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Article

Ownership structure and earnings management: Empirical evidence from Vietnam

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Ownership structure and earnings management: Empirical evidence from Vietnam

Huu Anh Nguyen¹, Quynh Lien Le² and Thi Kim Anh Vu^{3*}

Abstract: This paper examines the relationship between ownership structure and earnings management in Vietnam. The governance structure of companies in Vietnam is characterized by the dominance of largest shareholders, who often makes significant influences on direct or indirect management decisions. Existing literature shows that the ownership structure has a significant effect on earnings management. Therefore, the main purpose of this paper is to analyze how the company's ownership structure affects earnings management. Using the sample from 489 non-financial companies listed on the Vietnam stock market, we found that ownership concentration and state ownership positively affect earnings management. In contrast, the managerial ownership and foreign ownership negatively affects earnings management. Furthermore, among the five control variables, Board size; Cash flow are positively related, while financial performance, company size and financial leverage negatively affect earnings management.

Keywords: earnings management; ownership structure; listed companies; Vietnam
JEL codes: M41



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PUBLIC INTEREST STATEMENT

This paper examines the relationship between ownership structure and earnings management in Vietnam. The governance structure of companies in Vietnam is characterized by the dominance of largest shareholders, who often makes significant influences on direct or indirect management decisions. Existing literature shows that the ownership structure has a significant effect on earnings management. Therefore, the main purpose of this paper is to analyze how the company's ownership structure affects earnings management. Using the sample from 489 non-financial companies listed on the Vietnam stock market, we found that ownership concentration and state ownership positively affect earnings management. In contrast, the managerial ownership and foreign ownership negatively affects earnings management. Furthermore, among the five control variables, Board size; Cash flow and Financial leverage are positively related, while financial performance and company size negatively affect earnings management.

1. Introduction

Earnings management (EM) is now a worldwide phenomenon and attracts the attention of many researchers around the world (Watts & Zimmerman, 1990; Healy & Wahlen, 1999; Fields et al., 2001; Gaver & Austin, 1995). This phenomenon may result in less confidence and transparency in financial market. EM may include violations of the General Accounting Principles (GAAP) or the law (Baralexis, 2004) and the management of earnings by flexible practice activities of GAAP (Degeorge et al., 1999). EM is the managers' efforts to influence or manipulate the reported earnings (Akers et al., 2007). These include activities to magnify or reduce earnings to an expected level. Managers have the incentive to adjust earnings to achieve their targets or to make earnings seem less risky (Baker & Owsen, 1992; Bergstresser & Philippon, 2006). Leuz et al. (2003) estimate that insiders manage earnings to hide corporate performance from outsiders, in an effort to protect their personal control interests. There are growing concerns about how to improve transparency, trust and integrity. An important and clear evidence of this growing concern is the development of corporate governance regulations worldwide, in which ownership structure is an indispensable important element.

EM is actions of managers to increase (decrease) the reported revenue. This concept identified two important components of EM, namely consequences and intention (Fischer & Rosenzweig, 1995). EM results in increasing asymmetric information between managers and investors. Then, the behavior of EM might cause disadvantages for investors and even affect the real operating efficiency of the companies. The appearance of EM would reduce the quality and reliability of the information in financial statements. EM aims at achieving temporary optimal revenue in the short term rather than being closely attached with the completion in product innovation and companies' operation. Therefore, EM can bring about possible risks for the development of companies in the future.

A firm's ownership structure is of particular importance to the effectiveness of the monitoring mechanisms used to limit the ability to make earnings adjustments. An effective ownership structure limits EM. There are two streams of thought related to the structure of effective ownership. First, company insiders or managers are also shareholders if they hold a significant share of the company's shares and this is considered helpful in reducing corporate conflicts and reconciling the interests of managers and shareholders. Second, outsiders own a substantial number of shares of the company, have more power and are more incentivized to monitor management activities, especially financial reports thereby reducing the likelihood of profit adjustment. Franks and Mayer (2001) mentioned the degree of ownership concentration as an element of corporate governance. Leech and Leahy (1991) have studied corporate governance and holding rates from UK public shareholders and provide evidence that when the public shareholders hold a large number of common shares will pressure managers to act in the interests of shareholders because they have the power to fire managers that are ineffective. Shleifer and Vishny (1997) found that the managerial ownership of corporations is an element of corporate governance. When the owner is also a manager of a company, the agreement between ownership and control can reduce conflicts of interest and thus become more valuable in the business. When managers are not owners, they may have more freedom to pursue their own goals which undermines the value of the business. Borisova et al. (2012) examined the impact of state ownership on corporate governance using a sample of firms from the European Union, a relatively familiar region with active participation government's. Research shows that the proportion of state ownership is directly related to the quality of corporate governance. State ownership is associated with lower governance quality. However, the research also shows that while government government intervention is negatively related to governance quality in civil law countries, it is positively related to governance quality in common law countries. Alain Chevalier et al. (2006) examined whether participation in foreign ownership leads to better corporate governance practices in developing countries. The study

selected companies' capital structures to examine the reality of corporate governance in firms in Indonesia.

Previous studies have shown that ownership structure has an impact on corporate accounting behavior (Banderlipe, 2009; Chung et al., 2002; Kim & Yoon, 2008; Klein, 2002; Mohammad & Wasiuzzaman, 2020; P.M. Dechow et al., 1995; Warfield et al., 1995). Current literature shows that the non-transparent ownership structure may provide the incentive to manage earnings. The paper continues to contribute to a series of studies in history about the impact of ownership structure on earnings management. Research is current, meaningful in both theory and practice. Theoretically, the topic will build a theoretical framework, systematize fully and comprehensively about the impact of ownership structure on earnings management. Practically, the topic points out the effects of ownership structure on earnings management, thereby giving recommendations to improve ownership structure to limit earnings management in non-finance listed firms on Vietnam's stock market.

In developing countries, EM can be used by the state-owned enterprises to adjust profits to the desired level. Q Liu and Lu (2007) suggest that good corporate governance may reduce EM caused by ownership structure. Along with the development of the economy, Vietnam stock market has been established and developed fast. In addition, the governance structure of Vietnam is characterized by the dominance of the largest shareholders, which often has a significant influence on direct or indirect management decisions. Motivated by these facts, the main purpose of this paper is to analyze how the company's ownership structure affects EM. Using the sample from 489 non-financial companies listed on the Vietnam stock market, we found that ownership concentration and state ownership positively affect EM. In contrast, the managerial ownership and foreign ownership negatively affects EM. Furthermore, among the five control variables, Board size and cash flow are positively related, while financial performance, company size and financial leverage negatively affect EM.

The study organizes into seven sections. Section 1 is of introduction, Sections 2 and 3 focus on background and theoretical framework. Section 4 prescribes literature reviews and hypotheses development. Section 5 discusses the research design. Section 6 discusses the empirical results and discussion, and Section 7 is the conclusion.

2. Background

The usefulness of mentioned information depends on the quality of earnings reporting (Ball & Shivakumar, 2005). Bottom line earnings information has become more and more important from stakeholder's point of view as a mean to measure the performance and to forecast the future cash flows (P. Dechow et al., 1998). The flexibility of accounting has been applied by the management in delivering useful and reliable information to stakeholders for performance appraisal and decision-making process. However, this flexibility gives the opportunities to the managements in engaging with EM practices (P. Dechow & Skinner, 2000; Healy & Wahlen, 1999).

EM would happen when the managers tried to change financial statements, which might result in misunderstanding the companies' operating efficiency or affecting results of contracts based on the financial statements (Gajevszky, 2014; Healy & Wahlen, 1999; Roychowdhury, 2006). Fischer and Rosenzweig (1995) concluded EM as actions of managers to increase (decrease) the reported revenue. Thus, EM can be an opportunistic behavior. However, companies might not publish their EM to reduce influence from internal information disclosure (Lambert, 1984; Stocken & Verrecchia, 2004; Suh, 1990). Certain studies provided evidences showing that EM can be used as a signal to improve blocked information channels between internal and external companies' humans. Besides, the studies also point out motives for EM of managers such as motive derived from management reward; motive derived from debt covenant; motive derived from capital market; motive derived from legislation and motive derived from desire to meet investors' expectations.

Yue (2004) presented differences in recording accounting through accrual basis result in chances for companies to manage their earnings with the former approach. This common technique for EM has been widely applied among companies. The reasons for this choice are the ease in using accrual basis to manage earnings and the challenge in identifying the managed earnings through policy changes. Profit is the difference between revenue and cost. The recognition of revenue and expense is decisive to the reported profit in a given period. Therefore, the methods that can be used by managers to adjust profits in the enterprise are as follows: (i) policy selection and accounting method (Skinner, 1993); (ii) real transactions (Schipper, 1989); (iii) total accrual basis (P.M. Dechow et al., 1995); (iv) specific accrual (Beneish, 1997; Dhaliwal et al., 2004; Marquardt & Wiedman, 2004); (v) appropriation of profit (Burgstahler & Dichev, 1997; Degeorge et al., 1999) and (vi) income smoothing (P. Dechow & Skinner, 2000).

Previous studies have shown that each ownership structure has a different effect on EM behavior and that each equity structure has a different agency cost (Shleifer & Vishny, 1997; Franks & Mayer, 2001; Borisova et al., 2012). An enterprise funded by an individual and run it by itself, the cost of representation will be low, when moving from a small structure to a multi-person structure, the agency cost will increase to control the operation of the application and control the EM behavior of the manager. The agency cost is significantly affected by the capital structure of the business and the manager will have a suitable and harmonious impact on the interests of the parties. Therefore, the main purpose of this research is to analyze how the company's ownership structure affects EM through using the absolute value of negative and positive EM in accompany with a regression model to represent for level of EM based on the two approaches of increasing and reducing earnings, which would help in specifically analyzing impacts of ownership structure on EM in the two cases of increasing and decreasing companies' earnings. The research findings of the study contribute to the diversity of the studies on the impacts of corporate governance on EM. In addition, the authors wish to provide useful information for investors, businesses, authorities, and auditing firms in achieving a comprehensive view of the actual financial picture of companies and the current situation of EM as well as the influence of company's ownership structure on limiting EM of companies in emerging economies like Vietnam.

3. Theoretical framework

Through many different studies in the world, the following theories will be applied in this research on the impact of company's ownership structure on EM

3.0.1. First, agency theory

According to Jensen and Meckling (1976), agency theory focuses on the relationship between a principal and an agent. In a corporation, the principal is the owner who hires the agent to manage the corporation. The agency theory explains how managers make EM on financial statements to maximize their benefits.

Agents may run a business based on their own interests instead of shareholders' interests because of information asymmetry (for example, managers have a better understanding than shareholders about their ability to achieve their goals) and uncertainties (for example, the multitude of factors that make up the result). Agency problem may be observed in terms of avoiding risks and ignoring good investment opportunities. Thus, the conflict of interests occurs when there is a separation of ownership and control. In order to minimize this conflict of interests, shareholders should associate managers with the common interests of shareholders or shareholders should incur additional agency costs as a bonus for managers. Bonuses for managers may be cash and stock bonuses based on long-term bonuses, stock options or performance shares. However, agency costs such as salaries and bonuses can be a double-edged sword. When shareholders provide bonuses based on business results, managers may try to achieve good business results with the expectation to receive benefits from them. If it is not possible to do it, the managers may use tricks to achieve it.

3.0.2. *Second, stakeholder theory*

Stakeholder theory is a theory of organizational management and business ethics in managing an organization. It was originally detailed by Freeman (1984) with an approach that addresses “who or what matters most.” In the traditional view of a company, shareholders only see the owner or shareholders of the company as important, and the company has to set priority to put their needs and to add value to them. Instead, stakeholder theory argues that there are stakeholders, including employees, customers, suppliers, creditors, communities, government agencies, political groups, trade associations and trade unions. Even competitors are sometimes counted as stakeholders. Accordingly, managers as agents of shareholders must make decisions to ensure the survival and development of businesses, while protecting the interests of stakeholders.

3.0.3. *Third, signaling theory*

Signal theory was first mentioned by Akerlof (1970), then further developed by M. Spence (1973) and Stiglitz (1975) as a part of asymmetric information. Such asymmetric information occurs when one partner holds the information and the other does not know the true message behind the information. Asymmetric information causes adverse selection as the information is concealed before the signing of the contract. In a firm, information asymmetry appears in the relationship of managers with shareholders and companies with investors. Companies do not send signals or send incorrect signals which may be detrimental to investors. The managers who know the information but intentionally cover them up causing adverse selections for shareholders.

4. Literature review and hypothesis development

A good ownership structure is considered to be a good instrument for managers to prevent EM activities. Corporate governance creates a number of constraints to reduce agency costs, arising out of a contractual relationship within the company, or a framework to ensure that corporate financial suppliers achieve a return on their investment (Shleifer & Vishny, 1997). Regarding financial reporting, the role of corporate governance is to confirm the acceptance of the financial accounting system as well as to maintain the credibility of the financial statements (Cohen et al., 2008). The following variables reflect ownership structure.

4.1. *Ownership Concentration (CO)*

The degree of concentration ownership is the percentage of shares (usually more than 5%) owned by the shareholders. Small shareholders are not interested in controlling the company because they will incur controlling costs (Zhong et al., 2007). Major shareholders play an important role in controlling the company as they have motivations to monitor and manage the company to protect their investments (Gabrielsen et al., 2002; Shleifer & Vishny, 1997; Yeo et al., 2002). On the other hand, if the level of large shareholders is too high, it can cause agency problems (Boubakri et al., 2005). Major shareholders may exercise control to take advantages.

In fact, controlling shareholders can enforce their personal preferences even when those trends are against minority shareholders (Jensen & Meckling, 1976; Shleifer & Vishny, 1997). Therefore, major shareholders can participate in the management of the company and may cause managers to engage in EM to gain benefits (Habbash, 2010; Zhong et al., 2007). However, some authors do not find any relationship (Peasnell et al., 2005; Sharma and Kuang, 2014). Kim and Yoon (2008) show that the degree of ownership concentration has a positive relationship with EM behavior. Our first hypothesis is as follows:

H1: The degree of ownership concentration has a positive effect on EM.

4.2. *Managerial Ownership (MO)*

Agency theory suggests that as soon as managers do not own shares directly or indirectly in the company they manage, their behavior may be affected by other benefits which are far beyond the

primary goal: maximize the value of the company and its shareholders (Fama, 1980; Fama & Jensen, 1983; Jensen & Meckling, 1976). On the other hand, if managers own stocks of the company they manage, they will have the tendency to gradually align their interests with shareholders (Hashmi et al., 2018; Jung and Kwon, 2002). Accordingly, the degree of EM is expected to be negatively impacted (Klein, 2002; Teshima and Shuto, 2008; Warfield et al., 1995). On the other hand, managerial ownership may have the opposite effect on EM since greater managerial authority may lead them to choose accounting decisions to gain private benefit (Jung and Kwon, 2002). Previous research shows that higher management ownership leads to EM behavior (Gul et al., 2003; Peasnell et al., 2005). In contrast, other studies did not find any significant relationship between the two variables (Habbash, 2010). This study addresses this problem by testing the following hypothesis:

H2: Managerial Ownership negatively affects EM.

4.3. State Ownership (SO)

Companies in public sector generally have a lower level of governance and audit quality (Shleifer, 1998) and such a condition is typically associated with an increase in management power that, in turn, might cause EM. In state-owned enterprises, the accountability is usually weaker than it is in the private-owned entities. This fact results in an incentive to manipulate accounting data. In a state-owned enterprise, the managers have to consider benefits of many different stakeholder apart from the owner such as citizens, public opinion (Sinclair, 1995). They may have to take into account different and often contrasting interests due to the influence of different management power reflected in the ownership structure (Ghosh and Whalley, 2008; Bruton et al., 2015), so that they have to manage a range of conflicting views. This fact potentially encourages data manipulation and results in EM. As a result, we study the hypothesis:

H3: State ownership has a positive effect on EM

4.4. Foreign Ownership (FO)

Foreign investors are usually mutual funds or other institutional investors (Dahlquist & Robertson, 2001). Previous research provided evidence that foreign investors could enhance corporate value by spreading positive spillover effects (Douma et al., 2006), through the reduction of capital cost of companies (Bekaert and Harvey, 2000), through promoting appropriate investments in R&D (David et al., 2006) and through initiating changes in corporate governance practices of local companies (Gillan and Starks, 2003). Furthermore, Ho, Wu and Xu (2010) find out that a greater proportion of foreign shareholders in small businesses has a positive impact on the relationship between information technology investment and public performance. This finding is in line with Ferreira and Matos (2008). Foreign financial institutions may have more motivation to oversee corporate management to ensure a higher return on their investments than domestic investors. In addition, foreign financial institutions may own more effective tools to supervise managers than domestic financial institutions in developing economies (Khanna and Palepu, 2000).

The foreign ownership investors reduce the level of EM, which helps improve transparency in information disclosure (Firth et al., 2007). Studies on foreign ownership and EM in the literature show a negative relationship both in developed and developing economies. It is worthy to study this problem in Vietnam. Therefore, we propose the following hypothesis:

H4: Ownership ratio of foreign investors has a negative impact on Earnings management

In addition to ownership factors, EM is also influenced by firm characteristics, so a number of control variables are included in the model. These control variables include:

4.5. Financial Performance (ROA)

Lee, Li and Yue (2006) show that when operating efficiency is high, managers still tend to maintain stock prices, stock prices show the market's reaction to reported profits. Cheng and Warfield (2005) provide evidence that executives manage earnings to raise stock prices. Chen et al. (2006) demonstrate the hypothesis that inefficient firms are more likely to manage earnings. There is also research that shows that firms that operate well but have subsidiaries in countries with low income tax are more likely to manage earnings than other companies (Dyreg, Hanlon and Maydew, 2012). We have the following hypothesis:

H5: Financial performance has a negative impact on Earnings management

4.6. Board of Directors (BOARD)

In the literature, there are different evidence of the relationship between the size of the board and EM. Fathi (2013) and Xie et al. (2003) reported that the larger the size of the board, the lower EM. They found that a large size of the board of directors often have good internal management system, strict internal control, the board of directors could limit EM by providing useful information on profitability through their superior information and management monitoring capabilities. In contrast, when investigating the Malaysian stock market, Sarkar et al. (2008) found a positive relationship between the size of the Board of Directors and EM. We propose the following hypothesis:

H6: The size of the Board of Directors has a negative effect on Earnings management

4.7. Cash Flow (CF)

Haghighat and Homayoun (2004) studied the relationship between accrual and income to conclude that there is a statistically significant relationship between the quality of accrual and the following factors: cash flow from business activities and sales. Accordingly, we study this hypothesis:

H7: Cash flow of enterprises have a positive effect on earnings management.

4.8. Company Size (SIZE)

Company size, on the one hand, is related to performance and the ability to protect the company from risks. Some researchers suggested that large companies often have good internal management system, strict internal control and are often audited by large and reputable auditing companies such as Big 4; therefore, they are less likely to EM (Warfield et al., 1995). However, there are many studies which show that the size of the company is related to the amount of cash and accruals, which are related to earnings. Firm size will influence decisions because the larger the company, the greater the separation between management and ownership. As a result, managers will likely pursue individual interests and disregard the interests of shareholders and companies. In addition, the larger the firm size, the higher the profit target (Richardson et al., 2002).

In contrast, Barton and Simko (2002) point out that large companies face a lot of pressure to overcome analysts' demands. The level of expected profit makes listed companies tend to manage their earnings. Therefore, large-scale companies will tend to manage earnings to comfort investors, create confidence for creditors, and attract investment. Nelson et al. (2002) conclude that, for large-scale firms, auditors often turn a blind eye to the conduct of

Klai and Omri (2011) shows that firm size and EM have a positive relationship. Accordingly, we study the hypothesis:

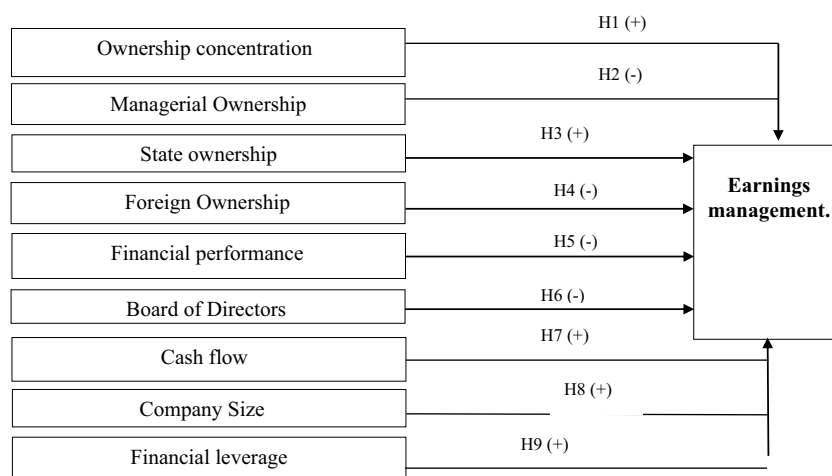
H8: The larger the company, the higher the level of EM.

4.9. Financial Leverage (LEV)

Jelinek (2007) shows that leverage changes and leverage levels have different effects on EM and conclude that increasing leverage is associated with a decrease in EM. Ali et al. (2008) shows that firms with higher debt ratios are more motivated to engage in EM activities to meet debt covenant requirements.

On the contrary, there are many views that maintaining a reasonable debt ratio will help maximize the value of the firm. In addition, authors such as Chung et al. (2005) also argue that when firms are constrained by debts, it is difficult for managers to control and it is not easy to exercise EM. In Vietnam, Hoang et al. (2014) showed that financial leverage has a positive effect with EM. Therefore, we study the hypothesis:

Figure 1. Research model proposed.



H9: Financial leverage has a positive effect on EM.

On the basis of the literature review, the research model is proposed as in Figure 1:

5. Research design

5.1. Regression equations

Many studies have shown that managers use the EM to find ways to influence the difference between the actual cash flow at the company and the profits, often creating Discretionary Accruals (DA) on the financial statements. DeAngelo (1986), P.M. Dechow et al. (1995), Healy and Wahlen (1999) all said that the variable DA represents EM, but researchers cannot observe it directly. They have to measure Non-Discretionary Accruals (NDA).

To detect EM, a common approach is to calculate the total accruals (TA) above minus the non-discretionary accruals (NDA) that arise at the business. NDA are accruals made in accordance with

the principles of accounting, while DA are accruals created by managers to manage the earnings of the business. The total accruals occur because there is the difference between the accounting profit presented on the income statement and the net cash flow from operating activities due to the application of two different accounting bases, accrual basis and cash basis. Accordingly, we have:

$$\text{Total Accruals (TA)} = \text{Net income} - \text{Net Cash Flow from Operating Activities}$$

Total accruals (TA) are divided into two parts, the non-discretionary accruals (NDA) and the discretionary accruals (DA).

Whereby:

$$\text{Total Accruals (TA)} = \text{Non-Discretionary Accruals (NDA)} + \text{Discretionary Accruals (DA)}$$

In which: non-discretionary accruals (NDA) reflects the specific business conditions of each company such as the length of the business cycle, the life cycle of the company. Therefore, NDA is not adjusted by managers.

In this study, we use Rahman and Shahrur (2008) model to measure the NDA. In this model, the authors added ROA and the ratio of book value to market value to the original model of Jones (1991) and Sharma and Jones (2001).

The regression model of NDA variable according to TA has the following form:

$$\frac{TA_{it}}{A_{it-1}} = \beta_0 \frac{1}{A_{it-1}} + \beta_1 \frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} + \beta_2 \frac{PPE_{it}}{A_{it-1}} + \beta_3 ROA_{it} + \beta_4 BM_{it} + \varepsilon_{it}$$

Where:

— TA_{it} : The total accruals variable i in year t

— DA_{it} : The discretionary accruals variable company i in year t

— NDA_{it} : The non-discretionary accruals variable i in year t

— A_{it-1} : Total assets of company i in year $t - 1$

— ΔREV_{it} : The fluctuation in company revenue i year t compared to year $t-1$

— ΔREC_{it} : The fluctuation in company receivables i year t compared to year $t-1$

— PPE_{it} : The closing balance of fixed assets of company i in year t

— ROA_{it} : Total net profit/Total assets

— BM_{it} : Equity book value/Equity market value

—The coefficients $\beta_0, \beta_1, \beta_2, \beta_3, \beta_4$ are the coefficients that indicate the degree of impact of the independent variable on the dependent variable.

— ε_{it} : The error terms

After running the regression of model (1) we obtain $\beta'_0, \beta'_1, \beta'_2, \beta'_3$ and β'_4 as the estimated values of regression coefficients $\beta_0, \beta_1, \beta_2, \beta_3, \beta_4$ respectively. We substitute $\beta'_0, \beta'_1, \beta'_2, \beta'_3$ and β'_4 into equation (2) to calculate the variable NDA_{it}/A_{it-1} :

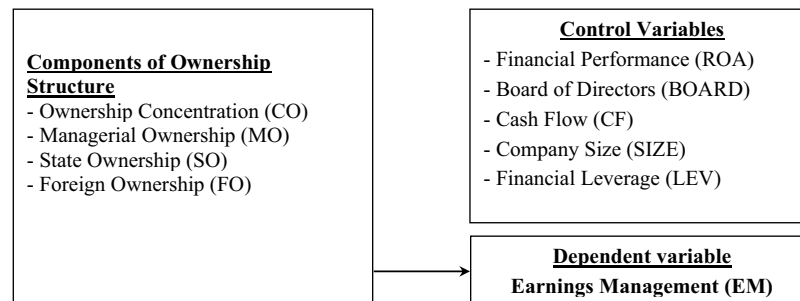
$$\frac{NDA_{it}}{A_{it-1}} = \beta'_0 \frac{1}{A_{it-1}} + \beta'_1 \frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} + \beta'_2 \frac{PPE_{it}}{A_{it-1}} + \beta'_3 ROA_{it} + \beta'_4 BM_{it}$$

After calculating the value of NDA_{it}/A_{it-1} , we used equation (3) to calculate DA_{it}/A_{it-1} :

$$\frac{DA_{it}}{A_{it-1}} = \frac{TA_{it}}{A_{it-1}} - \frac{NDA_{it}}{A_{it-1}}$$

In the model, we use EM variable (EM) calculated by equation (4):

Figure 2. Research model.



$$EM_{it} = \frac{DA_{it}}{A_{it-1}}$$

On the basis of the literature review, the research model is proposed as in [Figure 2](#).

We set up a model to examine the impact of the ownership structure on EM. Because the four types of ownership mentioned above are not the only factor affecting EM behavior, we also consider related control variables. The model has EM as the dependent variable, four independent variables corresponding to four research hypotheses and five control variables. We use the following multivariate regressions:

$$EM = \alpha_0 + \alpha_1 CO + \alpha_2 MO + \alpha_3 SO + \alpha_4 FO + \alpha_5 ROA + \alpha_6 BOARD + \alpha_7 CF + \alpha_8 SIZE + \alpha_9 LEV \quad (5)$$

5.1. Data collection

The sample includes non-financial companies listed on the Hanoi Stock Exchange (HNX) and Ho Chi Minh Stock Exchange (HOSE). We eliminate financial companies such as insurance companies, securities companies and banks because these companies are in accordance with their own accounting regime and their financial statements are not the same as non-financial companies. The final sample includes 489 companies. Data are collected for the period of 10 years from 2009 to 2018. The financial statements of these companies have been audited. After eliminating companies with missing value, we have 4290 observations for each variable.

5.2. Data processing method

First, based on the literature review and theoretical background on impacts of corporate governance on EM, hypotheses related to impacts of Ownership Structure on EM were proposed. Then, the

authors collected research data and processed it with Stata 14 to obtain quantitative results through statistical description, analysis into the correlation among factors, regression Pooled OLS, FEM, REM, GLS, test on model problems (multicollinearity, heteroskedasticity, autocorrelation), and test on the validity of the model, etc. to find out the most appropriate model. Finally, the gathered data were discussed and specific recommendations as well as conclusions were demonstrated.

6. Empirical results and discussion

6.1. Descriptive statistics

First, we conducted a statistical analysis describing the characteristics of the variables in the model. The statistical results in Table 2 show that EM has the average value of 0.0646188, in which the smallest value is -2.752445 and the largest value is 1.666556. Table 1 summarizes the measurements of the major variables

6.2. Correlation analysis

Next, we conducted a correlation analysis in Table 3. The results of Table 3 show that the correlation coefficients between the independent and control variables in regression models are mostly less than 0.5, meaning that it is less likely to have auto correlation phenomenon.

Based on the results of the Pooled OLS model in Table 4, we found that two of the four independent variables in the ownership structure (The degree of ownership concentration and state ownership) and five control variables (board size, financial efficiency, company size and financial leverage) are statistically significant. The other two independent variables (the ownership ratio of the manager and the ownership ratio of foreign investors) are not statistically significant. The value of $F = 218.92$ ($\text{sig} = 0.0000$) helps us reject the H_0 hypothesis that the model has no prediction power and accepts the alternative hypothesis H_1 that this model can predict the dependent variable (EM) through

Table 1. Variables in the model

No.	Name of variable	Symbol	Measurement
1	Earnings Management	EM	DA over total assets of the previous year
2	Concentration Ownership	CO	Percentage of shares held by shareholders owning $\geq 5\%$ of shares in the company.
3	Managerial Ownership	MO	Percentage of shares owned by managers
4	State Ownership	SO	Percentage of shares held by the state
5	Foreign Ownership	FO	The percentage of shares held by foreign investors
6	Financial Performance	ROA	Profit after tax/Total assets
7	Board of Directors	BOARD	Number of members in the Board
8	Cash Flow	CF	Rate of cash flow to total assets of the previous year
9	Company size	SIZE	Logarithm of total assets
10	Financial Leverage	LEV	Total debt/Total assets

Table 2. Descriptive statistical analysis

Variable	Obs	Mean	Std. dev.	Min	Max
EM	4290	-0.0646188	0.1923231	-2.752445	1.666556
CO	4290	0.4838513	0.2151244	0	1
MO	4290	0.1002459	0.1309923	0	0.8750478
SO	4290	0.2281236	0.2490376	0	0.9811
FO	4290	0.0984979	0.1333484	0	0.7757961
BOARD	4290	5.474126	1.126384	2	11
ROA	4290	0.0587556	0.0794313	-0.8525894	0.7836998
CF	4290	0.0095334	0.104376	-0.6420436	1.408307
SIZE	4290	11.75348	0.656765	10.13225	14.45935
LEV	4290	0.5042194	0.2184191	0.0005884	0.9929094

independent variables and control variables. The adjusted R^2 value (Adj—R-squared = 31.52%) indicates that 31.52% of the variation of EM can be explained by the variation of independent variables (CO, SO, MO, FO) and control variables (ROA, BOARD, SIZE, CF, LEV)

6.3. Multi-collinearity test

After conducting OLS regression, we conducted multi-collinearity test. The vif coefficient of all independent and control variables is less than 2, so the model does not have multi-collinearity. However, when performing the white test, the result shows a p-value of less than 0.05 which means that the model has heteroscedasticity. Next, we verified the autocorrelation of the model through Wooldridge test, the result shows a p-value of more than 0.05, meaning that the model had no autocorrelation. Next, we run FEM and REM. After that, we conducted Hausman test to choose between FEM and REM. The following hypothesis is given for Hausman test:

H₀: The difference in the regression coefficient is not systematic

H₁: The difference in regression coefficient is systematic

Looking at Table 5, chi-square value = 17.71 with p-value = 0.0000 < 0.05, we reject H_0 and accept H_1 , so FEM is more suitable than REM. In addition, we also test the hypotheses about autocorrelation and heteroscedasticity. The results are shown in Table 6:

Looking at Table 6, when testing the heteroscedasticity, chi-square = 1.6e + 05, p-value = 0.0000 < 0.05 proved to reject H_0 , accepting the hypothesis of heteroscedasticity. Whereas when testing the hypothesis of autocorrelation F (1,484), p-value = 0.0987 > 0.05, that means accepting the H_0 hypothesis, the model has no autocorrelation.

To overcome heteroscedasticity, GLS model is implemented. After regressing GLS model (see Table 7), we get the results of the relationship between the variables in the regression model as follows:

Firstly, the following ownership structure factors have a positive impact on EM: the ownership concentration (CO) and the state ownership ratio (SO)

Secondly, the following ownership structure factors have a negative impact on EM: the managerial ownership variable (MO) and the foreign ownership variable (FO).

Table 3. Correlation coefficient analysis

	EM	CO	MO	SO	FO	BOARD	ROA	CF	SIZE	LEV
EM	1									
CO	0.0179	1								
MO	-0.0015	-0.108	1							
SO	0.0479	0.4603	-0.439	1						
FO	-0.1064	0.0357	-0.04	-0.1489	1					
BOARD	-0.0136	-0.0345	0.0975	-0.1127	0.2998	1				
ROA	-0.527	0.0948	-0.091	0.0991	0.1817	0.0541	1			
CF	0.072	-0.021	-0.01	-0.0147	0.0109	0.0273	0.119	1		
SIZE	-0.0251	0.0603	-0.016	-0.0106	0.3038	0.2863	-0.053	0.0083	1	
LEV	0.1615	0.0168	0.0808	0.0464	-0.2225	-0.0326	-0.402	-0.0218	0.346	1

Thirdly, the following control variables have a positive impact on EM: the board size variable (BOARD), the cash flow variable (CF) and the leverage variable (LEV).

Fourthly, the following control variables have a negative impact on EM: performance variable (ROA) and the enterprise size variable (SIZE).

Fifth, we summarize information during the implementation of the regression models by the Pooled OLS, FEM, REM and GLS methods.

Finally, we have a model that demonstrates the impact of the ownership structure on EM as follows:

$$EM = 0.0922 + 0.0551CO - 0.0412MO + 0.0375SO - 0.0191FO - 0.00411BOARD - 1.410ROA + 0.302CF + 0.00791SIZE + 0.0589LEV \quad (6)$$

According to the results in Table 8 the hypotheses of H1, H2, H3, H4, H5, H6, H7, H8 and H9 are all accepted. Specifically:

First, the factor of CO has a positive impact on EM. The results show a similarity to that of Jensen and Meckling (1976); Shleifer and Vishny (1997); (Fan and Wong, 2002) point out that CO is one of the main causes of poor corporate governance practices and lack of information in financial statements. Meanwhile, Vietnam's economy is characterized by a highly CO structure, with major shareholders often holding a dominant shareholding rate (Nguyen et al, 2020) also proves when the ownership structure is too concentrated, it will create conditions for major shareholders to acquire business operations and then make adjustments to profits in the business.

Second, MO was negatively correlated with EM, the results show that the research is consistent with Donaldson and Davis (1994); Gul et al. (2003) and Peasnell et al. (2005) argues that managers are trustworthy and capable of managing the resources they are entrusted with. They have the responsibility and authority to effectively perform difficult and challenging jobs to gain recognition

Table 4. Pooled OLS regression results

Source	SS	df	MS
Model	50.00831	9	5.556479
Residual	108.634	4280	0.025382
Total	158.6423	4289	0.036988

Table 5. Hausman test

Chi-square	Prob. chi-square	Notes
176.71	0.0000	

Table 6. Test heteroscedasticity and autocorrelation

Heteroscedasticity		
Chi-square	Prob. chi-square	Notes
1,6e+05	0.0000	
Autocorrelation		
F (1,484)	Prob>F	Notes
2.730	0.0987	

Table 7. Regression results according to GLS model

Cross-sectional time-series FGLS regression							
Coefficients: generalized least squares				Number of obs	=		4290
Panels: heteroskedastic				Number of groups	=		486
Correlation: no autocorrelation				Obs per group: min	=		1.0000
				avg	=		8.8272
Estimated covariances = 486				max	=		9.0000
Estimated autocorrelations = 0				Wald chi2(9)	=		6386.84
Estimated coefficients = 10				Prob > chi2	=		0.0000
EM	Coef.	Std. err.	z	P > z	95% Conf.		Interval
CO					0.0551297		
0.0073523	7.5	0.0000	0.040719		0.06954		
MO					-0.0411963		
0.0123894	-3.33	0.0010	-0.06548		-0.01691		
SO					0.0375489		
0.0071159	5.28	0.0000	0.023602		0.051496		
FO					-0.0191271		
0.0105856	-1.81	0.0710	-0.03987		0.00162		
BOARD					0.0041109		
0.0011202	3.67	0.0000	0.001915		0.006307		
ROA					-1.410148	0.019536	-72.18
0.0000	-1.44844		-1.37186				
CF					0.3023679		
0.0153988	19.64	0.0000	0.272187		0.332549		
SIZE					-0.0079129		
0.0023311	-3.39	0.0010	-0.01248		-0.00334		
LEV					-0.0588967		
0.0073975	-7.96	0.0000	0.0734		-0.0444		
_cons					0.0921659		
0.0246649	3.74	0.0000	0.043824		0.140508		

from colleagues and owners. Therefore, when the manager's ownership ratio is high, it will contribute to limiting the adjustment of profits in the business.

Third, opportunistic EM increased as the state-owned stake increased. Our results supported our hypothesis that SO has a positive impact on EM. The results are consistent with those of Sinclair (1995) argued that the managers have to consider benefits of many different stakeholders apart from the owner such as citizens, public opinion. They may have to take into account different and often contrasting interests due to the influence of different management power reflected in the ownership structure (Ghosh and Whalley, 2008; Bruton et al., 2015). This fact potentially encourages data manipulation and results in EM.

Fourth, FO was negatively correlated with EM. Our results are consistent with studies of Ferreira (2007); Chien (2008); David et al. (2006) and Khanna and Palepu (2000) found that foreign investors limit managers' EM by providing useful information on profitability through their superior information and management monitoring capabilities to enhance the quality of profits.

Table 8. Comparison of Pooled OLS, FEM, REM and GLS models

	OLS	FEM	REM	GLS
	EM	EM	EM	EM
CO	0.0335*** [2.58]	0.00225 [0.11]	0.0333** [2.36]	0.0551*** [7.50]
MO	-0.0112 [-0.53]	0.0342 [0.97]	-0.0095 [-0.41]	-0.0412*** [-3.33]
SO	0.0727*** [5.74]	0.0107 [0.58]	0.0684*** [5.03]	0.0375*** [5.28]
FO	0.00336 [0.16]	-0.0153 [-0.40]	0.00533 [0.22]	-0.0191* [-1.81]
BOARD	0.00667*** [2.84]	0.00822** [2.14]	0.00686*** [2.64]	0.00411*** [3.67]
ROA	-1.416*** [-41.23]	-1.795*** [-39.95]	-1.503*** [-41.34]	-1.410*** [-72.18]
CF	0.261*** [11.10]	0.291*** [12.77]	0.268*** [11.72]	0.302*** [19.64]
SIZE	-0.0151*** [-3.37]	-0.0902*** [-5.67]	-0.0169*** [-3.22]	-0.00791*** [-3.39]
LEV	-0.0486*** [-3.52]	-0.0980*** [-3.40]	-0.0621*** [-3.95]	-0.0589*** [-7.96]
_cons	0.149*** [3.10]	1.097*** [6.04]	0.183*** [3.21]	0.0922*** [3.74]
N	4290	4290	4290	4290
R-sq	0.315	0.321		

σ , t statistics in bracket

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

Fifth, BOARD was positively correlated with EM. Our results are consistent with previous studies of Sarkar et al. (2008) and Vafeas (2000). It shows that larger boards are not as effective as smaller ones because of the diffusion of responsibility among many members so the burden will be less amongst them (Vafeas, 2000).

Sixth, the factor of SIZE has a negative impact on EM, the results show a similarity of that previous studies of Warfield et al. (1995) and Gore et al. (2001) which reported that large enterprises have fewer incentives to perform EM because those enterprises provide more information and are supervised by analysts and investors.

Seventh, ROA was negatively correlated with EM. Our result is consistent with a previous study that reported that highly profitable companies are always prepared for EM (Dechow & Dichev, 2002). Practically, if the assets in the enterprise are managed and used effectively, it will help the company get higher business performance. Therefore, contributing to limiting the adjustment of profits in the business.

Eighth, the leverage ratio has a positive effect on EM. This result suggests that the more financial leverage a company has, the more likely it is to engage in profit-adjusting behavior. This result is consistent with previous studies of Hoang et al. (2014).

Eighth, the leverage ratio has a negative effect on EM. This result suggests that the more financial leverage a company has, the more likely it is to engage in earning management. This

result is consistent with previous studies of authors such as Chung et al. (2005) who argued that when firms are constrained by debts, it is difficult for managers to control and it is not easy to exercise EM.

7. Conclusions

We analyzed the effect of the ownership structure on EM using the financial statements of non-financial companies listed on the Vietnam stock market. We found that ownership concentration and state ownership positively affect EM. In contrast, the managerial ownership and foreign ownership negatively affects EM. Furthermore, among the five control variables, board size, financial leverage and cash flow are positively related, while ROA and company size negatively affect EM. Moreover, our study aims to find out and examine the relationship between ownership structure and EM in Vietnam.

With the above experimental results, we propose a number of recommendations to enhance the reliability of financial statements and protect investors: (i) listed companies need to strengthen their internal control systems and other monitoring mechanisms for their operations to reduce the self-interest of managers. In addition, listed corporations need to aim for long-term benefits, improve the quality of financial statement information and transparency, comply with current regulations; (ii) in fact, it is evidence that Vietnamese investors are lack of knowledge and professionalism. Therefore, investors need to equip themselves with knowledge of accounting, financial analysis, securities analysis, portfolio management and market analysis to be able to predict risks and be more cautious in making investment decisions; (iii) to meet the requirements of innovation, the management agencies must strengthen, inspect and monitor the quality of audit services for independent auditing companies, including those in Big 4. Thus, it helps limit the EM behavior of business managers, making the financial statements published to users more truthful and reasonable information.

This study has several limitations, among which are the following: (i) due to the limited source of data, the author was not able to collect data on the frequency of meetings of family ownership rate, ownership rate of institution investors etc. The lack of data led to the results of the study could not cover all the issues that the research wishes to clarify that are related to the impacts of ownership structure on EM. In addition, in the stage of data processing process, a considerable amount of data provided by the enterprises was incomplete, which resulted in the elimination of many observations, and this reduced the reliability of research results; (ii) the study used the same factors of ownership structure and EM based on previous studies; therefore, there is a lack of new factors which could produce remarkably different results.

So future research might extend the period of study and further investigate the impact of other types and this research scope can be applied separately to each industry group and type of business.

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