOARD	3013	5.53999	1.176975	3	11
NED	3013	3.59774	1.310959	0	10
DUAL	3013	0.291403	0.4544846	0	1
FAD	3013	0.471114	0.3207343	0	1
BSR	3013	0.786923	0.9296654	0	6
AGE	3013	48.5515	5.018985	24	65.57143
CO	3013	0.502471	0.2193327	0	0.9925
MO	3013	0.111677	0.1540862	0	0.9351735
SO	3013	0.222769	0.2589812	0	0.9672
FO	3013	0.112825	0.1411786	0	0.7757961

Table 3. Descriptive statistics of the earnings management

Data	Observations	Mean	Standard deviation	Min	Max
EM (DA < 0)	1286	0.11721	0.10750	0.00002	1.264
EM (DA > 0)	1187	0.10273	0.13090	0.00006	2.186
EM	3013	0.11151	0.11747	0.00002	2.186

The magnitude of the absolute value of discretionary accruals is shown in Table 3:

In Table 2, there are from 3 members to 11 members on the board of directors. The duality of the CEO and chairman of the board accounts for 29.14% of the total number of observations. On average, 47% of the observations of managers have finance and accounting expertise. The number of female directors on the board of directors ranges from 0 to 6. Data on ownership concentration, managerial ownership, state ownership, and foreign ownership are also detailed in Table 2.

As shown in Table 3, the magnitude of the absolute value of discretionary accruals of these firms in the sample has a small mean value of 0.1172, 0.10273, and 0.11151, whereas the minimum value is very much closer to 0 for DA < 0, DA > 0, and total DA, respectively. These results are consistent with Klein (2002) where the minimum value of absolute discretionary accruals among large US firms was 0.00002. The average absolute DA among the US companies is also 0.11.

4.2. Multivariate analysis

We conduct a multiple regression analysis of the model in Table 1 on a sub-sample of negative DA and positive DA separately. The adjusted R-squared of Pooled OLS regressions is 62.53% and 40.71%, respectively. The multicollinearity test showed that the VIF coefficients of all independent variables and control are less than 4, so there is no multicollinearity.

To compare Pooled OLS with FEM, F-test was performed. The p-value of F-test is 0.000 so FEM is better than Pooled OLS. Hausman test results show that REM is more suitable than FEM with negative DA. However, FEM is more suitable than REM with a positive DA. We also test for heteroskedasticity and autocorrelation using the Breusch-Pagan and Wooldridge tests, respectively. The result showed clearly that the model has both heteroskedasticity and autocorrelation. To solve these problems, we continue with GLS. If there are no endogenous problems, the GLS model would be chosen. The results of OLS, FEM, REM, and GLS regression are presented in Table 4.

Table 4. Results of OLS, FEM, REM, and GLS regression

Variable	OLS			FEM			REM			GLS		
	Data split		Data aggregation	Data split		Data aggregation	Data split		Data aggregation	Data split		Data aggregation
	Negative DA	Positive DA	Aggregated DA	Negative DA	Positive DA	Aggregated DA	Negative DA	Positive DA	Aggregated DA	Negative DA	Positive DA	Aggregated DA
	EM(NEG)	EM(POS)	EM	EM(NEG)	EM(POS)	EM	EM(NEG)	EM(POS)	EM	EM(NEG)	EM(POS)	EM
BOARD	0.0004	-0.0055	-0.0025	0.0070	-0.0086	0.0010	0.0033	-0.0059	-0.0023	0.0019	-0.0097***	-0.0006
NED	-0.0044*	-0.0002	-0.0024	-0.0052	0.0086	-0.0012	-0.0047	0.0003	-0.0013	-0.0047***	0.0050**	-0.0041***
DUAL	-0.0064	-0.0065	-0.0050	-0.0146*	-0.0258	-0.0153**	-0.0108	-0.0112*	-0.0085	-0.0121***	-0.0043	-0.0076**
FAD	0.0003	0.0224*	0.0089	-0.0099	0.0381	0.0044	-0.0027	0.0212	0.0087	-0.0064	0.0238***	0.0028
BSR	-0.0018	-0.0005	-0.0013	0.0030	0.0171*	0.0053	0.0016	0.0008	0.0009	0.0004	0.0012	0.0010
AGE	0.0015***	-0.0025***	0.0000	-0.0008	-0.0044***	-0.0021***	0.0005	-0.0034***	-0.0010**	0.0011***	-0.0053***	0.0000
CO	0.0254**	0.0162	0.0273**	0.0077	-0.0063	0.0237	0.0134	0.0082	0.0134	0.0317***	0.0340***	0.0298***
MO	-0.0283	-0.0638**	-0.0390**	0.0139	-0.1186**	-0.0294	-0.0122	-0.0575**	-0.0329*	-0.0216*	-0.0893***	-0.0152
SO	0.0039	-0.0503**	-0.0131	0.0076	-0.0239	0.0120	0.0109	-0.0490**	-0.0048	-0.0010	-0.0127	-0.0055
FO	-0.0567***	-0.0532	-0.0466***	-0.0974**	0.1581**	-0.0048	-0.0656	-0.0238	-0.0201	-0.0468***	-0.0113	-0.0380***
SIZE	0.0043*	0.0195***	0.0106***	0.0217	-0.0811**	-0.0088	-0.0090	-0.0068	-0.0106*	0.0048***	0.0281***	0.0089***
ROE	0.2641***	0.0832***	0.1920***	0.1963***	0.2025***	0.1972***	0.2294***	0.0869***	0.1900***	0.1731***	0.0954***	0.1473***
LEV	-0.0750***	0.0468**	-0.0374***	-0.0392	0.2881***	0.0526**	-0.0507***	0.0646***	-0.0067	-0.0785***	0.0740***	-0.0443***
CF	0.2016***	-0.0024	0.1436***	0.2217***	0.0021	0.1354***	0.2108***	0.0072	0.1405***	0.2081***	-0.020	0.1404***
GROWTH	0.0044	0.0070	0.0050	0.0009	0.0062	0.0026	0.0030	0.0073	0.0046	0.0036***	0.0051**	0.0033*
BIG4	-0.0069	-0.0340***	-0.0180***	0.0121	-0.0136	0.0073	0.0037	-0.0229**	-0.0059	-0.0027	-0.0320***	-0.0096***
R-square	62.53	40.71										
N	1826	1187										

Significance: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 5. Results of AR(2) and Hansen test

Test	Data split		Data aggregation
	Negative DA	Positive DA	Aggregated DA
	EM(NEG)	EM(POS)	EM
AR(1)	0.000	0.000	0.000
AR(2)	0.947	0.571	0.800
Sargan	0.386	0.398	0.332
Hansen	0.610	0.439	0.148

Table 6. Results of system GMM

Variable	Data split		Data aggregation
	Negative DA	Positive DA	Aggregated DA
	EM(NEG)	EM(POS)	EM
EM_L1	0.0642**	0.0573*	0.0913***
BOARD	-0.00412	-0.00487	-0.00446
NED	-0.00159	0.00347	0.00187
DUAL	0.0124	0.00156	0.00748
FAD	0.016	0.00837	0.0132
BSR	-0.00414	0.00235	-0.00219
AGE	0.00144**	0.000561	0.000606
CO	0.0432**	0.0457	0.0460**
MO	-0.0604**	-0.0576	-0.0289
SO	-0.0251	-0.0676**	-0.0405**
FO	-0.0446*	-0.0966**	-0.0704***
SIZE	0.00429	0.00638	0.00674**
ROE	0.248***	0.126**	0.220***
LEV	-0.0713***	-0.0156	-0.0518***
CF	0.162	-0.13	0.0721
GROWTH	-0.0125	0.0279	-0.0108
BIG4	-0.00636	-0.0265***	-0.0117*
Number of Instruments	60	60	60
Number of Group	394	344	418

Significance: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

However, Greene (2005) proposed that in the models of earnings management, endogeneity may arise between the variables. Accordingly, the dynamic regression model (System GMM) introduced by Arellano and Bond (1991) was employed to solve the endogenous problem. Employing lagged earnings management suggests that the model does not suffer from unobservable variables driving earnings management. Following An et al. (2016), we chose the instrument variables that are highly correlated with earnings-management variables but are not correlated with the residuals.

In Table 5, the results of Hansen test show that the p-value is greater than 0.1 which means that the model is Overidentification. In addition, the AR (2) test results have a p-value greater than 0.1 so the System GMM is significant and there is an endogenous problem. Therefore, System GMM is the most suitable model.

Next, we also performed a sequence of regressions on the whole sample of negative and positive earnings management to see the effect of combining upward and downward earnings management in one regression model on the results. The regression results of System GMM are presented in Table 6.

Table 6 demonstrates that the results on the impact of each factor on earnings management may not be the same for all cases (upward and downward earnings management and the combination between them). Specifically, the results are as follows:

5. The results which are not affected by aggregating upward and downward earnings management

Our result indicates that there is no significant relationship between board size and earnings management, thus rejecting the H1 hypothesis. Nevertheless, the results also partly reflect the current situation in Vietnam where major shareholders often hold a large percentage of shares. The board of directors may be under the control of large shareholders, so they may not play their roles. However, that close supervision also brings positive effects when the board of directors may not intervene to manage earnings. This finding is in contrast to the Agency theory where larger boards support effective oversight by reducing CEO dominance on the board, thus protecting shareholder interests and limiting earnings management (Singh & Harianto, 1989). These results are also in contrast with Alareeni (2018) who found that a larger board is associated with a lower level of earnings management.

Our result also states that non-executive board members may not be related to earnings management. Thus, the second hypothesis is rejected. A plausible explanation for the insignificant relationship between board characteristics and earnings management may be the Managerial Hegemony theory. This theory is in contradiction to the Agency theory because the board of directors is seen as ineffective in carrying out their monitoring duties due to management dominance over board matters. The findings suggest that non-executive board members of firms listed in Vietnam have not been effective in carrying out their monitoring functions. Arguably, their ineffectiveness in discharging their monitoring duty may be due to the lack of expertise, lack of required skills, and knowledge in the business environment. The main reason for this deficiency is the management's control over the selection of non-executive board members (Kosnik, 1987). This finding is in contrast to the results of Fama and Jensen (1983), Baysinger and Hoskisson (1990), and Klein (2002) where non-executive board members are negatively related to earnings management.

Apart from that, the insignificant relationship between the CEO duality and earnings management found in this study indicates that separating the role of the CEO and chairman has no effective monitoring function in curbing earnings management, thus rejecting the H3 hypothesis. It seems that CEOs have to follow large shareholders and therefore their decisions would not be affected by the fact that they are holding a dual role or not (Alareeni, 2018). However, the result is in contrast to the Stewardship theory where the dual role of the CEO and chairman of the board makes the responsibility and authority of the executives better concentrated. The result is also in contrast to the research that showed the positive impact of CEO duality on earnings management (M. Jensen, 1993; K. Anderson et al., 2003; Rajeevan and Ajward, 2020).

There is no evidence of statistical significance in the relationship between directors with expertise in finance and accounting and earnings management, thus rejecting the H4 hypothesis. Our results implied that the role of directors with expertise in finance and accounting is still weak or very limited, so the influence of directors with expertise in finance and accounting has not been confirmed in limiting earnings management. This finding is in contrast to that of DeZoort and Salterio (2001) and Metawee (2013) who showed the presence of expertise in financial accounting on board increases earnings management. The results are also in contrast with Alzoubi (2018) who suggested that board members with accounting and finance experts are efficient in limiting

earnings management. There is no statistically significant relationship between female directors and earnings management, so we reject the H5 hypothesis. It seems that the number of women directors on board is small with a mean of 0.79, so they could not undertake their role efficiently. The final decision is affected by a large number of male directors on the board. Our finding is similar to those of Abdullah and Ismail (2016), Luo et al. (2017), and Arioglu (2020) who found that female directors have no relation with accrual-based earnings management. However, this result is in contrast to Agency theory where the increasing female presence on the board led to the improvement of the quality of accounting information.

High foreign ownership contributes to limit earnings management (either upward or downward), thus approving the H10 hypothesis. When foreign ownership is higher, the requirement for transparency and quality of public information is better. Furthermore, that leads to lower earnings management. Furthermore, foreign investors may have less chance to manage earnings because of the long distances. These findings are consistent with those found by Chung et al. (2004), Guo et al. (2015), and Nguyen et al. (2021).

6. Findings from splitting upward and downward earnings management

A board with a high average age tends to increase downward earnings management, but there is no evidence to confirm the relationship between the average age of the board and upward earnings management, thus rejecting the H6 hypothesis. The fact that older leaders tend to regulate earnings more because they have more experience in management and can find gaps in the accounting system to manage earnings. Our results show that elderly leaders tend to reduce earnings to reduce corporate income tax payable, but there is no evidence for upward earnings management. This is completely consistent with the legal motivation of earnings management proposed by Baralexis (2004). This finding is in contradiction to the research by Hambrick and Mason (1984) and Prendergast and Stole1 (1996) who found a negative relationship between board age and earnings management. When we aggregate upward and downward earnings management in one regression model, the result is biased toward upward earnings management, indicating that the average board age has no statistically significant impact on earnings management.

High ownership concentration increases downward earnings management, but there is no evidence about the relationship between ownership concentration and upward earnings management, thus approving the H7 hypothesis for upward and rejecting the H7 hypothesis for downward earnings management. The results for upward earnings management are in line with the research of Nguyen et al. (2021) which showed a positive impact of ownership concentration on earnings management. Centralized ownership is one of the main causes of poor corporate governance practices and a lack of information in accounting reports (Fan & Wong, 2002). The Vietnamese economy is characterized by a high ownership concentration and major shareholders often account for a controlling portion of shares. This result also proved that concentrated ownership creates conditions for major shareholders to manage earnings. This result is different from that of Hashmi et al. (2018), and Mohammad and Wasiuzzaman (2020) where centralization of ownership contributes significantly to limiting earnings management. Merging upward and downward earnings management in one regression model makes our result biased toward downward earnings management that high ownership concentration increases earnings management in general.

The higher the managerial ownership, the lower the downward earnings management, but there is no evidence to confirm the relationship between managerial ownership and upward earnings management, thus approving the H8 hypothesis for negative and rejecting the H8 hypothesis for positive DA. The results for downward earnings management are in line with those of Nguyen et al. (2021) who found a negative impact of ownership concentration on earnings management. The results obtained with the negative DA can be explained by the Stewardship theory that the interests of managers are closely linked to those of the organization and the owners (Albrecht et al., 2004). Accordingly, the managers are trusted and able to well manage the resources they

are entrusted with. They have the responsibility and authority to effectively perform difficult and challenging work to gain recognition from colleagues and owners (Donaldson & Davis, 1994). This is consistent with the findings of Alexander and Cohen (1999) and Nagy et al. (1999) where managerial ownership contributes significantly to limit earnings management. When we merge upward and downward earnings management in one regression model, the result is biased toward upward earnings management, meaning that managerial ownership has no statistically significant impact on earnings management.

High state ownership limits upward earnings management, but we have not found evidence that there is a relationship between state ownership and downward earnings management, thus approving the H9 hypothesis with positive DA and rejecting it with negative DA. In Vietnam, because the economy is transformed from a centralized economy, state ownership often accounts for a high proportion, reflecting the state's interference in the activities of firms in the economy. The close supervision of government agencies is one of the reasons contributing to the reduction of opportunistic behaviors in management such as earnings management. This finding is in contrast to that of C.S. Cheng and Reitenga (2009) where there is a positive relationship between institutional ownership and earnings management. Aggregating positive and negative DAs in one regression model makes the result biased toward upward earnings management that high state ownership limits earnings management.

7. Conclusion

The objective of this study is to examine the impact of board characteristics and ownership structure on earnings management in the cases of upward and downward earnings management separately. Our results showed that all board characteristic variables except for board age have no statistically significant relationship with earnings management. Firms with high average board age, high ownership concentration, and high financial leverage tend to manage earnings downward. High managerial ownership tends to reduce downward earnings management. Although there may not be simple policy implications, our results suggested that stakeholders should be more cautious of firms with high average board age, high ownership concentration, high financial performance, and high financial leverage as they tend to manage earnings. Our research still has some limitations. We were not able to collect data on the frequency of meetings of the board of directors, the transparency index, and the corporate governance score of enterprises.

Funding

This research is funded by National Economics University, Hanoi, Vietnam.

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Disclosure statement

No potential conflict of interest was reported by the author(s).

Citation information

Cite this article as: The impact of board characteristics and ownership structure on earnings management: Evidence from a frontier market, Quynh Lien Le & Huu Anh Nguyen, *Cogent Business & Management* (2023), 10: 2159748.

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