
OWNERSHIP STRUCTURE AND EARNINGS MANAGEMENT: EMPIRICAL EVIDENCE FROM VIETNAM REAL ESTATE SECTOR

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Abstract

The young real estate market in Vietnam, an emerging country in Asia, has been growing remarkably. This is an attractive channel for investors, but it seems to be an unstable market and have high potential source of earnings management while investing in real estate companies listed in Vietnamese stock market. The research has been conducted to investigate the impact of the ownership structure on the earnings management of Vietnamese listed real estate companies. The research methodology includes four statistical approaches OLS, FEM, REM and REM (robust) that are employed to address econometric issues and to improve the accuracy of the regression coefficients. The research sample consists of 180 firm-year observations for 36 real estate companies listed on Vietnamese stock market over a period of five years, i.e. from 2014 to 2018. The results show that, while state ownership showed a positive influence, managerial ownership played negative significant roles in relation to earnings management. This research has implications for designing a better ownership structure in the Vietnamese real estate sector and enhancing information quality to protect investors.

Key words: *Ownership Structure, Earnings Management, Real Estate Sector, Vietnamese Stock Market.*

JEL Classification: *R30, M41.*

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1. Introduction

Financial statements are formal records which contain relevant financial data for different information users. They also support the readers in interpreting numbers and making sound decisions when investing, operating businesses or solving managerial issues. The financial statement reporting process allows some discretion in choosing accounting methods, though it also creates opportunities for managers to carry out intentional manipulation regarding to business's earnings. Thus, earnings management (EM) is important due to information reliability.

Ronen and Yaari (2008) summarized three types of earnings management called “white type”, “gray type” and “black type”. In the “white type” group: EM is not bad, it is the flexibility in using accounting treatments to enhance the transparency of reports. “Grey type” means neutral opinion about EM, it can be either opportunistic behavior or an economically efficient reporting technique. The last group - “black type” - views EM as misrepresentation or fraud, and may thus mislead information users by manipulated accounting numbers (Healy & Wahlen, 1999; Schipper, 1989).

The topic of earnings management has dominated a large number of studies in the accounting field for decades, since 1970 (Watts & Zimmerman, 1986). In the EM research stream, due to the agency theory, the ownership structure is a popular topic when the diversity of ownership is the root of profit-driven behaviors. There exists a series of studies related to ownership structure and EM worldwide.

Recently, in Vietnam, the attractiveness of the EM issue is clearly proven by EM being the focus of many studies, including the study of EM in relation to the ownership structure (Doan & Nguyen, 2018). According to Nguyen et al. (2018), while using the Beneish score model for detecting EM in the Vietnamese stock market in different sectors, real estate companies showed the highest ratio of involvement in EM. This arouses suspiciousness in information users, especially investors allocating their financial resources in real estate companies. The context of the growing real estate sector and the variety of ownership types have not received much attention in EM studies in Vietnam. Since then, research on EM in connection with ownership is expected to contribute meaningful explanations and overcome the limitations of previous studies.

Based on the positive accounting theory (PAT), agency theory (AT) and information asymmetry theory (IAT), this study discovered ownership structure and its diversity in relation to earnings management in real estate listed companies in the Vietnamese stock market. The topic is expected to contribute to earnings management literature as well as practical actions in designing a better ownership structure for restraining EM behaviors in the Vietnamese stock market in general, and real estate in particular.

2. Literature review

Prior to 1986, Vietnam was an agricultural country, with over 90% of land used for agriculture and all managed by the government. Since the economic reform of the Vietnamese government in 1986 and the real estate law enactment in 1993, a great swing from centralization to decentralization of real estate property rights took place, in which utility rights were transferred to land owners (exchange, transfer, lease, inherit and mortgage), the term “formal real estate market” gradually gained popularity. Vietnamese real estate has been seen as a young market, witnessing many huge fluctuations.

One typical characteristic of real estate in Vietnam is land ownership. According to national Land Law (2013), lands are collectively owned by the Vietnamese people, in which the state plays the role of the representative for governing and reserving properties. Buying lands only means that utility rights of the land are transferred. The law allows a group of users, such as households, individuals, business entities and even foreigners, overseas Vietnamese and foreign-invested enterprises to hold rights to as well as obligations in using the land, but does not provide for any type of ownership structure, with only certificates of land use right being issued. Although the issue of ownership causes some frustration, especially with foreign investors, the Vietnamese government has been quite quick and flexible in improving the real estate market in order to create a less confusing and more welcoming environment.

Along with the establishment of the stock market in 2000, due to high economic growth and strong investment, both by domestic as well as foreign investors, a real estate market boom was unavoidable. After the heated interest in 2007, real estate was frozen from early 2008 to mid-2009, and once again showed signs of recovery and growth starting in 2013. Compared to other developed countries, by reviewing the real estate industry in some most notable emerging countries like Brazil, China; Coskun and Jadcovicus (2017) emphasized the important role of doing research in a high-rising real estate industry in emerging countries.

The fluctuations of the real estate market directly affect companies in the real estate sector. Investors can choose to invest directly in the housing market, land market or through the stock market. In reality, these are less volatile investment channels, so we can evaluate its attractiveness to investors.

In fact, both the real estate and stock market in Vietnam are newly established; real estate

companies are confronted with limitations in transparency, information asymmetry, inefficient legal frameworks and the lack of financial resources. In a blooming and potential real estate market like Vietnam, analysts as well as researchers/academics have made a lot of effort to provide deep insights into this industry (Huy & Hoa, 2015; Chung, et al., 2018; Nguyen, et al., 2019). Most studies in Vietnam have focused on different perspectives of real estate listed companies. Nguyen et al. (2019) explored the impact of financial leverage on the profitability of real estate listed companies; Chung et al. (2018) investigated price determinants in the housing market in Vietnam; Huy, Hoa (2015) provided a precious detailed overview of the whole Vietnamese real estate market; Nguyen et al. (2018) used the Beneish score model for detecting earnings management behaviors and provided detailed information on the sectors, including real estate. This study fills the gap in previous empirical research on the real estate sector in the context of Vietnam.

2.1. Theoretical background

Positive accounting theory (PAT) is one branches of academic accounting theory; its research stream uses the empirical approach to explain and predict actual accounting practices. In PAT, Watts and Zimmerman (1986) are pioneers and have been widely known as representatives of the theory. This theory emphasizes on the opportunistic perspective, where managers of a company are only agents and tend to act on behalf of their self-interests. PAT is a powerful base for explaining EM behaviors (Healy & Whalen, 1999; Jones, 1991). EM studies commenced in the 1960s, and flourished quickly in the period of 1970s-1980s, with almost all EM studies using discretionary accruals to represent EM detection (Healy, 1985).

Agency theory (Jensen & Meckling, 1976) is one popular theory in economics and is also commonly used in empirical accounting studies (Healy, 1985; Jones, 1991). In fact, investors invest into a company but do not have rights to manage it; in other words, the shareholders authorize managers to use their capital for business purposes. Agency theory is often used to explain why managers behave contrary to the interests of shareholders and lead to their self-interest interferences in disclosing information and determining earnings (Healy & Palepu, 2001; Fathi, 2013). Agency theory is also the basis for explaining asymmetric information between business managers and shareholders, leading to increased information risk (Healy & Palepu, 2001; Fathi, 2013; Yousef, 2019).

Information asymmetry theory: in the stock market, managers, as insiders, often have a better understanding of the company's position and performance than outsiders, such as investors, who are considered to be owners but generally do not have the authority to manage the company. Information asymmetry exists when there is a difference in the amount of information held between two parties: managers and external accounting information users (Akerlof, 1970; Healy & Palepu, 2001). Information asymmetry creates an opportunity for managers using discretion in preparing and reporting accounting information for their own benefit. The use of discretion can be called EM (Ghazali, et al., 2015).

2.2. Previous empirical researches

Earnings management (EM) may not be harmful, but the existence of huge scandals like Enron, Worldcom, Xerox has induced people to doubt managers in companies, believing that they may work towards private benefits rather than the benefits of stockholders (Watts & Zimmerman, 1986). EM occurs "when managers use judgment in financial-reporting and in structuring transactions to alter financial reports, to either mislead some stakeholders regarding the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers" (Healy & Wahlen, 1999).

Many studies have tested EM for the entire market; others have implemented their works as sector-wise studies or in a particular type of company. Kaur et al. (2014) studied six most popular sectors including retail, telecom, biotech, coffee, hotel, IT/BPO; only the coffee industry which was considered safe. Others choose to investigate EM in multinational corporations (Beuselinck, et al., 2019).

There are reasons for investigating EM in real estate industry. In Brazil, Matteo, Francesco (2018) studied EM in real estate, a leading industry that has recently grown significantly and offered attractive investment opportunities, though it also seems to be a potential source of EM and manipulation practices. Chen et al. (2011) and Hou and Li (2016) investigated political cost and EM in

the real estate industry in China; they concluded that, due to the rapid development along with being stringently supervised by the government regulations and public scrutiny, companies are likely to adopt EM.

Nguyen et al. (2018) detected EM behaviors in a number of sectors in Vietnam and showed real estate to be characterized by the highest probability of EM. The fast growing situation of real estate in Vietnam as well as frequent fluctuations of the market lead people to suspect about information quality, thus the real estate setting is necessary selected for research context.

In term of ownership structure, it can be broken down into different types of ownership, which have different interests and benefits at different levels. The diversity of ownership types will have a certain impact on the performance of a company and as well as profit-driven behaviours. Researchers worldwide have done a number of studies related to ownership structure and EM on different scales. This study focuses on some of the most common variables, such as state ownership, foreign ownership, managerial ownership and ownership concentration (Alves, 2012, Guo, et al., 2015).

2.3. State ownership

On average, state-owned enterprises (SOEs) represent approximately 10% of global gross domestic product (Bruton, et al., 2015). In Vietnam, SOEs generate and represent approximately 26-28% of the GDP (General Statistics Office of Vietnam, 2018). State ownership dominates and is considered a typical characteristic of the Vietnamese stock market. In comparison to other types of ownership structure, state ownership has special privileges due to its political connections or their ability to access the market.

By reviewing scholar journals in accounting and auditing --- a period of 20 years (1996-2016), Capalbo et al. (2018) offers contrasting viewpoints regarding the relationship between state ownership and EM. According to Bruton et al. (2015), SOEs have a low level of governance and audit quality in the public sector; SOE managers have different powerbases and conflicting views, thus encouraging incentives for EM. Poli (2015), who chose to research the Italian context; used the distribution method developed by Burgstahler and Dichev (1997) for measuring EM, and the result shows a positive sign between state ownership and EM. Chen et al. (2008) analyzed Chinese companies and concluded a positive relationship with EM activities.

Even though it is less prevalent, results pointing towards a negative relation between state ownership and EM were confirmed by Cheng et al. (2015) when they analysed EM around the IPO period for Chinese companies. Wang and Yung (2011) also did their research in China and found evidence of a negative linkage, contrary to the conventional belief regarding the root of inefficiency resulting from state ownership.

In fact, much research is linked to China because of its unique and typical ownership structure; 30 out of 39 reviewed papers by Bruton et al. (2015) pertained to China. Vietnam and China shared many similarities in terms of the characteristics of their stock markets because their starting points were from centrally - planned economies, and they share many common attributes in corporate law. Therefore, EM studies in China will be one of the important references for Vietnam.

2.4. Foreign ownership

As one attractive channel for mobilizing capital, foreign investment is expected to be capable of restraining earnings manipulation activities in companies. However, this variable has been widely verified by many studies and has provided mixed results. Normally, foreign investors tend to invest more capital into companies with good accounting information quality (Aggarwal, et al., 2005). The result of Guo et al. (2015) showed a negative relationship in which companies with a higher foreign ownership ratio are less likely to manage earnings. An (2015) also used three accrual models and found that the higher the level of the foreign ownership ratio, the more reliable the accounting information is. In Malaysia, Ali et al. (2008) did not find any evidence of the relationship between foreign ownership and earnings management. Beuselinck et al. (2017) used a modified version of the Jones (1991) model and found a positive relationship between foreign ownership and the quality of accounting information in countries with strong investor protection mechanisms.

The foreign investment factor is considered as active and positive in monitoring EM behaviors in listed companies. The authors expected a positive role of foreign ownership in reducing earnings management and thus enhancing the quality of financial reporting.

Vietnam expects to be an attractive destination for foreigners and the government now tends to

loosen or remove foreign ownership caps. At its early stage, foreign investors were not allowed to own over 20% of authorized capital due to the protection of domestic shareholders or the government not being willing to let foreign holders take full control in some sectors. Since 2015, the ceiling on foreign ownership has been loosened. This will enhance strong capital inflow for sustaining the rapid growth of the economy. Foreign ownership plays a key role in corporate governance so that the assessment of the relationship between foreign ownership and EM in Vietnam is necessary.

2.5. Ownership concentration

Major or large investors can potentially mitigate agency conflict between managers and shareholders because they can put pressure on managers to act in the interests of shareholders (Shleifer & Vishny, 1986). However, when the interests of major shareholders do not coincide with the interests of other shareholders, major shareholders can act based on their own personal incentives.

In the context of acquisitions and mergers in France, Fakhfakh and Nasfi (2012) showed that the higher the ratio of majority shareholders, the higher the level the companies' engagement in earnings management. Another author, Alves (2012) in Portugal, provided a reversed linkage between ownership concentration and earnings management.

Meanwhile, Ali et al. (2008) investigated the Malaysian stock market and found no evidence. Fathi (2013)'s study leads to the same conclusion, i.e. that the relationship between majority shareholders and earnings management is not significant.

In Vietnam, the major stockholders refer to stock owners who own over 5 percent of total stock with voting right (Security Law 70 2006).

2.6. Managerial ownership

Managerial ownership is yet another type of ownership that plays an important role in monitoring firms' earnings manipulation activities. In fact, business executives may be both managers and shareholders in the companies that they manage.

Agency conflict is common when there a separation between ownership and control exists. Jensen and Meckling (1976) argued that, as the amount of equity held by managers increases, they (themselves and shareholders) will be more responsible in using capital. However, when the ownership ratio increases to some degree, the manager will face an entrenchment phenomenon (Morck, et al., 1988). Fama and Jensen (1983) also argued that when managers hold a large proportion of stocks, they are more influential and have voting power, and they can be more focused on self-interest.

Empirical studies showed that the quality of earnings will increase along with the level of managerial ownership; they gave the evidences of the negative sign between managerial ownership and earnings management (Warfield, et al., 1995; Ali, et al., 2008; Alves, 2012). In other studies, Johari et al. (2008) showed a contrast view about the role of managerial ownership. In another discussion, entrenchment hypothesis (Morck, et al., 1988) divided the managerial ownership into small groups and assessed the impact of each group on earnings management. Johari et al. (2008) after doing a whole sample test, divided the sample into three groups of managerial ownership 0% -25%, 25% -50% and > 50% and found that only the group of 25% - 50% represented a positive relationship while others don't not have any significant relationship with earnings management. O'callaghan et al. (2018) concluded that firms with low managerial ownership seem to be more involved in earnings management when faced with poor performance.

3. Data collection and Methodology

3.1. Data collection and hypothesis

The initial sample included 42 real-estate companies listed in Vietnamese stock market (HOSE) over the period of 2014 - 2018, with 198 observations. Data processing follows 2 steps:

Step 1: Estimating DA (proxy for earnings management) according to the Jones (1991) model. We excluded all firm-year observations without necessary information for Regression 1 in estimating DA (proxy for EM).

Step 2: In the second step, we eliminate those items that do not have enough data for variables in the research framework. The final sample consists of 180 firm-year observations for 36 companies.

Capalbo et al. (2018) and Bruton et al. (2015) reviewed top academic journals and found that almost all studies on state ownership and EM are in the context of China. State ownership in China is a typical characteristic of the stock market, and empirical studies often gave evidence of a positive linkage (Poli, 2015; Chen, et al., 2008). China and Vietnam share common similarities in terms of law and the market, which means that the higher the level of the state ownership ratio, the more a company will be involved in EM (Nguyen, 2017). Based on those analyses, the first hypothesis is as follows:

H1: *State ownership of real estate companies listed in the Vietnamese stock market has a positive relationship with earnings management*

Foreign investment is considered to have power in restraining EM in a company. Based on the viewpoint of the positive effect of foreign ownership as well as the results from studies by Guo et al. (2015); An (2015); Beuselinck et al. (2017). The authors expect a positive role of foreign ownership in reducing EM and thus enhancing the quality of financial reporting, therefore, the second hypothesis is presented below:

H2: *Foreign ownership of real estate companies listed in the Vietnamese stock market is inversely related to earnings management*

Asian countries generally have a centrally-owned structure, whereas developed countries (USA, UK...) are characterized by a distributed ownership structure. In Vietnam, the ownership structure of listed companies is generally concentrated. When capital is concentrated in the hands of some large shareholders, they have the ability to influence their investment, vice versa with small shareholders (minority). The majority of shareholders have the ability to control opportunistic behaviors. Alves (2012) concluded that there is a negative relationship between the percentage of majority (centralized) shareholders and EM. Thus, the H3 hypothesis is given as follows:

H3: *The ownership concentration of real estate companies listed in the Vietnamese stock market has a negative relationship with earning management*

Empirical studies showed that the quality of earnings will increase along with the level of managerial ownership; they gave evidences of a negative sign between managerial ownership and earnings management (Warfield, et al., 1995; Ali, et al., 2008, Alves, 2012). This is consistent with the theoretical basis (Jensen & Meckling, 1976). Convergence of benefits for managers and shareholders will be achieved in the case of a high ratio of managerial ownership. Therefore, the proposed H4 hypothesis is as follows:

H4: *The managerial ownership ratio of real estate companies listed in the Vietnamese stock market is inversely related to earnings management*

Besides ownership structure variables, control variables are added. Those are tested and played as control variables in previous research, and provide empirical results. Positive Accounting theory mentions three hypotheses: debt covenant, bonus plan and political cost. Proxies for those are some variables that have been tested in papers of EM research:

The debt ratio variable (DEBT): debt ratio is the view supporting that firms with higher debt ratios tend to use accounting treatments to increase profit (Watt & Zimmerman, 1986).

Financial performance variable (PERF): the bonus plan hypothesis relates to the performance of a company. If the business is not good, EM is one way to maintain the image as well as credibility of companies (Fathi, 2013).

The company size variable (SIZE): is often used and considered as a political influential factor. When a new tax policy arises, new regulations are enacted... large firms may face greater political costs in higher levels of requirements (Alves, 2012; Fakhfakh & Nasfi, 2012).

In term of corporate governance, according to the ASEAN Capital Market Forum (ACMF) document, when using the corporate governance indicators, in 2014, Vietnam achieved only 35.14 / 100 points, in which the index related to the "responsibilities of the Board" was the lowest among the 5 evaluated indexes (at 20 points).

The member of board variable (BOARD): it is argued that increasing membership means increasing marginal cost and reducing operational efficiency. The studies of Fathi (2013) and Xie et al. (2003) also provide evidence of the negative relationship between the size of the Board and EM.

The Duality CEO-Chairman variable (DUAL): the role of the manager and CEO needs to be separated, in order to operate effectively and minimize EM. Research results of Kumani and

Pattanayak (2014) and Mulgrew and Forker (2006) show that, if the CEO and Chairman of the Board are the same person, EM behaviors are more likely to be high.

Independent member (IDV): Corporate Law (2014) states that, in order for the Board to operate effectively, the existence of independent members is essential, and will help monitor and control EM behaviors Chen et al. (2015) and Johari (2008).

Independent audit (AUDIT): auditing plays an important role in corporate governance as well as for investors' protection. Fathi (2013), Fakhfakh and Nasfi (2012) provided results that companies which were audited by the Big 4 tend to engage less frequently in EM behaviors.

3.2. Research framework

Based on a review of literature, four variables representing the ownership structure (State ownership, Foreign ownership, Ownership concentration and Managerial ownership) are incorporated in the research framework. In addition, other control variables (Board size, CEO-Chairman duality, Independent members, Audit, Debt ratio, Performance and Company size) are also examined in this model. The framework can be proposed as follows:

3.3. Multi regressions

The data collected is panel data. Therefore, the following regression model was drawn from the study as follows:

$$DA = \alpha_0 + \alpha_1 OWN1_{it} + \alpha_2 OWN2_{it} + \alpha_3 OWN3_{it} + \alpha_4 OWN4_{it} + \alpha_5 BOARD_{it} + \alpha_6 IDV_{it} + \alpha_7 DUAL_{it} + \alpha_8 AUDIT_{it} + \alpha_9 DEBT_{it} + \alpha_{10} PERF_{it} + \alpha_{11} SIZE_{it} + \omega_{it} \quad (1)$$

where:

$$\omega_{it} = \varepsilon_{it} + v_i$$

ε_{it} : error term, varies across individuals i and time t

v_i : representing the effects of all the time - invariant variables that have not been included in the model of every individual i

This study firstly used Pooled - OLS, a simple technique for panel data, but it seems to ignore the individual specific effects. Therefore, the fixed effect model (FEM) and random effect model (REM) are more appropriate for panel data. After running the Hausman test, the selected model should be defined. The details will be presented in Section 4.

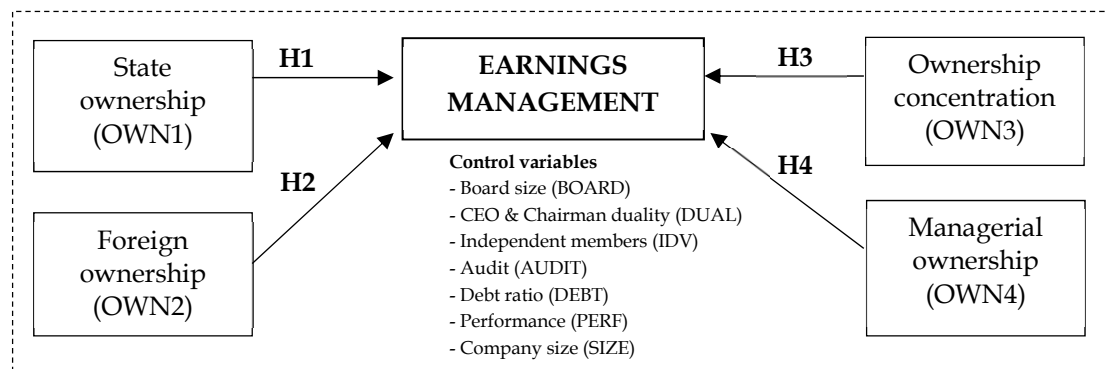


Fig.1. Research model and proposed hypothesis. Source: own study.

Table 1

Definition and variable measurement

CODE	VARIABLES	MEASUREMENT
DA	Discretionary accruals	(*) the Jones model (1991)
OWN1	State ownership	Percentage of State ownership
OWN2	Foreign ownership	Percentage of Foreign ownership
OWN3	Ownership concentration	Percentage of Ownership concentration (more than 5%)
OWN4	Managerial ownership	Percentage of Managerial Ownership

CODE	VARIABLES	MEASUREMENT
DEBT	<i>Debt ratio</i>	Debt/Assets
PERF	<i>Financial performance</i>	ROE = Profit/ Average of Equity
IDV	<i>Individual members</i>	Number of members
SIZE	<i>Company size</i>	Log of total assets
BOARD	<i>Board size</i>	Number of members
DUAL	<i>CEO and chairman duality (Duality)</i>	1 if CEO is chairman of the board and 0 otherwise
AUDIT	<i>Independent audit</i>	1 if audited by Big 4 and 0 otherwise

Source: Synthesized by authors.

(* Jones model (1991))

In this research, the original JONES (1991) model has been selected to measure DA value because this is an important original model and serves as the basis for the appearance of many other popular models (modified models from JONES (1991)).

The JONES (1991) model calculates total accruals in the event year t as follows:

$$TA_{it} = \alpha_1 \times \frac{1}{A_{it-1}} + \alpha_2 \times \frac{\Delta REV_{it}}{A_{it-1}} + \alpha_3 \times \frac{PPE_{it}}{A_{it-1}} + \varepsilon_{it} \quad (2)$$

where:

TA_{it} : total accruals in year t, company i

ΔREV_{it} : sales in year t – Sales in year t-1, company i

PPE_{it} : cost of PPE at the end of year t, company i

A_{it-1} : total assets at the end of year t -1 in company i

$\alpha_1, \alpha_2, \alpha_3$: estimate parameters

ε_{it} : errors in year t of company i

Then, NDA and DA are calculated:

$$NDA_{it} = a_1 \times \frac{1}{A_{it-1}} + a_2 \times \frac{\Delta REV_{it}}{A_{it-1}} + a_3 \times \frac{PPE_{it}}{A_{it-1}} \quad (3)$$

$$DA_{it} = TA_{it} / A_{it-1} - NDA_{it} \quad (4)$$

NDA_{it} : Non-discretionary in company i, year t

a_1, a_2, a_3 : estimate parameters (Based on $\alpha_1, \alpha_2, \alpha_3$)

Parameters a_1, a_2, a_3 are estimated by the OLS method

4. Empirical results

4.1. Descriptive statistics

The descriptive analysis statistically presents the variables used in the study. Table 2 shows the mean, median, maximum, minimum and standard deviations for every single variable.

Table 2

Descriptive statistics						
Variables	Observations	Mean	Median	Min	Max	Standard Deviations
DA	180	0.2795	0.2531	-0.4053	2.7609	0.3021
OWN1	180	12.0877	0	0	78.8	20.2960
OWN2	180	10.8222	4.3033	0	49	12.8090
OWN3	180	36.0417	36.16	0	90.78	24.1902

OWN4	180	18.9042	15.5992	0	71.125	18.1376
BOARD	180	5.7167	5	4	11	1.1250
IDV	180	3.6982	3	2	9	1.4328
DUAL	180	0.4833	0	0	1	0.5011
AUDIT	180	0.3903	0	0	1	0.4860
DEBT	180	0.5128	1.16	0.28	0.81	0.1278
PERF	180	0.0901	0.05	- 0.18	0.79	0.1434
SIZE	180	12.2794	12.28	11.34	13.96	0.4853

Source: Analyzed by authors.

The value of DA, discretionary accrual, was estimated by using the Jones (1991) model; we can see in Table 2 that DA, as proxy for earnings management, ranges from - 0.4053 to 2.7609. The mean value is 0.2795, the median is 0.2531, with a standard deviation (SD) of 0.3021. Positive DA means that there is an income-increasing behavior and negative DA means the phenomenon of income-decreasing management (Abbott, et al., 2006).

Ownership structures with four variables showed different explanations:

OWN 1 (State ownership), typical characteristic of Vietnam's ownership structure, has a minimum of 0 and maximum percentage of 78.8 %, the average is 12.0877% with an SD of 20.2960. It is lower than the average for the whole market (25.35%) (Nguyen, 2017). SOEs are often viewed as a low level of governance and audit quality in the public sector.

OWN 2 shows the holding of foreign investors, with the smallest value being 0% the maximum value 49%, and a median of 4.3033. The average share holding of foreign investors is 10.8222 % with an SD 12.8090; comparing the results with those taken from NGUYEN (2017) in all firms range from 0 – 88.69 %, with an average of 5.29%. Foreign ownership is often connected with the quality of business information.

OWN3 for ownership concentration showed a minimum of 0, maximum of 90.78%, SD equal to 24.1902% and mean of 36.0417%. Meanwhile, the overall market showed an average ratio of 43.5% for ownership concentration of major shareholders (Trinh & Takahashi, 2014). A high ratio of this variable is often a positive sign to assess the reputation and quality of business information.

OWN4 for managerial ownership has a min 0, max 71.125% and an average value of 18.1376%. In the study of Doan and Nguyen (2018), the average of this ratio is 11.93% including other sectors of the market.

Debt ratio (DEBT) has a mean value of 0.5128, with a min of 0.28 and max of 0.81. It presents the difference of the financial leverage in the stock market. There are companies with a debt ratio of merely 28%, as well as others with a much higher debt ratio, i.e. up to 4 times higher. This result is consistent with real situation of real estate companies when they need a huge amount of capital and must rely largely on outside capital, such as bank loans. The difference in the debt ratio may be a factor affecting the implementation of EM actions in listed companies in the Vietnamese stock market.

Performance (PERF) has a minimum value of - 0.18, with the largest of 0.79, a standard deviation of 0.1434 and a median of 0.05. There are some cases of ROE with negative values meaning that these companies operate inefficiently and are suffering a loss. According to PAT, when companies are ineffective, they must find ways to maintain credibility, prestige and the company's image.

Company size (SIZE) is measured by the total asset value of the unit, but here we take the logarithm value to ensure the uniformity of the data. The minimum value is 11.34, the maximum value is 13.96, with a variation of 0.4853 and a median of 12.275. It can be noted that small-scale companies, which may adjust their profits to increase the value of businesses and large-scale units, will also be able to implement EM when they want to maintain their credibility.

Independent audit (AUDIT): both Big4 audit firms and non-big4 audit firms audit companies listed on the Vietnamese stock market. Independent auditing is a dummy variable; therefore, the smallest and highest value according to descriptive statistics is 0 and 1. The average value is 0.3903, with a standard deviation of 0.486. Thus, the number of companies audited by Big4 accounted for only 40%, higher than the average for the entire market which averaged only 22 % (Nguyen 2017).

The size of board (BOARD): the minimum number of members of the BOARD is 3, with a maximum of 11; the average size of the Board is 6 members. According to Corporate Law (2014), the

board size must consist of at least 3 and no more than 11 members. According to CAMPOS et al. (2002), a number between 5 and 9 is optimal, and therefore most of the real estate companies listed on the Vietnamese stock market fall within the optimal scale.

Independent member (IDV): the minimum of independent members is 2, and the maximum is 9, with an average of 3.6982 with SD 1.4328. According to Corporate Law (2014), Circular No.121/2012 (Ministry of Finance, 2012) for Vietnam, at least 1/3 (one third) of the total members of the Board of Directors are independent members. However, many companies did not meet the set targets. The existence of independent members is necessary to supervise the administrator and the quality of his or her behaviors.

CEO - Chairman duality (DUAL): as a dummy variable with min - max value of 0 and 1; the duality phenomenon in real estate companies accounts for 48.33%, with a SD of 0.5011. It is not a good sign when the ratio is quite high compared to the value of the whole market at 35.88% (Nguyen 2017)

Besides descriptive statistics, Table 3 presents the correlation matrix between variables, all variables have coefficients with others less than 0.5, except BOARD and IDV of 0.6687. The relations between variables are both negative and positive, it shows the directions and strength levels between every two variables.

4.2. Results of OLS, FEM, REM, FEM (robust)

Table 4 below summarizes the results while implementing the regression models using the OLS (least squares regression model), FEM (fixed-effect model), REM (random effect model) and REM (robust).

Table 3

Correlation matrix

Variables	DA	OWN1	OWN2	OWN3	OWN4	BOARD	IDV	DUAL	AUDIT	DEBT	PERF	SIZE
DA	1.000											
OWN1	0.2690	1.0000										
OWN2	0.0149	0.1222	1.0000									
OWN3	0.1322	0.2552	0.0835	1.0000								
OWN4	-0.1749	-0.4967	-0.2317	-0.0086	1.0000							
BOARD	0.0477	0.0052	0.2230	0.1560	0.0903	1.0000						
IDV	0.0249	0.0965	0.2705	0.0882	0.0302	0.6687	1.0000					
DUAL	-0.0543	-0.3892	-0.0363	-0.0192	0.4166	0.0758	-0.1536	1.0000				
AUDIT	0.0470	-0.2040	0.3037	0.0677	0.0657	0.0067	0.0237	-0.1251	1.0000			
DEBT	0.2321	0.0270	-0.0950	0.2588	0.2406	0.1809	0.0167	0.0804	0.0131	1.0000		
PERF	0.3516	-0.0094	-0.1425	0.0192	0.0801	0.2498	0.0866	0.0221	-0.1726	0.2211	1.0000	
SIZE	0.3439	0.1456	0.3620	0.1468	-0.0575	0.2379	0.1164	-0.1875	0.5377	0.3177	0.1293	1.0000

Source: Analyzed by authors.

Table 4

Comparison of OLS, FEM, REM, REM (robust)

Variables	Pooled OLS (1)	Fixed effect (2)	Random effect (3)	REM (robust) (4)
OWN1	0.003** (0.0013)	0.0036 (0.0027)	0.0029** (0.0015)	0.0029* (0.0015)
OWN2	- 0.0027 (0.0019)	- 0.0016 (0.0029)	- 0.0022 (0.0021)	- 0.0022 (0.0014)
OWN3	0.0004 (0.0009)	0.0015 (0.0011)	- 0.0007 (0.0009)	- 0.0007 (0.0008)
OWN4	- 0.0034** (0.0014)	-0.0064** (0.0027)	- 0.0037** (0.0016)	- 0.0037** (0.0016)
BOARD	- 0.05* (0.0257)	- 0.0776 (0.0501)	- 0.0542* (0.0298)	- 0.0542** (0.0272)

	Pooled OLS	Fixed effect	Random effect	REM (robust)
IDV	0.0264 (0.0197)	0.0624 (0.0411)	0.0314 (0.0231)	0.0314 (0.0199)
DUAL	0.1117** (0.0476)	0.0573 (0.0997)	0.0991* (0.0554)	0.0991** (0.0417)
AUDIT	0.0303 (0.0553)	0.0446 (0.0940)	0.0406 (0.0617)	0.0406 (0.0681)
DEBT	0.2464 (0.1786)	1.0504** (0.3135)	0.3996** (0.2041)	0.3996 (0.4584)
PERF	0.6981*** (0.1486)	0.7062*** (0.1682)	0.7282*** (0.1478)	0.7282** (0.2178)
SIZE	0.1875** (0.0587)	- 0.2568 (0.2368)	0.1523** (0.0695)	0.1523* (0.0886)
Constant	- 2.0465** (0.6619)	3.0408 (2.8436)	-1.6966** (0.7916)	-1.6966** (0.8395)
Observations	180	180	180	180
R-squared	0.2782	0.2696	0.3373	0.3175
Number of ID		36	36	36
VIF	<10			
F test	7.27***	4.46***		
Wald (χ^2)			66.05***	
Hausman test (χ^2)			14.96	
Lagrangian Multiplier (χ^2)			2.61*	
Modified Wald (χ^2) (Heterokedasticity)		17369.45***		
Wooldridge (Autocorrelation)		1.296		

Standard errors in parentheses: *** p < 0,01 , ** p < 0,05, * p < 0,1

Source: Analyzed by authors.

In the regression process, OLS yielded 6 significant variables out of 11, and was therefore not suitable for panel data. The FEM model (fixed effects model) and the REM (Random effect model) were then employed and corresponding significant results were only 3/11 and 7/11 significant respectively.

Among FEM and REM, Hausman's test showed that the REM model is more appropriate, but the heterokedasticity matters exist (through using Lagrangian Multiplier Test). To overcome these disadvantages, the REM regression model with robust SE was performed. After running the REM (robust SE) regression, we obtained the below results:

$$DA = -1.6966 + 0.0029 * OWN1_{it} - 0.0037 * OWN4_{it} - 0.0542 * BOARD_{it} + 0.0991 * DUAL_{it} + 0.7282 * PERF_{it} + 0.1523 * SIZE_{it} + \omega_{it}$$

5. Discussion and conclusions

In this study, the most suitable model is the REM (robust) regression model. Among the four variables related to ownership structure, only State ownership (OWN1) and Managerial ownership (OWN4) are significant.

"State ownership" is positively related to the discretionary accrual (DA), with the coefficient = 0.0029 and p-value < 0.1. This means that, as the ratio of state ownership increases, it may cause an increase in earnings management behavior, leading us to accept the hypothesis H1. This result is consistent with the results of Poli (2015), Chen et al. (2008) and Nguyen (2017). As for Bruton et al. (2015), SOEs have a low level of governance and audit quality in the public sector, and SOE managers have different powerbases as well as conflicting views, thus encouraging incentives for EM. State

ownership is a typical attribute of Vietnamese stock market. The important role of state has been clearly proven in some key areas (education, security, health, power), but for better business practices, researchers from this study as well as many others suggested that the government should change the role of state ownership, reduce weaknesses, and create higher reliability for the users of accounting information. Bruton et al. (2015) also encouraged state-owned enterprises be set up as hybrid organizations, in which the levels of ownership and control by the state can vary.

The "Managerial ownership" ratio is inversely related to the discretionary accrual (DA), coefficient = - 0.0037 with a p-value <0.05. This means that if the ratio of ownership by the board of directors increases, the earnings management will decrease. Based on this result, we accept the hypothesis H4 about the impact of the research variable. This finding is consistent with Warfield et al. (1995), Ali et al. (2008) and Alves (2012). Based on the agency theory (Jensen & Meckling, 1976), when the managerial ownership ratio is high, the benefit-based relationships between managers and shareholders will be tighter. The convergence of common interests affects governing activities; managers tend to act for the overall development of the business, for the benefit of both them and other shareholders. The result recommended that maintaining an appropriate high ratio of managerial ownership could help businesses in restricting EM behaviors. However, business should consider the entrenchment hypothesis because there may exist a U-shape relationship between managerial ownership and EM.

Generally speaking, the ownership structure of listed companies in the stock market in Vietnam is very complex. This is a significant and important consideration in the restructuring the stock market in Vietnam. The ownership structure should be tested separately (not as a whole in one component); it should be divided into different components for different implications. It should be noticed that SOEs play a key role in the Vietnamese economy but reducing EM is also our task for achieving a better environment for doing business. Increasing the level of managerial ownership is also the implication of the results for Vietnam.

Among three variables related to three PAT hypotheses (Watts & Zimmerman, 1986): The "Financial performance" (PERF) is positively correlated with discretionary accruals (DA), coefficient = 0.7282 with p-value <0.05. This means that, when businesses operate more efficiently, they will tend to maintain their image and show the sustainability of corporate value. The relationship between PERF and DA is positive, contrary to previous studies by Fathi (2013). This can be explained by applying the PAT (Watts & Zimmerman, 1986) related to the bonus plan hypothesis. In PAT, the more efficient the firms are, the more EM will be executed. In the bonus plan hypothesis, managers can act in personal interest, and maintain the positive results both for attracting investment and receiving benefits from business's bonus plan. Investors should consider this factor in their investment process because they normally tend to pay attention to high profit businesses instead of ones focused on sustainable development.

SIZE proves to positively influence DA when the coefficient is 0.1523 at a significance level of 0.1. The result is consistent with PAT when size is considered as a proxy of a political influential factor. When a new tax policy or a new regulation is enacted, large firms may face greater political costs connected with abiding with higher levels of requirements (Alves, 2012; Fakhfakh & Nasfi, 2012).

For corporate governance variables, BOARD and DUAL, significantly influence DA at a level of 0.05. In order to enhance the corporate governance indicators of Vietnam, these two factors should be considered. The "Duality" (DUAL) resulted in p-value <0.05 with a coefficient of 0.0991, showing a positive relationship with earnings management. This finding is consistent with the findings of previous studies (Fathi, 2013). In the sample, 48.33% of 180 observations are in situation of duality, when CEO and Chairman are the same person, holding both roles. Duality may increase the earnings management of a listed firm and, on the whole, this is a bad sign of corporate governance in listed companies.

The member of BOARD is at an average of 6, which is considered good according to the scale by Campos et al. (2002). This variable also has a negative effect on DA; this means the larger the board is, the lesser the companies are involved in EM.

Thus, Vietnam needs to strengthen the quality of corporate governance in order to achieve a better corporate management. It can then contribute to the development of the Vietnamese securities market as well as increase its ability to protect investors, enhancing the role of corporate governance in managing the business operations in general and in earnings management in particular.

The objective of this study was to examine the relation between the ownership structure and

earnings management in Vietnamese real estate listed companies. The only two components of ownership structure are state ownership and managerial ownership, which are identified as the two most significant effect factors on earnings management. Other control variables in the PAT group, such as PERF and SIZE, have a negative effect on the accounting information quality, and two other factors, i.e. BOARD and DUAL, are two attributes of corporate governance that have the ability to limit duality between the CEO and chairman. The results are in agreement with a number of research results.

The study contributes to EM literature with the findings giving evidence and guidelines for reducing agency costs in listed companies, particularly for real estate companies. It suggests steps for state regulators in considering additional requirements for listed firms, issue policies, and the effective monitoring mechanism. Then investors can understand insight relationship between EM and different factors, as well as increase public confidence regarding the reliability of accounting information.

For future studies, the topic of EM in the real estate industry should consider some typical variables representing this industry, such as types of real estate, the real estate growth rate (Chen, et al., 2011) or the effect of macroeconomic policies from the government. It is expected to provide more interesting and typical characteristics, especially for an emerging and transitional country like Vietnam, where the young and rapidly growing real estate market should be regulated more strictly.

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