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# The relationship between corporate governance, earnings management and stock price informativeness : empirical studies in a Vietnamese context

Phuong Thuy Vuong

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## **THÈSE**

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dans l'École Doctorale Sciences de Gestion (ED 275)

# **The relationship between corporate governance, earnings management and stock price informativeness. Empirical studies in a Vietnamese context**

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# Chapter 1. Introduction

This thesis develops four empirical studies conducted in the Vietnamese context related to corporate governance, earnings management, insider trading and stock price informativeness. They respectively deal with (i) Ownership structure and earnings management, (ii) board gender diversity and earnings management, (iii) the mediating effect of insider trading on the relation between corporate governance and earnings management (iv) the mediating effect of earnings management on the relation between corporate governance and stock price informativeness. We first begin by giving a brief overview of the corporate governance and earnings management in Asia and Vietnam, to justify the interest and specificities of this context (1). We then precise the motivations for our empirical essays (2). Finally, we present the four chapters and highlight our main findings and contributions (3).

## **1.1 Overview of corporate governance and earnings management in Asia and Vietnam.**

### **1.1.1 Overview on corporate governance in Asia and Vietnam**

The importance of corporate governance to organizations around the world has received a lot of attention in many studies. It is worth considering that corporate scandals like Enron in the United States and Marconi in the United Kingdom have provided important lessons to international regulators. In this regard, policymakers all over the world have recognized the long-term risks of weak corporate governance systems, such as decreasing competitiveness on a corporate and national level. The law and legal enforcement on the governance of firms may enhance the attractiveness at the country level as well as the development of markets and economic growth. Yet, it seems that transparency and effectiveness of a country's legal framework may affect firms' external financing and investment, which in turn may affect the economic growth of a nation.

The concept of corporate governance was first introduced and applied to developed countries. They have considered the OECD's principles of corporate governance, which were promulgated in 1999 and were updated in 2015, as a good reference and guideline for them. Countries in Asia, which have less experience in governance in terms of such areas as the participation of both men and women in decision making, accountability, transparency, or fairness, have also followed OECD's principles of corporate governance. It is worth noting

that the development of corporate governance rules in Asia is also due to the global financial crisis, since the collapse of currencies, equity, and property in 2007-2008 was partly attributable to corporate governance issues and led to urgent analysis to help guide corporate governance reforms. However, this process has not yet been successful. Asia shows a weakness in legal framework of corporate law and in insufficient enforcement (Clarke, 2000). Therefore, Asia has some challenging corporate governance issues, such as high ownership concentration, low degree of minority rights protection (Lukviarman & Johan, 2018), and weak effectiveness of the board of directors as selecting, monitoring and replacing directors (CEO) (Ashfaq & Rui, 2019).

Basically, agency problems, which are the conflicts of interests between managers and shareholders or among shareholders, are affected by a corporation's ownership structure, the concentration of which in listed Asian firms is in favour of families or the State (Lukviarman & Johan, 2018). This means that monitoring by outsiders (e.g., independent directors) is less effective in **State-owned companies** compared to other companies, leading to increasing information asymmetry between the State and outside parties in State-owned companies. Second, the State's substantial involvement in the selection and appointment of outside directors means that outside directors in State-owned firms are less likely to be truly independent monitors (E. T. Chen & Nowland, 2010). Related to **foreign ownership**, according new report launched by the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP)<sup>1</sup>, Asia has become an attractive destination of foreign investors in recent years. Thus foreign investments were reported to increase in Asia, especially in Singapore and India. However, some countries in Asia restrict the level of foreign ownership permitted-for example, brick and mortar retailers are 100% closed for foreigners in Indonesia-or fix some minimum capital requirements such as Cambodia (USD 1,000), Indonesia (USD 170,000), Malaysia (from USD 120,000 to USD 250,000)<sup>2</sup>.

Boards of directors are weak in Asia. They are normally dominated by insiders who are more likely to invite family members on board when their voting rights allow it. Lower board effectiveness may also reflect a lack of female presence in the boardrooms. Compared with Western Europe, where women hold more than 20% of board seats, **gender diversity** in Asian firms reflects an average of only 15.7% women on the boards, ranging from 11.9% in Singapore to 20.4% in Thailand, according to a study of the International Finance Corporation

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<sup>1</sup> <https://www.unescap.org/news/asia-pacific-becomes-largest-destination-and-source-foreign-direct-investment>

<sup>2</sup> <https://www.acclime.com/insights/doing-business-in-asia-common-challenges-misconceptions/>

(IFC)<sup>3</sup>. Though the percentage of women on boards in Asian listed firms is higher than in some European countries, such as the Czech Republic (8.8%) or Greece (9.4%)<sup>4</sup>, most Asian female board members are subordinates rather than leaders because of the historic cultural norm, which is still prevalent in the region today. Therefore, there are differences between men and women related to having a voice in decision making in emerging nations.

For its part, **insider trading (IT)** refers to the stock transactions of the officers, directors, and large shareholders of a firm (Seyhun, 2000). IT may be illegal or legal because it is affected by regulations, and especially by the enforcement of IT law, which varies widely across Asian countries. Most Asian countries established IT laws from the 1970s, such as Malaysia and Singapore in 1973 and Pakistan in 1995. However, there are differences in the years that (IT) laws have been enforced. For instance, IT law was first enforced in Singapore in 1978 and in China in 2000. (D. Kim, Ng, Wang, & Wang, 2019) state that the effect of corporate IT is more pronounced in countries with active enforcement of IT regulations than in countries without. (Dissanaike & Lim, 2015) found that IT manipulated stock prices in twelve markets<sup>5</sup> to avoid losses and maximize profits over the period 1997–2010. These activities of insiders are likely to continue, and market participants have to respond accordingly, leading to effects on stock price information.

**Stock price informativeness (SPI)**, which reveals the quality of the information environment, is a measure of the efficiency of the resources allocation: the more that capital in the financial market is allocated efficiently, the more SPI is improved (Wurgler, 2000). The response of stock prices is due to both macro-economic information (market and industry related), such as the announcement of monetary policy, interest rates, etc., and firm-specific information such as the firm's performance and corporate governance. Higher or lower SPI is based on the publishing of transparent and quality information as well as effective corporate governance mechanisms. Therefore, the quality of corporate governance (CG) could improve the informational and functional efficiency of the capital market, especially in emerging markets where country-level investor protection is poor (Gul et al., 2010) and affect voluntary disclosure and corporate transparency. Corporate governance, which consists of internal mechanisms—such as actions under the control of managers—and external ones—such as legal, regulatory, and external audits—helps to provide accounting information that is truthful and reflects the firm's financial results exactly. These concepts may be linked, since managers

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<sup>3</sup> Board gender diversity in ASEAN countries, International Finance Corporation, 2018

<sup>4</sup> Gender balance on corporate boards, European commission, July 2016

<sup>5</sup> Japan, Australia, Hong Kong, Malaysia, Thailand, Philippines, Indonesia, Singapore, Taiwan, South Korea, China, and India.

may manipulate earnings in order to maximize their own interests, leading to an influence on the information of stock prices and SPI.

Among the emerging Asian countries, Vietnam exhibits some specificities. Corporate governance in Vietnamese listed firms is not strongly developed (World Bank, 2017). Vietnam shows weak investor protection and poor disclosure and transparency standards. Furthermore, Vietnam also lacks efficient markets for control and active shareholders who would demand effective corporate governance practices. Actually, Vietnam has the lowest corporate governance score (50.9%) among all Asian countries, among them Indonesia (60%), Malaysia (77.3%), and Thailand (72.7%) (McGee, 2008). Among twenty-one components<sup>6</sup> of corporate governance practices which have been measured by the World Bank, only eleven<sup>7</sup> components were observed partially in Vietnam, which means that while the legal and regulatory framework complies with the OECD principles, their practices and enforcement may diverge in this country (McGee, 2008). For example, the corporate governance code was amended and a disclosure rule was announced in 2012. Moreover, an improved Vietnamese Enterprise Law, adopted in 2014, went into effect in July 2015, and aim at preserving the independence of the board of directors. All these laws and reforms may help to eliminate the conflict of interests, to improve accountability, and to make Vietnam successful in the way of pursuing a high level of transparency and seeking sustainable business development. However, governance challenges persist and are compounded by weak transparency and accountability mechanisms. Laws and regulations remain difficult to change quickly to catch up with the reality, no matter how corporate governance code is improved. But in Vietnam, the corporate governance code is developed in a collaborative manner by the regulator—the State Securities Commission—and the two stock exchange channels—the Ho Chi Minh City Stock Exchange (HSX) and the Hanoi Stock Exchange (HNX). This means that there is considerable regulatory pressure to adopt the code. Additionally, Vietnam has become a battleground in corporate governance models<sup>8</sup> because a growing number of multinational companies have moved portions of their operations into Vietnam. Basically, there are also gaps in legal requirements for transparency, while oversight bodies lack independence (World Bank, 2017). As a result, Vietnam is the nation that

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<sup>6</sup> They are (1) basic shareholder rights, (2) participant rights, (3) shareholders' annual general meeting, (4) disproportionate control disclosure, (5) market for corporate control, (6) equal treatment of shareholders, (7) Prohibit insider trading, (8) disclosure of interest, (9) shareholder rights respected, (10) redress or violation of rights, (11) performance enhancement, (12) access to information, (13) disclosure standards, (14) accounting and audit standards, (15) independent audits, (16) fair and timely dissemination, (17) acts with due diligence and care, (18) treats all shareholders fairly, (19) ensures compliance with law, (20) the board should fulfill certain key functions, and (21) the board should be able to exercise objective judgement.

<sup>7</sup> Twelve components were partially observed: (1) basic shareholder right, (2) participant rights, (3) shareholders' annual general meeting, (4) disproportionate control disclosure, (5) shareholder rights respected, (6) redress or violation of rights, (7) performance enhancement, (8) access to information, (9) accounting and audit standards, (10) independent audits, and (11) acts with due diligence and care.

<sup>8</sup> <https://www.forbes.com/sites/alexcapri/2019/09/18/why-vietnam-has-become-a-battleground-for-corporate-governance-standards/#1622bccc4163>

has the largest amount of work to do to meet the corporate governance guidelines which were first promulgated in 2007 based and developed using the OECD Principles of Corporate Governance 2004: the Vietnamese Enterprises Law (2014) and the Vietnamese Securities Law (2010).

Among the components of corporate governance in Vietnam, the specific features that we will focus on are board gender diversity, State and foreign ownership and IT. Related to women on corporate boards in Vietnam, after the government decided to launch an economic reform program, named “doi moi”, aimed at turning the state-controlled economy into a socialist market-oriented economy, it opened a new chapter for the national economy. Most listed firms in Vietnam (97%) are small and medium-sized enterprises (SMEs). While women-owned SMEs comprise 25% of the total number of active SMEs in Viet Nam, women hold more than 7% of CEO positions and women on boards has increased nearly to 14%, which is a higher percentage than in other countries in South Asia, the Middle East, North Africa, and Sub-Saharan Africa (IFRC, 2015). Although the Vietnamese National Gender Equality Strategy for 2011–2020 (Decision No. 2351/QD-TTg) also mentions support for women, these policies have not been implemented in practice because the agencies responsible for guiding policy implementation think that women entrepreneurs are the same as all workers who are subject to the labour code and other legal provisions and they benefit from the same policies as men. Thus, no special support for women has been seen as necessary. Moreover, women on boards in Vietnam still meet many obstacles. The obstacles commonly identified by women entrepreneurs are lack of knowledge and of market information, trade promotion, resources, and opportunities to network for business development. For example, 55% of women business owners state that they need training and other support to develop their knowledge, and 31.4% of women business owners have only a college education or less (VCCI 2019). In addition, women entrepreneurs have other issues such as balancing work and taking care of their family because of cultural norms. Meeting family needs can be time-consuming for woman entrepreneurs, which is a limitation for women in building their business and their business network.

Concerning the level of State Ownership, the situation is very singular too. After processing “doi moi”, the change to the Vietnamese socialist-oriented market economy was characterized as “equitization” and not “privatization” because State-owned enterprises (SOEs) still had to preserve the State’s assets to fulfil government aims. This equitization has seen very rapid changes in terms of quantity: the number of SOEs has decreased remarkably, from around 12,000 in 1991 to more than 500 in 2017 (The report of State Audit, 2018).

However, the equitization of SOEs is incomplete because the Vietnamese government still holds a large percentage (above 50%) of ownership in the listed SOEs of strategic industries or the key sectors, such as electricity production, telecommunications, mineral exploration, oil, gas, and water supply (Vu, 2012). Therefore, the State is the controlling owner in a large number of firms in Vietnam. The government still holds a majority interest in them and continues to make strategic and policy interventions (World Bank, 2017). The transparency of supervision by the State over the enterprise managers is irregular and inefficient because of the lack of a mechanism ensuring coordination between State authorities in exercising rights of ownership. Thus, managers may manipulate financial information easily, and informed traders have lower information cost and can thus take advance information to serve their interests (Francis et al., 2005). As a result, they face many conflicts of interest in regulating and enforcing the laws.

Regarding foreign investors, there has been a boom of their engagement during the Vietnamese equitization process. A first stock exchange was established in the mid-2000s in Vietnam, called the Ho Chi Minh Stock Exchange (HSX), which is located in Ho Chi Minh City. In 2005, a second stock exchange, the Hanoi Stock Exchange (HNX), was established in Hanoi in the northern region. At the end of 2017, there were more than 800 companies listed on both the HSX and the HNX. Furthermore, Vietnam became one of the countries with the highest economic growth rate in Asia (IMF, 2010). For all those reasons, Vietnam has become an attractive investment destination with lots of opportunities and perspectives, and even the country with the highest foreign direct investment (World Bank, 2011). However, the government also issued regulations to control and supervise the participation of foreign investors through No 60/2015/NĐ-CP and No 58/2012/NĐ-CP. According to these laws, the permitted percentage of foreign ownership in listed Vietnamese firms depends on each industry or sector, ranging from a maximum of 49% for non-financial firms to 30% in finance and related firms. In addition, there is a conflict between article 10 of the law on foreign investment, according to which foreign owners will bear all risks and losses as a percentage of their capital share, and article 11 of the decree 24/2000/ND-CP, which states that “Each joint-venture party shall bear liability within the limit of its capital contributed to its enterprise’s legal capital”. Thus, the rights of foreign investors are not clearly and effectively implemented in reality, which means owners are not treated equally in joint ventures.

In spite of efforts to monitor and protect shareholders in the Vietnamese market through market regulations, the legal framework, and corporate governance, Vietnam has tried to

produce stock market transparency in order to attract considerable interest from foreign investors for earlier SOEs' divestments; in 2020 more than 400 SOEs still remain. Efforts to monitor and protect shareholders in the Vietnamese market are promulgated through market regulations, the legal framework, and corporate governance. One of the rules is guidelines for the disclosure of IT. Insiders in Vietnam are defined as top executives, institutional investors, and their family members, who are subject to three regulations: (i) they must announce their trading on annual reports at least three days prior to the actual trade executions, (ii) the expected trading time frame does not exceed 30 trading days, and (iii) insiders report the trade results to their own company, and relevant media about the results of their trades (Circular No. 155/2015/TT-BTC). In terms of IT on private information, Act 181 of Criminal Laws No. 37/2009/QH12 (Criminal Laws) issued in 2009 stipulates that insiders who violate the laws may be prohibited from their current positions of the company from one to five years, may be required to give back abnormal profits from their trades, and are liable for a fine of VND 100 million to VND 500 million (about \$5,000–\$25,000) and a term of imprisonment from six months to three years. Insiders might be subject to imprisonment from two to seven years if IT activities have severe consequences. However, IT still may affect market reaction and stock prices because if the trades are not executed, they must announce their trade cancellations within three trading days after the end of the requested period. Compared with the UK and Hong Kong, where insiders only publish their trades within three and five trading days, respectively, after their trade completion, investors on the Vietnamese market may manipulate stock prices by postponing disclosure information.

The SPI is based on the corporate mechanism. Firm specific information impounded in stock price is higher or lower depending information environment. Vietnam shows poor corporate governance leading to expose poor information environment. Thus to improve SPI, government authority and firm managers should make an effort to establish more transparent and information environment surrounding firms.

### **1.1.2 Overview of earnings management in Asia and Vietnam.**

(Wijayana & Gray, 2019) performed a study to examine the occurrence of earnings management (EM) in Asia. The results show that EM exists and varies across Asia, which can be accounted for by several reasons. First, it is known that financial information under International Financial Reporting Standards (IFRS) is influenced by institutional factors as culturally derived accounting values (Wijayana & Gray, 2019), and countries in Asia show a

broad diversity of institutional setting cultural features (Guan, Pourjalali, Sengupta, & Teruya, 2005) and quality of corporate governance (Thai & Lai, 2019). This diversity is likely to influence the accounting choice and therefore EM practices as well as the quality of financial reporting (Wijayana & Gray, 2019). Second, the IFRS, which are regarded as high-quality accounting standards, have been widely implemented in Europe, whereas there has been a much slower and less widespread process of adoption in Asia (Wijayana & Gray, 2019). Due to the various levels of application of the IFRS among countries in Asia<sup>9</sup>, EM practices may show a large variety, since firms in countries that have adopted the IFRS show decreased levels of EM, resulting in an increase in financial information quality (Wijayana & Gray, 2019). (Shen & Chih, 2007) used the average ranking of three different dimensions to measure EM in Asian countries. The first measurement is a smoothing measure, which captures the standard deviation of operating earnings divided by a standard deviation of cash flow from operations. The second is based on the contemporaneous correlation between the change in accounting and the change in operating cash flow. The last measure is related to the average value of the magnitude of accruals scaled by the absolute value of the firm's cash flow from operations to control for firm performance. As a result, the higher the total EM by these three measurements, the greater is the tendency to engage in EM. Hong Kong, which follows the IFRS, has firms with the lowest average level (86.5) of EM. This means that they engage in less manipulation of earnings than other countries in Asia, such as India (100.8), Thailand (131.04), Indonesia (109.7), and Singapore (104.26).

To integrate itself with the World Trade Organization (WTO), Vietnam introduced the Vietnamese Accounting Standards (VAS) in 2001, which marked a milestone in the process of the country's accounting reform. Over the period 2001–2005, Vietnam promulgated its own 26 accounting standards, based on the International Accounting Standards/International Financial Reporting Standards (IAS/IFRS) issued in 2003. However, the VAS has not been updated since 2006, and so it does not reflect subsequent amendments to the IAS and the new IFRS. This creates concern that though they previously converged with IAS/IFRS, the 26 existing VAS standards no longer promote transparency of company reporting (Le & Walker, 2008) well enough. Moreover, the country is facing some legal weakness. For example, although accounting law No 03/2003/QH11 (updated as No 88/2015/QH13), which was issued by the national assembly, is the highest legal document for performance of accounting

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<sup>9</sup> Korea, Hong Kong, Malaysia, Cambodia, Mongolia, New Zealand, and the Philippines have adopted the IFRS, whereas China, Taiwan, India, Indonesia, Japan, Nepal, Pakistan, Singapore, and Thailand have adopted the standards partially (International standards 2019 global status report, IFAC)

work, decisions and circulars issued by the Ministry of finance are widely applied in Vietnamese accounting practices. However, there are still gaps in the Vietnamese accounting system, which has posed obstacles to the accounting practice.

Vietnam follows the IAS/IFRS at the lowest level (Thuong, 2018). Compared to other Asian countries, Vietnam is the only jurisdiction that has not made any commitment to use the IFRS. Most Vietnamese listed firms follow the VAS, whereas other listed firms, which are guaranteed capital by foreign investors, follow the IFRS for financial reporting. They follow VAS only to conform with local tax laws. In fact, most financial statements are made to satisfy tax provisions and may not pose an actual and fair view of firms. With less transparency in accounting information, managers in Vietnamese listed firms are likely to manipulate earnings to serve their interests. Furthermore, according to law No 58/2012/NĐ-CP issued in July 2012, firms that have reported losses for three consecutive years get delisted. Therefore, listed companies may potentially use EM to avoid losses. A previous study on Vietnamese listed firms shows that managers are likely to engage in EM to attain positive growth in earnings and to avoid reporting negative earnings, especially in industrial groups (86.6%)<sup>10</sup>.

## **1.2 Research motivations and questions.**

There is academic interest in studying the link between corporate governance and the quality of financial information in Vietnam. Motivated by the current debate on governance reforms, this thesis applies both theoretical and empirical analysis to study the effects of three specific features of corporate governance and EM. In addition, the study investigates how governance structures and different kinds of earnings manipulation have an impact on stock price informativeness in emerging countries like Vietnam. Lastly, we examine whether the three features of corporate governance have an impact on stock price informativeness (SPI) directly or through the mediating effect of EM.

The motivations for these investigations stem from multiple factors:

(i) EM comes from a desire to prop up the firms' stock price to get high managerial compensation, in a developed capital market where ownership and management are separated and corporate governance is strong. Meanwhile, Vietnam is a newly emerging nation that is

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<sup>10</sup> Phan Thi Do Quyen (2018). The effect of earnings management on stock price informativeness in Vietnam. Doctor of physiology thesis. Danang University, Vietnam.

transitioning from a planned economy to a market-oriented economy, and it has weak investor protection and corporate governance in comparison to developed countries. Vietnamese listed firms have highly concentrated ownership structure in the top managers. In particular, the state still controls some major industries in Vietnam, but foreign investors have increased sharply with the ceiling up to 49%. With various goals, there is a difference in the way the state and foreign ownership affect EM and SPI.

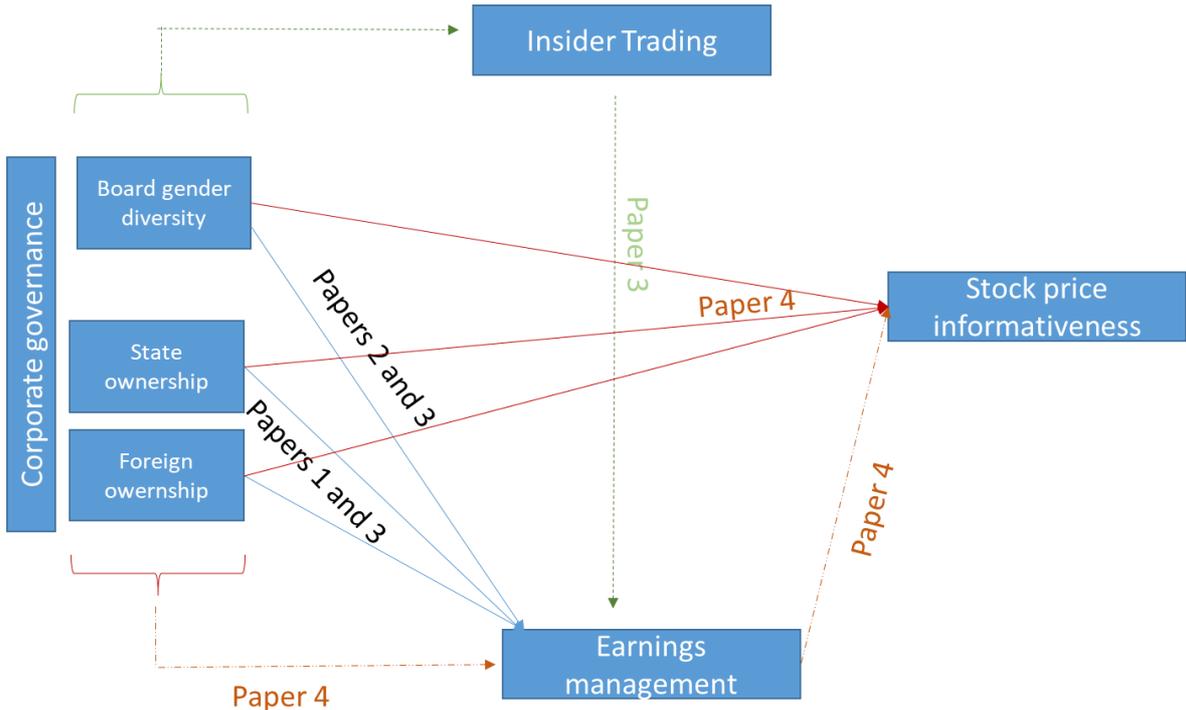
(ii) The general context is increasing pressure on the gender diversity of boards in developed nations because of growing regulation. Previous literature indicates that this has an effect on the quality of accounting numbers and EM, for women on boards as well as for women as corporate leaders (Gull, Nekhili, Nagati, & Chtioui, 2018; Lakhal, Aguir, Lakhal, & Malek, 2015). In addition, the board system in Vietnam is a dual board system. Vietnam is not characterized by either a one-tier (like the US), and a two-tier board system, like Germany. In a one-tier board, all the directors (executive directors and non-executive directors) form one board, called the board of directors. In a two-tier board, there is an executive board (all executive directors) and a separate supervisory board (all non-executive directors). However, a supervisory board in Vietnam is an independent body and a compulsory internal governance structure in the Vietnamese context. It is a group of individuals chosen by the stockholders of a company to promote their interests through the governance of the company and to hire and supervise the executive directors and CEO. Therefore, the monitoring role associated with board gender diversity in a mixed board system is different and less well developed in Vietnam. Several studies have examined the relationships between women on boards and EM, focusing on one-tier board system like the US (Arun, Almahrog, & Ali Aribi, 2015; Arun, Almahrog, & Aribi, 2015; Thankom Gopinath Arun). In this study, we investigate how women on boards and women as corporate leaders may affect the quality of the monitoring role and the quality of financial reporting, which leads to improvement in the information environment (Ferdinand A Gul, Srinidhi, & Ng, 2011).

(iii) In order to create an environment with accurate, timely, and transparent disclosure of more financial information in Vietnam, where there is low investor protection, a weak governance framework, less transparency, and accounting information considered to be of low quality, it is important to study the associations among corporate governance, EM, and SPI.

(iv) Although previous studies have investigated the relations among corporate

governance, IT, EM, and SPI in developed countries (Ferdinand A Gul et al., 2011; J. Yu, 2011; Zhou, 2010), there is limited research in emerging countries where SPI is not associated with the same level of quality and quantity of information. Some studies state the opposite result. For example, (Jin & Myers, 2006) showed that higher information transparency leads to lower EM, which will lead to more SPI, whereas (Chan & Hameed, 2006) showed that in emerging markets, the lack of publicly available firm-specific information and less stringent disclosure lead stock prices to be less informative.

(v) In fact, the theoretical arguments and empirical studies have associated special features of corporate governance with IT, EM, and SPI. However, there is a debate about whether the three features of corporate governance have an impact on SPI directly or exert their effect through the profound effect of the variants on EM. To our knowledge, there has been no previous study investigating such a mediation on the relations among corporate governance, IT, EM, and SPI.



**Figure 1: The structure of thesis**

**1.3 Outline of the dissertation**

This thesis adds to the corporate governance literature by providing four studies focusing on some specific features of governance mechanisms in the Vietnamese context. The first and

second studies focus on how the firm's corporate governance affects EM. While the first study focuses on the ownership structure, which consists of both State and foreign ownership, the second study is related to the place of women in the firm's governance. These actors influence the firm's corporate strategy and the control implementation. We analyse the interactions among the State, foreign investors, and gender diversity on EM in Vietnamese listed firms. The third study examines the link between corporate governance and EM with IT as a mediator. And the last study explores the link between corporate governance and SPI with the mediating effect of EM. The overall methodology used throughout the thesis is largely based on empirical methods.

We simultaneously use two measures of EM: namely, managers may manipulate earnings through the manipulation of accounting accruals ("accrual-based EM", AEM) or through modifications in economic transactions ("real earnings management", REM). AEM, which assumes that managers use discretionary accruals to change the accounting appearance of firm performance, is at a higher risk because it may be detectable by audit and is contrary to law, whereas REM is more difficult to detect by shareholders, auditors, and regulators. In terms of operation models, many scholars have developed approaches for measuring AEM (Dechow, Sloan, & Sweeney, 1995; Jones, 1991; Kothari, Leone, & Wasley, 2005; Larcker & Richardson, 2004; Larcker, Richardson, & Tuna, 2007). Two major competing models are commonly used. The first one was developed by Jones (named the "modified Jones" model, JM) and estimates EM as the residuals from the regression of total accruals on change in sales and property, plant, and equipment by using a time series approach for each firm (Jones, 1991). Another way was mentioned by Kothari et al. (2005), who added ROA into the JM in order to control the effect of performance on measured discretionary accruals (Dechow, Kothari, & Watts, 1998) and to detect abnormal operating performance because the trend of ROA is consistent with an operating performance (Kothari et al., 2005).

Regarding REM, real activities manipulation, three metrics have been developed in the literature which consists of manipulation through abnormal production cost (REMPROD), abnormal cash flow from operations (REMFCO), and abnormal discretionary expense (REMDIS), which were much often used in the literature (Daniel A Cohen, Dey, & Lys, 2008a; Roychowdhury, 2006) and enriched by (Katherine A Gunny, 2010).

The modified JM and Kothari model are appropriate in the Vietnamese context, according to (Vân, 2019). Regarding REM, Vietnamese listed firms have applied REM to manipulate earnings (Loan & Thao, 2016) because managers always have to trade-off

between AEM or REM. Therefore, we apply these measures in our thesis.

The sample in these studies includes all Vietnamese firms listed on both the HSX and the HNX, apart from banks and other financial industries. Banks and financial institutions are excluded because their financial statements are prepared in a different regulatory environment, and the information reported on those financial statements also follows a different format. The financial statement data were collected from StoxPlus (stoxplus.com), which is the main company providing data in Vietnam, from 2008 to 2017, except data regarding women on boards, which were collected by hand. HOSE began operations in 2000 and HNX in 2005 starting with the negotiation method. Until the end of 2005 (11/2/2005), HNX applied a continuous order matching method in parallel with the negotiation method. However, the number of listed firms in 2006/2007 is quite small and data are not sufficient to collect and test hypotheses correctly. Thus, 2008 is set as the beginning year of the study.

A brief overview of the various chapters and the main conclusions are given below.

### **1.3.1 Chapter 2: Ownership structure and earnings management.**

This study aims to investigate the effect of State and foreign ownership on both accruals based EM and real activities manipulation. In particular, this study addresses two key issues. First, we examine the State ownership impact on EM. Second, we investigate the effect of foreign ownership on EM. The conflict between shareholders and managers in terms of agency problems and some special attention in agency theory as to how to control and monitor debt financing may be different for firms with more State ownership, because State-owned firms are guaranteed by the government regarding strategic of nation and funding, which may reduce their EM. In terms of foreign ownership, the prediction of agency theory is that more foreign ownership could enhance the oversight function of internal governance mechanisms and prevent managers from taking advantage of corporate information asymmetry to serve their own interest, which in turn would mitigate EM. We use the percentage of shareholding owned by the State (or foreign) to test these relationships.

Our empirical analysis is totally consistent with existing previous studies in emerging contexts, that more State and foreign ownership mitigates AEM (Ding, Zhang, & Zhang, 2007; T. Hoang, I. Abeysekera, & S. Ma, 2014; L. Wang & Yung, 2011). In terms of REM, while more State ownership is less likely to boost earnings through cash flow and overproduction (this measure being only if using lagged two periods of abnormal production

cost), a strong presence of foreign investors engage higher in REM regarding abnormal production cost and abnormal discretionary expenses (by Kothari model). This result is not totally consistent with a study of (J. Guo, Huang, Zhang, & Zhou, 2015), who state that more foreign ownership is associated with a lower level of the three types of REM.

### **1.3.2 Chapter 3: Board gender diversity and earnings management**

Another feature affecting the transparency of financial reporting is board gender diversity. The general context is an increasing pressure for gender diversity on boards in developed nations because of growing regulations. The previous literature has indicated that it has an effect on the quality of accounting numbers and EM, for women on boards as well as for women as corporate leaders. Vietnam is a newly emerging nation that has a mixed board system and singular governance rules. Thus, women on boards and women as corporate leaders may affect the quality of the monitoring role and the quality of financial reporting, which leads to an improved information environment (Ferdinand A Gul et al., 2011) compared with developed countries. To add to the pictures related to the efficiency of women in the boardroom, we investigate gender diversity in the Vietnamese context.

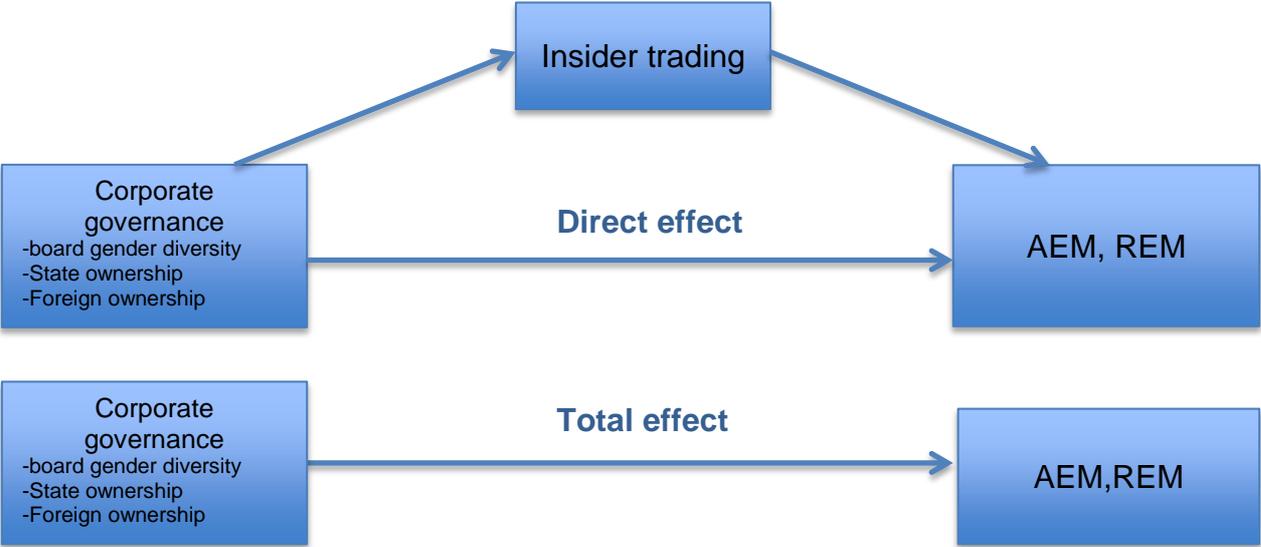
By following AEM and three types of real activities manipulation, the results show that chairwomen reduce AEM measured by the Kothari model, whereas the number of women on board of executives influence AEM measured by the Kothari model. Women on board measured by the Shannon index engages in more AEM in the Kothari model and REM measured by abnormal overproduction (PROD).

### **1.3.3 Chapter 4: Linking corporate governance and earnings management: insider trading as a mediator.**

Our two first studies show that ownership structure and board gender diversity affect EM in some ways. However, these studies only provide direct evidence of the impact on EM of three dimensions of corporate governance. It remains unclear whether those three features of corporate governance's effect on EM are interfered by other factors or not. Previous studies have shown a link between insider trading and EM on the one hand, and corporate governance and IT on the other hand. IT is then a candidate as a mediator between corporate governance and EM. Thus, the purpose of our study is to focus on one of the intervening factors, IT. This study broadens the perspective to consider how IT, which is defined as the trading of top executives, organization investors, and their family members in Vietnamese listed firms,

mediates the effect of ownership structure and board gender diversity on EM. Using IT as a mediator variable helps to clarify the nature of the relationship between corporate governance and EM.

In this third study, we address two key issues. First, we examine how the three features of corporate governance—State ownership, foreign ownership, and gender diversity—directly affect EM without passing through IT. Next, we explore the other, indirect, pathway that goes from three features of corporate governance to EM through IT, as shown in Figure 2.

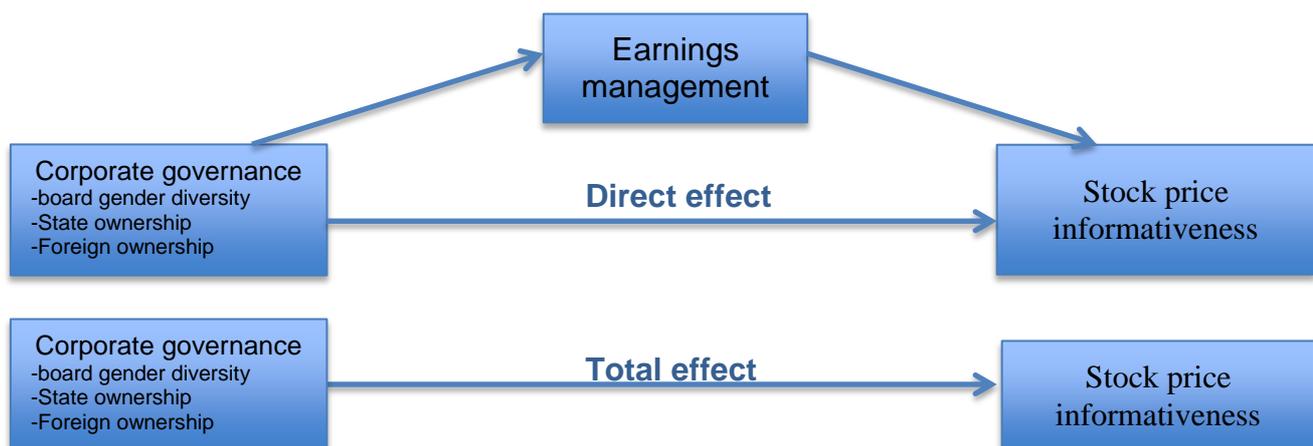


**Figure 2: Synthesis of the model-insider trading as single mediator**

We observe that the results validate the role of IT as a mediator, but only when the proxy for EM is REMDIS. We notice that the total impact of two features of corporate governance—State ownership and foreign ownership—on EM measured by REMDIS are positive; this is not the case for board gender diversity. However there is a decrease in total effect compared with direct effect, which is explained by the mediation analysis. A decrease in the impact of State and foreign ownership on EM comes from the combination of more State and foreign ownership reducing IT, with, in turn, decreasing EM because of a significant positive relationship between IT and EM through REMDIS. This means that firms with more State and foreign ownership indirectly decrease abnormal discretionary expenses through less IT. By decreasing the weights of the paths of predictor IT on EM, the suppression effect also decreases the indirect effects of State and foreign ownership on EM, which are in combination significant.

### 1.3.4 Chapter 5: Linking corporate governance and stock price informativeness in Vietnam: earnings management as a mediator.

In the last study we investigate the information in the capital market with a focus on the role of financial disclosure regulation. Many recent corporate governance reforms around the world have sought to increase public disclosure to make the market prices more informative about the future values of firms. The total information reflected in the market price includes both the public information disclosed by firm management and the private information acquired by investors. This study considers the direct and indirect effects of disclosure regulation on information embedded in stock prices through an analysis of the interaction between public reporting and private information. Some previous studies have showed that ownership structure and board gender diversity are strongly associated with SPI (Ben-Nasr & Cosset, 2014; Ferdinand A. Gul, Kim, & Qiu, 2010; Ferdinand A Gul et al., 2011; He, Li, Shen, & Zhang, 2013; Vo, 2017). Also, numerous studies have stated that corporate governance has an impact on EM (Adams & Ferreira, 2009; James P. Byrnes & Miller, 1999; Faccio, Marchica, & Mura, 2016), whereas many others have showed a link between EM and SPI (Durnev, Morck, & Yeung, 2004; Rajgopal & Venkatachalam, 2011). Hence we first contemplate linking all those dimensions in the same model. In this, there is a two-path effect between the three features of corporate governance and SPI: independently via a direct effect and indirectly through EM.



**Figure 3: Synthesis of the model-earnings management as a single mediator**

The main results are presented with the measure of Kothari for AEM and with the abnormal discretionary expenses for REM. All three features of corporate governance—women on boards, State ownership and foreign ownership—have a significant, positive

impact on SPI. This is along with our expectations, except for State ownership, for which a negative link was expected. This counter-intuitive result is explained by the mediation analysis. The positive impact of women on boards, State ownership and foreign ownership on SPI comes from the combination of a positive impact of corporate dimensions on EM and a positive impact of EM on SPI. Namely, we find a significant positive relationship between EM and SPI when the proxy for EM is REMDIS.

# **Chapter 2. Ownership structure and earnings management. An empirical study in a Vietnamese context<sup>11</sup>**

## **Abstract**

This study investigates the effect of State and foreign ownership on both accruals based earnings management and real activities manipulation for Vietnamese listed firms. Using an unbalanced sample over the investigation period 2008 – 2017, the findings suggest that state ownership mitigated either accrual based earnings management and real manipulation especially through abnormal cash flows. The paper also finds that foreign owned firms are less engaged in accrual based earnings management, but that more foreign investors leads to more real manipulation regarding abnormal production cost and abnormal discretionary expenses. The contribution of this study is the vital nature of ownership structures in monitoring earnings among Vietnamese listed firms.

Key words : corporate governance – state ownership – foreign ownership – Vietnam – Earnings management

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<sup>11</sup> This paper was presented at AFC, 2019.

## 2.1 Introduction

In emerging markets and Vietnam particularly, ownership structure is a major issue for most firms. Vietnam began a process of ownership restructuring in the 1980s and these reforms continue until now. It is worth noting that the establishment of Ho Chi Minh Stock Exchange in 2000 has been a change in the ownership structure of the corporations in Vietnam. Besides State ownership, which is the main part of ownership structures in Vietnam, foreign ownership has gradually become a key dimension of ownership structure of listed firms due to the boom in foreign investment inflows. Due to shareholders having different level of interest in the quality of reported earnings, earnings management practices may be influenced by those tendencies.

Earnings management (EM) is defined as the managers adjustment- upward or downward- on financial reporting under certain circumstances. The EM can be classified into “accrual-based earnings management” (AEM) and “real activities manipulation” (REM). AEM comes from estimating or changing in the accounting methods, which are allowed under Generally Accepted Accounting Principle (GAAP) via accruals, whereas REM is a purposeful action to change reported earnings in a particular direction such as changing the timing or structuring of an operation, investment or financing transaction. As a result, they lead to affect the cash flows from operations (Gunny, 2010).

This paper examines whether State or foreign ownership produces a significant impact on EM in Vietnamese listed firms. The paper is motivated by four reasons: (i) Earnings management comes from the desire to influence the firms’ stock price. It has mostly been studied, in a developed capital markets, where ownership and management are separated and corporate governance is strong. Instead, Vietnam is a newly emerging nation that is transitioning from a planned economy to a market-oriented economy. It has weak investor protection and corporate governance in comparison to developed countries. (ii) The Vietnamese listed firms have highly-concentrated ownership structure and the State still presents in some major sectors. But simultaneously, foreign investors have increased sharply with the ceiling up to 49%<sup>12</sup>. With various goals, the influence of both state and foreign ownership may have different impacts on EM. (iii) According to the No 58/2012/NĐ-CP law issued in July 2012, the firms that have reported losses for three consecutive years are delisted from the Vietnamese financial markets. Therefore, Vietnamese listed companies may have an

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<sup>12</sup> According decree No 60/2015/NĐ-CP and No 58/2012/NĐ-CP, the percentage shares hold by foreign ownership in the listed Vietnamese firms depends on each industry or sector, but it can not exceed 49% for non-financial firms and 30% in the finance industry.

incentive to use EM in order to avoid losses. So in this context it may be interesting to study EM. (iv) There is no precedent research using audited data over a long period to examine the relationship between ownership structure and earnings management, especially real activities manipulations, in Vietnam.

In particular, the paper asks the question: **how do State and foreign ownership impact on AEM and REM of Vietnamese listed firms?**

Our study applies to a relatively recent sample of Vietnamese listed firms for the period 2008 to 2017, which were both in the Ho Chi Minh Stock Exchange (HSX) and Hanoi Stock Exchange (HNX) after filtering our firms with missing data. While the relation between State ownership on earnings management through accruals has been well examined in Vietnam (T. Hoang, Abeysekera, & Ma, 2014), the paper takes the first look at the relationship between State and foreign investors on both accruals-based earnings management and real activities manipulation.

The findings of the study first reveal a negative association between State ownership and either AEM and REM through cash flow (CFO) and, in one model with EM lags, through overproduction (PROD). Next, the paper also finds that foreign owned firms are less engaged in AEM, while, more foreign investors is associated with more REM in terms of abnormal production cost, and abnormal discretionary expenses.

Our study extended existing knowledge on EM, by investigating a very specific context. Namely, Vietnamese policy-makers promulgated regulations on quotas for State owned firms until the 2020s. Thus, our findings may be important for them to reconsider the effectiveness of these crucial policies. In addition, they give insights for enforcing legislation and guidance for financial reporting in the context of Vietnam to increase firms' "reporting transparency and accountability". Lastly, the paper adds new evidence regarding the effect of various ownership structures on AEM, REM in Vietnam.

The rest of this paper is organized as follows. First, the paper discusses the institutional environment and the corporate governance context in Vietnam. Then it briefly reviews the relevant literature to develop the main research hypothesis. Data, data sources, and methods are described next. Finally, the paper presents the empirical results and in the conclusion discusses the contributions and limitations of the study

## 2.2 Overview of the Vietnamese economy in transition

Although Vietnam became an independent nation in 1975s, the Vietnamese economy has known a long period of subsidization system with a centralized plan-based on state-owned firms. This led to an economic situation of production shortfalls because the state-owned firms did not produce fully enough for customers to consume (Fforde & De Vylder, 1996). During the post-war period from 1975 to 1986, there was a fundamental change in corporate ownership structures of Southern Vietnamese businesses as they were forced to become State-Owned Enterprises (SOEs) (Vu, 2012).

In 1986, the government decided to start launching an economic reform program, namely “doi moi”, aimed at turning the state controlled economy into a socialist market-oriented economy. It opened a new chapter for the national economy. This socialist oriented market economy was named “equitization” and not “privatization” because SOEs still had to preserve the State’s assets to fulfill Government’ aims. According the report of the State audit, 2018, the equitization has known very rapid changes in terms of quantity: he number of SOEs decrease remarkably, from around 12,000 in 1991 to about 500 in 2017. However, the equitization of SOEs is incomplete because the Vietnamese government still holds a large percentage (above 50%) of ownership in the listed SOEs of strategic industries or the key sectors that are electricity production, telecommunications, mineral exploration, oil, gas and water supply (Vu, 2012).

Regarding foreign investors, there has been a boom of their flow of funds in recent years. Although two stock markets, which are the Ho Chi Minh Stock Exchange (HSX) and the Hanoi Stock Exchange (HNX), established later than other countries, the sharply increase in the foreign ownership have become the most prominent feature in Vietnam. However, Government also issued regulations to control and supervise this participation of foreign investors through No 60/2015/NĐ-CP and No 58/2012/NĐ-CP. According to those laws, the permitted percentage of foreign ownership in the listed Vietnamese firms depends on each industry or sector, but it can not exceed 49% for non-financial firms and 30% in the finance industry. Therefore, foreign ownership may reflect the investment alternatives in some firm attributes.

Finally, and in spite of the efforts to monitor and protect shareholders in the Vietnamese market through market regulations, legal framework and corporate governance, SOEs are still major players in Vietnamese economies. According to general statistics office of Vietnam

(GSO), while the number of SOEs represented only 0.9% of the total number firms, SOEs finished off 32.2% of Vietnam's GDP and 40.4% of the country's total annual investment in 2013<sup>13</sup>. Furthermore, SOEs are responsible for socially plans. Thus, State ownership (SO) and foreign ownership (FO) are really two key main features of Vietnamese listed firms.

## **2.3 Literature review and hypothesis development**

The ownership structure plays an important role in a firm's governance. There are many ways to classify the ownership structure such as insider-outsider ownership or family ownership, institutional ownership, foreign ownership or block holder and promoter ownership. Most of the previous studies combined them together. In this study, we only focus on state who has their motivations for political purpose and foreign ownership who is maximize their investment return, since we saw that they are key features of the ownership structure of Vietnamese listed firms. And we focus on the way those characteristics may influence EM practices.

### **2.3.1 State ownership (SO) and earnings management**

Several studies investigating the relation between SO and EM provide the opposite views in emerging countries.

On the one hand, the State is likely to report lower earnings quality (Ben-Nasr, Boubakri, & Cosset, 2015; D. Choi, Chung, Kim, Kim, & Choi, 2020). Some reasons explain why managers in SOEs engage in EM. First, managers hide the expropriation of corporate resources for political purposes. In addition, SOEs have a lower level of governance in management and monitoring, leading to an increased management autonomy causing more engage in earnings management (D. Choi et al., 2020). Furthermore, contrasted owners, in firms where the State retains a percentage of shares and family or founder's private firms also maintain their control, may have diverging interests or conflicting views leading to inspire data manipulation (D. Choi et al., 2020; F. Guo & Ma, 2015). SO may be positively associated with EM when State is not a largest shareholder of the firms.

In the opposite view, managers in SOEs may be less engaged in EM for some

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<sup>13</sup> <https://www.gso.gov.vn/en/data-and-statistics/2019/10/statistical-yearbook-of-vietnam-2015-2/> (GSO, 2015, pp.62,75-78, 103).

reasons. First, agency problems give rise to conflicts between managers and shareholders about the way firms distribute their benefits (Fama & Jensen, 1983b). These problems do not develop in SOEs because their main aims are generally to behave according to the interests of their State rather than to maximize the wealth of their shareholders. Second, agency theory also suggests that using debt affects managerial behavior (Jensen, 1986). Managers work for firm value rather than for their own interests because of the external monitoring (banks) and debt covenants. For their part, SOEs are usually provided for additional funds or guaranteed by State support (Bhattacharya, Daouk, & Welker, 2003; Ding et al., 2007; McNichols & Stubben, 2018; L. Wang & Yung, 2011). In other words, they have an easy access to capital from the government. Therefore, managers have less financial pressure to engage in EM. Third, another common agency problem is related to the remuneration of managers. Managers are rewarded based on firm performance. With advantages of internal information and a better understanding of “firm’s health”, managers can opportunistically take action, to reach good firm performance, which may have a negative impact on owners. Nevertheless, the compensation of managers in SOEs is uncommon because various social and political goals limit the maximizing of their firm value (C. A. Cheng, Wang, & Wei, 2015; Fan, Wong, & Zhang, 2007).

Most of previous studies about the relationship between earnings management and State ownership come from China; they mostly support a negative relationship between earnings management and State ownership. First, by using 273 State and privately-owned Chinese companies listed in 2002, (Ding et al., 2007) establish a link between ownership structure and firms’ earnings management practices through discretionary accruals, the results show that privately-owned listed firms favor earnings boosting methods more than their State-owned counterparts (Ding et al., 2007). Second, using 557 listed firms in China from 1998 to 2006, (L. Wang & Yung, 2011) also found the same result. Based on a sample of 1329 Chinese listed companies and 11,947 company years observations from 1998 to 2009, (Y. Wang & Campbell, 2012) demonstrate that a higher degree of state ownership tends to deter earnings management.

Thus, based on the above-mentioned arguments and findings, we propose the following hypothesis:

*Hypothesis 1: More State ownership mitigates earnings management.*

### **2.3.2 Foreign ownership (FO) and earnings management**

Foreign ownership has become more important in emerging markets, which may bring some advantages in terms of financial information quality. First, the presence of foreign investors can enhance the oversight function of internal governance mechanisms leading to better monitoring (Aggarwal, Erel, Ferreira, & Matos, 2011; Gilson & Milhaupt, 2005; W. Huang & Zhu, 2015; Paik & Koh, 2014). Thus, the conflicts of interests may be reduced, the monitoring of the firms may be enhanced, which should lead to better corporate reporting behaviors and better earnings quality. Second, foreign investors improve corporate governance, helping to prevent managers from taking advantage of corporate information asymmetry to serve their own interests. In other words, foreign investors are effective in deterring managerial opportunism (R. Chung, Ho, & Kim, 2004; J. Guo et al., 2015; W. Huang & Zhu, 2015) because they are experts and independent directors, who can easily access to resources, strongly monitor management and thus limit earnings management (Roychowdhury, 2006).

Moreover, with higher foreign ownership, managers are more likely to manage earnings in order to meet market expectations because they try to satisfy their foreign investors, who in turn focus on current profits by boosting stock prices (Paik & Koh, 2014).

Previous studies bring different conclusions in different contexts. For instance, (H. J. Kim & Yoon, 2008a; Mazumder, 2016) document that the level of accruals, which is a measure of earnings management, decreases with foreign equity ownership, whereas there is no statistically significant impact of foreign ownership on earnings manipulation (Lai & Tam, 2017). Related to REM, the scholars also state that foreign owned firms especially for firms with a high and stable foreign proportion in the capital structure engage in less real earnings management (J. Guo et al., 2015; Shayan-Nia, Sinnadurai, Mohd-Sanusi, & Hermawan, 2017). Specifically, they are able to constrain upwards real earnings management related to discretionary expenditure but not the operating cycle (Shayan-Nia et al., 2017). (J. Guo et al., 2015) also state that firms with foreign ownership curb earnings manipulation, but via operating activities in Japanese firms. Conversely, (S. H. Kim, An, & Udawatte, 2020) mention that managers in firms with more foreign investors are more likely to manage earnings in both AEM and REM due to information asymmetry between domestic and foreign investors. It means that foreign investors have difficulties to access the firm's operational information, leading to an informational advantage for insiders (manager and domestic shareholders) and opportunistic EM.

Based on the aforementioned arguments and prediction of agency theory, the hypothesis is formulated as follows:

*Hypothesis 2: More foreign ownership mitigates earnings management*

## **2.4 Variable measurement and research design**

In this section, the paper discusses collected data, measures of dependent variables and control variables as well as the research model.

### **2.4.1 Data and sample selection**

The sample in this study consists of all Vietnamese firms listed on both the Ho Chi Minh Stock Exchange (HSX) and the Hanoi Stock Exchange (HNX), apart from those in banks and other financial industries. Banks and financial institutions are excluded because their financial statements are prepared in a different regulatory environment, and the information reported on those financial statements also follow a different format. The financial statement data items were collected from StoxPlus company (stoxplus.com), which is the main provider of data in Vietnam, from 2008 to 2017. HSX began operations in 2000 and HNX in 2005 with the negotiation method in the beginning. Until the end of the year 2005 (2/11/2015), HNX applied continuous order matching method in parallel with the negotiation method. However, the number of listed firms in 2006 and 2007 is too small to test hypotheses correctly. Thus, 2008 is set as the beginning year of the study.

Industry classifications in Vietnam are based on the industry classifications benchmark (ICB), excluding bank firms. Only industries with more than 15 industry years, REM measures are kept.

### **2.4.2 Measuring earnings management-dependent variables**

AEM and REM are applied to measure EM. Basically, both AEM and REM may be used by firms to reach financial targets or to avoid earnings decreases/losses. However, the use of AEM may be limited since firms are restricted by the auditors' and regulators' scrutiny in accordance with regulations. As a result, although it is more costly than AEM (Daniel A Cohen et al., 2008), REM can be chosen by managers trying to make earnings to meet a firm's targets, because (i) it is not limited by regulations compared to AEM, (ii) it is harder

for an outsider to observe (Schipper, 1989), and (iii) it is not judged to be in violation of securities law. A study of (Zang, 2012) suggested that AEM and REM can substitute for each other, based on their relative costs, suggesting that if REM is less expensive than AEM, more REM will be applied, and vice versa. In particular, some previous studies have stated that state-owned enterprises are less engaged in AEM because they prefer to use REM (Aharony, Lee, & Wong, 2000; Jian & Wong, 2010). That is a reason why we use both AEM and REM in this study. More precisely and following precedent studies, we use their absolute value. Indeed, their absolute values allow to capture the level of earnings management, whether upward or downward: for all of them, thus, the greater the measure and the greater is the EM<sup>14</sup>.

#### *2.4.2.1 Accrual based earnings management*

AEM refers to the considerable discretion that managers have to influence reported net income through discretionary accruals. Discretionary accruals are the accruals over which managers can exercise some control. Based on the existing literature, this research uses the magnitude of discretionary (abnormal) accruals to measure EM (Daniel A Cohen, Dey, & Lys, 2008b; Dechow et al., 1995; Jones, 1991). The main arguments have been put forward for this measure to apply in the Vietnamese context. The system of accounting of Vietnamese listed firms has been traditionally tax oriented. Thus, Vietnamese authorities have fixed almost all accounting choices that may affect accounting results, such as the depreciation method for fixed assets or the life span used to calculate this depreciation in each specific industry. This has long made it difficult for Vietnamese firms to adjust their earnings via non-cash accruals. But this has changed over the last decade because Vietnamese listed firms have been required since the beginning of 2006 to make provisions for various potential losses (No. 15/2006/QD-BTC). This has brought the Vietnamese accounting language closer to international standards, while also offering Vietnamese firms the opportunity to manage their earnings via more discretionary accruals. Therefore, for the 2008–2017 period, using discretionary accruals for EM is relevant because this conservatism principle is applied in Vietnam.

To measure AEM, this study develops two models. First, this is consistent with previous studies according to which the modified Jones model provides the most powerful test in detecting earnings management and it is suitable in emerging markets and Vietnam particularly (B. Lin, Lu, & Zhang, 2012a; Q. Liu & Lu, 2007; Phuong, 2017). Second, we

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<sup>14</sup> In terms of nominal values, a smaller REMDIS or REMCFO indicates a higher upward REM. For all others, it is a higher measure that indicates a higher REM

employ the performance adjusted model of Kothari (Frankel, Johnson, & Nelson, 2002; Kothari et al., 2005). Because the modified Jones model is a simple model of accruals using change in revenues and fixed assets, it cannot be fully descriptive. So, different authors have suggested controlling for various factors to improve the model (McNichols & Stubben, 2018). Kothari et al. (2005) added ROA to mitigate the problematic heteroscedasticity and mis-specified issues that exist in other aggregate accruals models.

So, the AEM is measured as discretionary accrual using a cross-sectional version of the modified Jones model as follows. First, total accruals of a firm are divided into a discretionary part and a non-discretionary part and are defined as the difference between net income before extraordinary items (NI) and cash flow from operating activities (OCF):

$$TA_{i,t} = \text{Net income}_{i,t} - \text{OCF}_{i,t}$$

The next step is to determine the coefficients that are used to estimate the firm-specific normal accruals. This results in a modified Jones model, as shown in Equation (1):

$$\frac{TA_{i,t}}{Assets_{i,t-1}} = \alpha \left( \frac{1}{Assets_{i,t-1}} \right) + \beta_1 \left( \frac{\Delta Sales_{i,t}}{Assets_{i,t-1}} \right) + \beta_2 \left( \frac{PPE_{i,t}}{Assets_{i,t-1}} \right) + \varepsilon_{i,t} \quad (1)$$

The coefficients that are estimated with Equation (1) are used to determine the normal accruals (NA). The following model is used:

$$NA_{i,t} = \alpha \left( \frac{1}{Assets_{i,t-1}} \right) + \beta_1 \left( \frac{\Delta Sales_{i,t} - \Delta AR_{it}}{Assets_{i,t-1}} \right) + \beta_2 \left( \frac{PPE_{i,t}}{Assets_{i,t-1}} \right) \quad (2)$$

where:

- $TA_{i,t}$  is total accruals for firm I at time t
- $NA_{i,t}$  is normal accruals for firm i at time t
- $\Delta AR_{it}$  is the change in accounts receivable from the preceding year,
- $Assets_{i,t-1}$  is total assets for year  $t-1$  and firm  $i$ ,
- $\Delta Sale_{it}$  is the change in sales for firm i from year  $t-1$  to year t
- $PPE_{it}$  is the gross value of property, plant, and equipment in year  $t$ .
- $\varepsilon_{i,t}$  is the residual of firm i at time t.

While computing the normal accruals, reported revenues of the sample firms are adjusted from the change in accounts receivable to capture any potential accounting discretion arising from credit sales, which relates to non-discretionary accruals (Cohen et al., 2008).

Following the prior literature (Dechow et al., 1995), discretionary accruals are estimated as the absolute value of the difference between total accruals and normal accruals:

$$|DA_{i,t}| = \left| \left( \frac{TA_{i,t}}{Assets_{i,t-1}} \right) - NA_{i,t} \right| \quad (3)$$

All variables are scaled by prior year total assets to control for heteroscedasticity.

The Kothari model is based on the modified Jones model plus  $ROA_{t-1}$ , which is return on assets at the end of year t-1.

Following previous studies, we employ the absolute value of discretionary accruals as EM.

#### 2.4.2.2 Real activities manipulation

Different models may be applied to measure REM. Previous studies on Chinese firms have stated that REM measured by Roychowdhury (2006) may not be effective in an emerging context (C. A. Cheng et al., 2015). Thus, we use the model developed by (Gunny, 2010), because the estimation incorporates market valuation (Greiner, Kohlbeck, & Smith, 2017). By including market value, the resulting REM in the Gunny model excludes information that has already been incorporated by the market. We use three different measures for REM<sup>15</sup>.

. Abnormal level of reduction of discretionary expenses (REMDIS)

The first type of real earnings management methods is the reduction of discretionary expenses (DIS) such as advertising expenses, research and development expenses (R&D) and selling, general and administrative expenses (SG&A) as the most preferred method for overstating earnings.

The formula of DIS below consists of advertising expenses and both R&D and SG&A, if SG&A is available; the formula still exists when advertising expenses and R&D are missing, set 0. Because some firms may be engaged in innovative activities without reporting R&D expenses (Koh & Reeb, 2015) or missing data, these situations will not be captured in tests.

$$\frac{DIS_{i,t}}{A_{i,t-1}} = \alpha + \beta_1 \left( \frac{1}{A_{i,t-1}} \right) + \beta_2 MV_{it} + \beta_3 TobinQ_{it} + \beta_4 \left( \frac{InterFt}{A_{i,t-1}} \right) + \beta_5 \left( \frac{\Delta Si,t}{A_{i,t-1}} \right) + \beta_6 \left( \frac{\Delta Si,t}{A_{i,t-1}} * DD \right) + \varepsilon_{it} \quad (I)$$

where:

- discretionary expenses (DIS) is the sum of advertising expenses (AD); R&D

<sup>15</sup> According to (Katherine A. Gunny, 2010), the timing of the sale of fixed assets to report gains is also one of the types of REM since it is used as a way to manage earnings by the difference between net book value and the current market value. However, our study does not take into account the timing of the sale of fixed assets for several reasons: previous studies have shown that REM is used in Vietnam through lenient credit terms and discount policies rather than using the timing sale of fixed assets in order to improve revenue and decrease cost (Loan & Thao); and due to data availability, we do not study the timing sale of fixed assets to date.

expenses; and selling, general, and administrative expenses (SG&A).

- natural log of market value (MV) proxies for firm size;
- Tobin's Q measures the marginal benefit to cost for each unit of new investment;
- internal funds (InterF) controls for the funds available for investment that are generated from the firm;
- and change in sales ( $\Delta St/At-1$ ) controls for the impact of trends in sales on discretionary expenses.

Considering the “sticky” cost behaviour, Katherine A. Gunny (2010) interacted change in sales ( $\Delta St$ ) with an indicator variable (DD) that is equal to one when total sales decrease from the prior year (between t-1 and t), and zero if not. As a result, the impact of positive  $\Delta St$  on normal levels of discretionary expenses is not constrained by this model to be the same as that of negative  $\Delta St$ .

The abnormal discretionary expense (REMDIS) is the absolute value of the residuals of the model (I).

. Abnormal level of production costs (REMPROD)

The second measure detects abnormal production cost (PROD). Managers of manufacturing firms can manage earnings upward by producing more goods than necessary. With higher levels of production, firms can spread fixed overhead costs over a larger number of units, thereby lowering fixed costs per unit. Thus, overproduction results in a lower cost of goods sold (COGS) and better operating margins.

$$\frac{PRODi,t}{Ai,t-1} = \alpha + \beta_1 \left(\frac{1}{Ai,t-1}\right) + \beta_2 MV_{it} + \beta_3 TobinQ_{it} + \beta_4 \left(\frac{Si,t}{Ai,t-1}\right) + \beta_5 \left(\frac{\Delta Si,t}{Ai,t-1}\right) + \beta_6 \left(\frac{\Delta Si,t-1}{Ai,t-1}\right) + \varepsilon_{it} \text{ (II)}$$

where:

- PROD is the sum of cost of goods sold (COGS) and change in inventory,
- $(\Delta Si,t/Ai,t-1)$  is the change in sales, and
- $(\Delta Si,t-1/Ai,t-1)$  is lagged change in sales.

The abnormal production cost (REMPROD) is the absolute value of the residuals of the model (II).

. Abnormal level of cash-flows from operations (REMCFO)

The third measure detects manipulation of sales through lenient credit terms. This model identifies the offering of lenient credit with negative abnormal cash flows from operations (CFO).

$$\frac{CFO_{i,t}}{A_{i,t-1}} = \alpha + \beta_1 \left(\frac{1}{A_{i,t-1}}\right) + \beta_2 MV_{it} + \beta_3 TobinQ_{it} + \beta_4 \left(\frac{Si,t}{A_{i,t-1}}\right) + \beta_5 \left(\frac{\Delta Si,t}{A_{i,t-1}}\right) + \varepsilon_{it} \quad (III)$$

Where: CFO is net cash flow from the operations of firm i for year t.

The abnormal cash-flow (REMCFO) is the absolute value of the residual of the model (III).

In our study, we use the absolute values of the residual to analyze the magnitude of accrual based earnings management (AEM) and real activities manipulation (REM). The reasons to explain why we use the absolute values for some following reasons: (i) using both signed or unsigned earnings management, whether income upward or downward result in concealing true firm performance (J.-B. Kim & Sohn, 2013). (ii) AEM, REM can be performed to temporarily in an unexpected direction if manager s' intention is intend to smooth earnings along different periods (Badertscher, Phillips, Pincus, & Rego, 2009; B. Francis, Hasan, & Li, 2016; H. Jiang, Hu, Zhang, & Zhou, 2018). For example, managers can increase production level by increasing ending inventory level or offering deep discounts leading to a higher current demand from customers to temporality decrease earnings. Or they may also invest more in R&D, or advertising, leading to exhibit unusually lower discretionary expenditures. These activities are income decreasing in the current year but income increasing in the future when the benefits from those increased investment are realized. (iii) In particular, real activities manipulation may also automatically reverse in future from an economic perspective. Firms can make up by spending more on R&D for one period. However, managers cannot remain for a long period, they have to cut down in another period. Similarly, firms' overproduction in one period will become equal by a decrease in production in another period, because in a long term the total production quantity is balanced out to the total number of units that are actually sold (L. Li, 2012). (iv) (J.-B. Kim & Sohn, 2013) also show that the main thrust of results do not change whether the absolute value of AEM and REM are used. The larger absolute values of residuals show the greater of earnings management.

### **2.4.3 Measuring independent variables and control variables**

#### *2.4.3.1 Independent variables*

The State and foreign ownership are measured as the number of shares hold by State/foreign owners to total shares.

#### *2.4.3.2 Control variables*

We employ several control variables that have been used in previous EM studies. Although,

audit committee is importance in EM studies, most of Vietnamese listed firms still apply the traditional corporate governance model (model 1) without audit committee. Thus, audit committee does not use in this paper. All control variables are measured at the end of the previous year.

- Board independence (*Dbdipen*). Boards with independent members may curb corporate misconduct. (Beasley, 1996; Fama & Jensen, 1983b; Klein, 2002; Xie, Davidson III, & DaDalt, 2003) found a negative relationship between the percentage of independent directors on the board and EM. Similarly, for US companies, (Klein, 2002) showed the existence of a negative relationship between the independent board and EM. Conversely, another previous study also found no relation between them (Park & Shin, 2004). It is measured by the proportion of non-executive members on the board of directors.

- CEO duality (*CEO\_D*). Some previous studies of the relationship between CEO duality and EM have exhibited mixed results. (Gull, Nekhili, Nagati, & Chtioui, 2017) found that CEO duality positively affects EM. In a meta analysis (seven studies), (García-Meca & Sánchez-Ballesta, 2009) could find no evidence of any correlation between CEO duality and EM. CEO is measured by a dummy variable coded 1 if the CEO is chairman of the board, and otherwise 0.

- Auditors' reputation (*AUDIT*). Big-4 auditors are supposed to better detect EM because of their supposed deeper knowledge, larger competence, and incentive to curb EM to protect their reputation. Thus they may have more motivation to maintain greater audit quality because they usually have larger clients and globally known brand names (Becker, DeFond, Jiambalvo, & Subramanyam, 1998; Chi, Lisic, & Pevzner, 2011; Daniel A. Cohen & Zarowin, 2010; J. R. Francis, Maydew, & Sparks, 1999; Watts & Zimmerman, 1986). The involvement of a Big-4 auditor is measured by a dummy variable.

- Firm size (*Firmsize*). Many previous studies have examined the relationship between firm size and EMs. On the one hand, larger firms are more likely to design and maintain a well-developed governance framework in order to control the internal system effectively and to reduce the likelihood of manipulating earnings by management (Beasley, Carcello, Hermanson, & Lapides, 2000). And they should receive better audit services from established audit firms due to larger operating budgets, which in turn could help prevent earnings misrepresentations (Becker et al., 1998; J. R. Francis et al., 1999). Moreover, the stricter disclosure requirements placed by regulators on larger firms reduce information asymmetry and may discourage such firms from engaging in EM activity (Lee & Choi, 2002). Finally, larger firms are more likely to be under closer scrutiny by outsiders than smaller firms, which can potentially reduce managers' opportunity to exercise their accounting discretion (Koh,

2003). But on the other hand, larger firms are controlled by sophisticated investors who may push for the adoption of aggressive accounting policies and EM particularly (Richardson, 2000). Although large firms may have stronger internal control systems, they also have stronger management power, which may be used to override the internal control systems to manipulate earnings. Finally, larger firms are more likely to exploit latitude in accounting discretion to reduce political attention by reducing reported earnings (Watts & Zimmerman, 1986, 1990). Firm size is computed as the log of the firm's total assets.

- Leverage (*Finlever*). Leverage plays an important role in monitoring the discretionary activities of managers (Jensen & Meckling, 1976). Companies that select short-maturity debts are probably less involved in EM by reducing agency costs (Alzoubi, 2018). Moreover, firms with high levels of debt may constrain the discretionary accruals manipulation because they undergo better monitoring through third parties such as creditors and bankers. Most of the scholars working in this area have shown that debt is significantly negatively related to EM (Becker et al., 1998; DeAngelo, DeAngelo, & Skinner, 1994). However, (DeFond & Jiambalvo, 1994; Lazzem & Jilani, 2017) highlighted that leverage is positively associated with EM because of the existence of covenants in the firm's debt contracts. In addition, (Watts & Zimmerman, 1986) suggested that the managers of highly leveraged firms are likely to manage earnings to improve the firm's negotiating power in order to get funds at satisfactory conditions. Financial leverage is estimated as total liabilities divided by total assets.

- ROA (*ROA*). In order to measure financial performance, ROA is chosen as a proxy and appears as a control variable in the regression model. (Barua, Davidson, Rama, & Thiruvadi, 2010; Dechow & Dichev, 2002) documented a negative association between ROA and discretionary accruals, in line with Watts and Zimmerman (1990), who showed that firms with higher financial performance tend to manage earnings downwards because of a desire to avoid tax or to limit political cost. ROA is calculated as net profit over total assets of the firm.

- Firm growth (*SalesG* and *B/MRatio*). Sales growth and book-to-market value are included to control for firm growth. Firms with good growth opportunities need to raise external funds to expand (Lemma, Negash, & Mlilo, 2013), and such firms have incentives to improve earnings quality to benefit from a lower cost of capital (Gaio, 2010) and to present a good picture of their future potential. In the same vein, Shen and Chih (2007) remarked that growth firms, which need external financing, may find it optimal to improve their earnings quality through EM, though they may find it harder to fool the market by manipulating earnings when they come under scrutiny. Sales growth is calculated as the change in sales between the previous year and the current year,

whereas book-to-market value is the ratio of book value to market value of equity.

We also include year, industry and stock exchange dummies to control year, industry and stock exchange effects.

**Table 1: Variables definition**

<b>Variable</b>	<b>Definition</b>	<b>Measure</b>
<b><i>Dependent variables</i></b>		
AEM mjm	Discretionary accruals using Jones modified model (1995)	Absolute value of residuals estimated using Jones modified model
AEMkotha	Discretionary accruals using Kothari et al. (2005)	Absolute value of residuals estimated using Kothari et al.(2005)
REMDIS	The abnormal discretionary expenses	Absolute value of residuals from Gunny (2010) model
REMPROD	The abnormal production cost	Absolute value of residuals from Gunny (2010) model
REMCFO	The abnormal cash flow from operations	Absolute value of residuals from Gunny (2010) model
<b><i>Independent variables</i></b>		
Sown	The percentage of shares owned by State	Number of shares owned by State divided by total shares
Fown	The percentage of shares owned by foreign investors	Number of shares owned by foreign investors divided by total shares
<b><i>Control variables</i></b>		
Dbdipen	Board independence	The proportion of non-executive members in board of directors (independent directors/total directors)
CEO_D	CEO duality	Dummy variable coded 1 if CEO is chairman of the board, otherwise 0
AUDIT	Audit by big four auditor	Dummy variable that equals 1 if the firm is audited by a Big4, otherwise 0.
Firmsize	Firm size	Natural logarithm of the total assets
Finlever	Finaeverage	Total liabilities divided by total assets
ROA	Return on assets	Net income in year t divided by total assets in year end t-1
SalesG	Sale growth	Change in sales from year t-1 to year t
B/MRatio	Book-to-market value	Ratio of book value to market value of equity.

In this paper, we have two independent variables (State ownership, foreign ownership). One important thing is that the control variables are lagged one year relative to the dependent variable, except for dummy variables that are less affected by time series, such as CEO\_D. This lag is employed to show the effect of changes on the governance structure on earnings management.

#### 2.4.4 Research model

The paper employs (Petersen, 2009)'s techniques to analyze the ownership structure and EM. According to Petersen, standard errors in panel data studies are often miscalculated. Thus, he offers ways to correct such miscalculations by various estimation techniques. In finance applications, firm effect, according to which the residuals of a given firm may be correlated across years, and time effect, according to which the residuals of a given year may be correlated across firms, are general forms of dependence. In this study, the data contain a strong significant firm effect. In fact, possible biases or underestimation of the true variability of the coefficient estimates in standard errors may occur in OLS if the residuals are correlated across observations. Thus, we use a wide variety of techniques to estimate standard errors. First, a potential problem with the pooled regressions is the possibility of within-firm autocorrelations, which would bias the standard errors. To control for this bias, we use the robust standard errors methodology, as it produces unbiased standard errors and correct confidence intervals (Petersen, 2009). Second, standard errors clustered by firm are used because they are unbiased and produce correct sized confidence intervals, as illustrated by Petersen (2009). Moreover, year and industry fixed effects are considered in the model to control the industry and year impact on this relationship.

Two equations to test the impact of State and foreign ownership (Sown/Fown) on earnings management are as follows:

$$\begin{aligned} AEM_{i,t} = & \alpha + \beta_1 Sown_{i,t-1}/Fown_{i,t-1} + \beta_2 dbdipen_{i,t-1} + \beta_3 CEO\_D_{i,t} + \beta_4 AUDIT_{i,t-1} + \beta_5 ROA_{i,t-1} \\ & + \beta_6 BMRatio_{i,t-1} + \beta_7 firmsize_{i,t-1} + \beta_8 Finlever_{i,t-1} + \beta_9 SaleG_{i,t-1} + \varepsilon_t \quad (1) \end{aligned}$$

$$\begin{aligned} REM = & \alpha + \beta_1 Sown_{i,t-1}/Fown_{i,t-1} + \beta_2 dbdipen_{i,t-1} + \beta_3 CEO\_D_{i,t} + \beta_4 AUDIT_{i,t-1} + \beta_5 ROA_{i,t-1} \\ & + \beta_6 BMRatio_{i,t-1} + \beta_7 firmsize_{i,t-1} + \beta_8 Finlever_{i,t-1} + \beta_9 SaleG_{i,t-1} + \varepsilon_t \quad (2) \end{aligned}$$

All hypotheses were tested using OLS regression estimators for all Vietnamese listed firms in two stock exchanges (HSX and HNX) from 2008 to 2017.

## 2.5 Empirical results

### 2.5.1 Descriptive statistics

Panels A, B of table 2 present the State and foreign ownership by industry over 2008 to 2017. The highest State ownership is for utilities (43.9%) whereas foreign ownership is the highest in Oil and Gas industry (16%). While technology sector is not as attractive as others

for the State with an ownership of 14.2%, basic materials is the sector with the lowest foreign investors level (5.5%).

In panel C of table 2, the average Sown is within a range from 21.4% to 29.1%, whereas, the average Fown is from 4.8% to 10.8% over the period 2008-2017. We can see that Sown still plays an important role in Vietnamese listed firms, though it is slightly decreasing during the period.

**Table 2: Descriptive statistics for State and Foreign Ownership**

***Panel A: The level of State Ownership by industry***

	State Ownership by Industry				
	Num.Obs	Mean	Std.Dev	Min	Max
Basic materials	776	0.221	0.277	0	1
Consumer goods	765	0.177	0.212	0	0.69
Consumer Services	432	0.308	0.198	0	0.84
Financials (no bank)	752	0.154	0.257	0	1
Health Care	180	0.183	0.158	0	0.51
Industrials	2,332	0.273	0.248	0	1
Technology	217	0.142	0.194	0	0.51
Oils & gas	45	0.403	0.217	0	0.77
Utilities	280	0.439	0.233	0	1

***Panel B: The level of Foreign Ownership by industry***

	Foreign Ownership by Industry				
	Num.Obser	Mean	Std.Dev	Min	Max
Basic materials	776	0.055	0.085	0	0.46
Consumer goods	765	0.116	0.143	0	0.65
Consumer Services	432	0.069	0.123	0	0.49
Financials (no bank)	752	0.095	0.132	0	0.51
Health Care	180	0.153	0.187	0	0.63
Industrials	2,332	0.064	0.113	0	0.59
Technology	217	0.122	0.156	0	0.49
Oils & gas	45	0.160	0.125	0	0.40
Utilities	280	0.079	0.123	0	0.49

**Panel C: State and Foreign ownership by Year**

	Number of Observations	State Ownership	Foreign Ownership
		Mean	Mean
2008	552	0.291	0.048
2009	570	0.263	0.048
2010	580	0.234	0.061
2011	585	0.224	0.066
2012	594	0.246	0.075
2013	599	0.247	0.087
2014	599	0.241	0.099
2015	570	0.236	0.103
2016	570	0.223	0.108
2017	560	0.214	0.108

**Table 3: Descriptive Statistics for the full sample**

	Obs	Mean	Std.Dev.	Min	Max
AEMmjm	5375	.116	.128	0	.92
AEMkotha	5346	.112	.126	0	.86
REMPROD	5252	.136	.143	0	3.05
REMCFO	5346	.122	.129	0	.79
REMDIS	4838	.068	.065	0	.42
Sown	5143	.239	.247	0	1
Fown	5143	.085	.128	0	.65
dbdipen	4472	.676	.266	0	1
CEO_D	4514	.321	.467	0	1
AUDIT	4532	.22	.414	0	1
ROA	5431	.059	.088	-1.779	.78
BMRatio	4460	-14.621	10.414	-43.113	7.19
firmsize	5431	26.972	1.475	21.37	33
Finlever	5431	.498	.224	.002	.97
SaleG	5431	.984	29.199	-1	2038.04

**Table 4a: Correlation matrix- Accruals based earnings management**

	AEMmjm	AEMkotha	Sown	Fown	dbdipen	CEO_D	AUDIT	ROA	BMRatio	firmsize	Finlever	SaleG
AEMmjm	1											
AEMkotha	0.966***	1										
Sown	-0.106***	-0.119***	1									
Fown	-0.058***	-0.064***	-0.149***	1								
dbdipen	0.008	0.001	-0.082***	-0.02	1							
CEO_D	0.050*	0.055*	-0.194***	-0.004	0.183***	1						
AUDIT	-0.093***	-0.095***	0.019	0.325***	-0.190***	-0.107***	1					
ROA	-0.068***	-0.067***	0.125***	0.178***	0.041**	-0.012	0.018	1				
BMRatio	0.024	0.025	-0.081***	-0.013	-0.012	-0.077***	-0.033	-0.096***	1			
firmsize	-0.055*	-0.037**	-0.040**	0.315***	-0.341***	-0.077***	0.468***	-0.041**	-0.038**	1		
Finlever	0.006	0.024	0.080***	-0.223***	-0.223***	-0.031	0.038**	-0.339***	-0.009	0.320***	1	
SaleG	0.03	0.025	-0.022	-0.011	-0.045*	-0.014	-0.009	-0.062***	0.027	-0.002	0.011	1

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

**Table 4b: Correlation matrix-Real activities manipulation activities**

	REMPRO D	REMCFO	REMDIS	Sown	Fown	dbdipen	CEO_D	AUDIT	ROA	BMRatio	firmsize	Finlever	SaleG
REMPRO D	1												
REMCFO	0.221***	1											
REMDIS	0.314***	0.014	1										
Sown	0.001	-0.037**	0.058*	1									
Fown	0.110***	-0.029	0.187***	-0.138***	1								
dbdipen	0.067***	0.013	0.063***	-0.085***	-0.000	1							
CEO_D	0.013	0.043**	-0.033	-0.206***	-0.007	0.201***	1						
AUDIT	0.023	-0.078***	0.041**	0.009	0.334***	-0.172***	0.091***	1					
ROA	0.189***	0.205***	0.175***	0.143***	0.160***	0.063***	-0.022	0.004	1				
BMRatio	-0.008	0.007	0.01	-0.066***	0.000	-0.010	-0.067***	-0.021	-0.078***	1			
firmsize	-0.093***	-0.046**	-0.126***	-0.044**	0.334***	-0.329***	0.068***	0.448***	-0.054*	-0.015	1		
Finlever	-0.054*	-0.053*	-0.150***	0.066***	-0.206***	-0.222***	-0.021	0.022	-0.364***	-0.023	0.314***	1	
SaleG	0.017	-0.01	-0.002	-0.024	-0.011	-0.045**	-0.015	-0.008	-0.070***	0.028	-0.003	0.009	1

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

The sample consists of an unbalanced panel over the period 2008-2017, of stocks listed on the HSX or the HNX. The financial data are from Stoxplus. Table 3 reports descriptive statistics to give a broad picture regarding accrual based earnings management and real activities manipulation. The mean value of AEMmjm, AEMkotha, REMPROD, REMCFO and REMDIS are .116, .112, .136, .122 and .068, respectively. The level of Sown has a mean value of 23.9%, whereas Fown average is 8.5%.

Tables 4a and 4b present the correlation matrix for the measure of AEM (AEMmjm and AEMkotha) and REM (REMCFO, REMPROD, REMDIS), Sown, Fown and control variables. The correlation coefficients between State, foreign ownership and AEMmjm, AEMkotha are all highly significantly negative. They support the hypothesis that firms with higher State and foreign ownership curb AEM.

While the coefficient between Sown and REMCFO is significantly negative, it is significantly positive with REMDIS. In terms of Fown, the correlations with REMPROD and REMDIS are significantly positive. Firms with more foreign owners engage more in both REMPROD and REMDIS.

There are statistically significant correlations between the dependent variables (AEM/REM) and control variables. AEM is also significantly positively correlated with the CEO\_D and negatively correlated with Audit, ROA and firmsize. In terms of real earnings management, REMCFO, REMPROD and REMDIS are significantly negatively correlated with firm size and Finlever variables whereas, with ROA, they are significantly positively correlated. Furthermore, REMCFO is statistically significantly positively correlated with CEO\_D, this variable being insignificantly related to REMPROD and REMDIS. We notice that lower size firms cannot afford the big4 auditors, exhibits a higher ROA and higher BMRatio and are more engaged in AEM.

There is no excessively high problem of multicollinearity between the independent variables because most of the correlation coefficients magnitudes are below 0.8 (Gujarati, 2009).

## **2.5.2 Empirical results and analysis of the impact of state ownership on both accrual based earning management and real activities manipulation.**

### *2.5.2.1 Regression results*

In this section, the paper presents regression analyses with both AEM and various REM

measures and the percentage of SO to examine the relationships among the key variables. The paper controls for industry and year. Tables 5a (columns 1 and 2) and 5b show the results of the regression analyses.

**Table 5a: State ownership and Accrual based earnings management**

VARIABLES	(1) AEMmjm	(2) AEMkotha	(3) AEMmjm	(4) AEMmjm
Sown	-0.0368*** (0.00979)	-0.0371*** (0.00975)	-0.0361*** (0.00979)	-0.0254*** (0.00875)
dbdipen	-0.0172* (0.00896)	-0.0174** (0.00863)	-0.0178** (0.00900)	-0.0164** (0.00777)
CEO_D	-0.00147 (0.00510)	-0.000803 (0.00497)	-0.00142 (0.00511)	-0.000659 (0.00461)
AUDIT	-0.00870 (0.00551)	-0.0114** (0.00533)	-0.00834 (0.00555)	-0.00508 (0.00449)
ROA	-0.00778 (0.0298)	-0.0211 (0.0288)	-0.00836 (0.0298)	0.00779 (0.0290)
BMRatio	-0.000112 (0.000604)	0.000167 (0.000598)	-6.08e-05 (0.000602)	-0.000207 (0.000557)
firmsize	-0.0114*** (0.00202)	-0.00970*** (0.00200)	-0.0124*** (0.00235)	-0.0105*** (0.00177)
Finlever	0.00196 (0.0156)	0.00420 (0.0154)	0.00459 (0.0162)	0.00113 (0.0140)
SaleG	0.00190*** (0.000468)	0.00185*** (0.000423)	0.00190*** (0.000469)	0.00190*** (0.000477)
_Iexchange_2			0.00486 (0.00602)	
AEMmjm_1				0.153*** (0.0281)
AEMmjm_2				0.102*** (0.0261)
Constant	0.417*** (0.0619)	0.390*** (0.0560)	0.439*** (0.0674)	0.363*** (0.0484)
Year effects	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes
Observations	2,967	2,947	2,967	2,756
R-squared	0.072	0.074	0.072	0.110

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Where: Column 1: Represent the results of the regression for AEM measured by Jones modified model as a dependent variable. Column 2: Represent the results of the regression for AEM measured by Kothari model as a dependent variable. Column 3: Robustness test for listing place with AEMmjm and stock exchange fixed effect (Iexchange\_2). Column 4: Robustness test with lag in AEMmjm model with lag length two periods (two years). AEMmjm\_1 is AEMmjm with a lag of one period, AEMmjm\_2 is AEMmjm with a lag of two periods.

**Table 5b: State ownership and Real Activities Manipulation**

VARIABLES	(1) REMPROD	(2) REMCFO	(3) REMDIS
Sown	-0.0176 (0.0151)	-0.0181* (0.00988)	0.0147 (0.0104)
dbdipen	-0.00183 (0.0125)	-0.0200** (0.00818)	-0.00199 (0.00816)
CEO_D	-0.00106 (0.00749)	0.00411 (0.00544)	-0.00641 (0.00477)
AUDIT	0.0213** (0.00834)	-0.00704 (0.00516)	0.0116 (0.00720)
ROA	0.315*** (0.0551)	0.191*** (0.0458)	0.125*** (0.0318)
BMRatio	-0.00144* (0.000873)	-0.000713 (0.000644)	-0.00360*** (0.00130)
firmsize	-0.0188*** (0.00303)	-0.0111*** (0.00202)	-0.0108*** (0.00277)
Finlever	0.0623*** (0.0160)	0.00243 (0.0149)	0.00482 (0.0133)
SaleG	0.00418*** (0.000983)	0.00118** (0.000459)	4.53e-05 (0.000143)
Constant	0.591*** (0.0811)	0.407*** (0.0559)	0.416*** (0.0753)
Year effects	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes
Observations	2,969	2,947	2,648
R-squared	0.149	0.078	0.172

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

where: column 1: Represent the results of the regression for REMPROD as a dependent variable

column 2: Represent the results of the regression for REMCFO as a dependent variable.

column 3: Represent the results of the regression for REMDIS as a dependent variable.

The coefficient of State ownership (Sown) has a highly significant negative value of  $\beta = -0.0368$  ( $p < 0.01$ ) in terms of AEMmjm, whereas it is significantly negative only at a 10% level with REMCFO. It means that firms with a high Sown engage in less accruals based earnings management (AEMmjm) and abnormal cash flows from operations (REMCFO). Thus, hypothesis 1 (more Sown mitigates earnings management) is confirmed in terms of AEM and REMCFO. This analysis may reflect the nature of business in a country like Vietnam where the shares of most firms are owned by the government. If the government owns shares of most firms listed on the stock exchanges, these firms will have little incentive to manipulate earnings because the main objective is to meet the requirements set by the government rather than the stakeholders' needs (L. Wang & Yung, 2011).

Among control variables, the coefficient of firm size is negative and significant whereas the coefficient of SaleG is significantly positive in terms of AEM and REM (except REMDIS). It means that the larger firms maintain a well-developed governance framework in order to control internal system effectively leading to reduced earnings management (Beasley et al., 2000). The sign of SaleG is in line with the study of (Shen & Chih, 2007) which mentions that growth firms engage in earnings management in order to blow their statement to attract external funding. In addition, the coefficient of big4 auditor is not always significant but tends to be negative in the regressions with AEM and positive in the regressions with REM. Big 4 auditors have a deep expertise and experience leading to a reduction in AEM but they are not expert enough in client's operations and technology to mitigate REM. The enforced GAAP framework is one of the main reference document of auditors, and it is not a guide concerning real operations of the firm (Roychowdhury, 2006). In addition, lower size firms cannot afford Big4 auditors to detect earnings management related to REMPROD. BMRatio is used as a proxy for firm growth, where lower BMRatio features higher firm growth (Fama & French, 1992), which, in turns higher EM. The coefficient of BMRatio is significantly negatively related to REMPROD and REMDIS as expected.

#### 2.5.2.2 Robustness check

Some additional tests have been conducted to examine the robustness of the empirical findings.

First, the paper estimates the models with other measures of the dependent variables for AEM, the alternative model as (McNichols & Stubben, 2018) mentioned is the Kothari model, the results being in column 2 on table 5a. The significant results are identical. We also attempt to examine whether the empirical findings are induced by stock exchange effects. Because of the difference in size of the two stock exchanges in Vietnam, the requirements for listing a firm on HSX are generally different from those on HNX in terms of profitability, shareholders etc. Thus, we try to ensure that the empirical results are not coming from stock exchange related factors. To do this, the stock exchange is added as a fixed effect in the robustness check and the model is re-estimated. We also use lagged dependent variables (AEM, REMPROD, REMCFO, REMDIS). One important thing, adding lags of dependent variables to the right-hand side of regression is usually sensitive to the degree of autocorrelation in the errors. Thus, we also use lag length (two periods) to eliminate autocorrelation in the residuals.

For AEM, the results do not exhibit high differences with the previous regression results as can be seen in column 3 and 4 on table 5a (robustness tests for AEM, measured by Modified Jones Model).

Concerning REM, as shown on table 6a, there is no significant stock exchange effects. But results are sensitive to the lag effect, as shown on Table 6b: the variable Sown is no longer significant when REM is measured by REMCFO but becomes significant (at the same level of 10%), and still negative, when REM is measured by REMPROD. It has to be mentioned that the explanatory power of the model is rather high: the mean adjusted R<sup>2</sup> is 31% for the REMPROD model, 13% for the REMCFO model, and 76.3% for the REMDIS model. The coefficients of all the lagged variables are positive and significant, indicating a firm uses real manipulation over several successive years.

**Table 6a: State ownership and Real activities manipulation-Robustness check  
(for stock-exchange fixed effect)**

VARIABLES	(1) REMPROD	(2) REMCFO	(3) REMDIS
Sown	-0.0165 (0.0150)	-0.0171* (0.00982)	0.0141 (0.0103)
dbdipen	-0.00261 (0.0127)	-0.0207** (0.00820)	-0.00158 (0.00800)
CEO_D	-0.00101 (0.00750)	0.00417 (0.00544)	-0.00637 (0.00478)
AUDIT	0.0218*** (0.00832)	-0.00655 (0.00519)	0.0113 (0.00721)
ROA	0.315*** (0.0551)	0.190*** (0.0457)	0.125*** (0.0318)
BMRatio	-0.00137 (0.000878)	-0.000643 (0.000648)	-0.00370*** (0.00129)
firmsize	-0.0201*** (0.00336)	-0.0124*** (0.00232)	-0.0100*** (0.00296)
Finlever	0.0661*** (0.0172)	0.00603 (0.0153)	0.00275 (0.0142)
SaleG	0.00418*** (0.000981)	0.00119*** (0.000457)	4.38e-05 (0.000145)
_Iexchange_2	0.00695 (0.00908)	0.00665 (0.00586)	-0.00395 (0.00676)
Constant	0.623*** (0.0878)	0.438*** (0.0621)	0.398*** (0.0789)
Year effects	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes
Observations	2,969	2,947	2,648
R-squared	0.149	0.079	0.172

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

where: column 1: Represent the results of the regression for REMPROD as a dependent variable

column 2: Represent the results of the regression for REMCFO as a dependent variable.

column 3: Represent the results of the regression for REMDIS as a dependent variable.

-Iexchange\_2: Stock exchange fixed effects

**Table 6b: State ownership and Real activities manipulation-Robustness check  
(for lagging effect)**

VARIABLES	(1) REMPROD	(2) REMCFO	(3) REMDIS
Sown	-0.0156* (0.00938)	-0.00787 (0.00852)	0.00223 (0.00307)
dbdipen	-0.00587 (0.00845)	-0.0186*** (0.00700)	-0.00176 (0.00302)
CEO_D	0.00169 (0.00474)	0.00455 (0.00469)	0.000237 (0.00149)
AUDIT	0.0131** (0.00517)	-0.00214 (0.00424)	0.00112 (0.00186)
ROA	0.162*** (0.0332)	0.129*** (0.0400)	0.0220* (0.0128)
BMRatio	-0.00124** (0.000520)	-0.000486 (0.000536)	-0.000867** (0.000401)
firmsize	-0.0124*** (0.00220)	-0.00943*** (0.00176)	-0.00220*** (0.000709)
Finlever	0.0382*** (0.0119)	-0.00627 (0.0130)	0.00363 (0.00390)
SaleG	0.00415*** (0.000950)	0.00120** (0.000520)	-0.000121 (7.57e-05)
REMPROD_1	0.362*** (0.0321)		
REMPROD_2	0.131*** (0.0297)		
REMCFO_1		0.184*** (0.0315)	
REMCFO_2		0.110*** (0.0231)	
REMDIS_1			0.715*** (0.0337)
REMDIS_2			0.183*** (0.0302)
Constant	0.330*** (0.0547)	0.330*** (0.0505)	0.0340 (0.0306)
Year effects	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes
Observations	2,765	2,736	2,490
R-squared	0.310	0.130	0.763

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Where: Robustness test with lag length two periods (two years)

Column 1: Lagging effect of REMPROD with REMPROD\_1 is lagged in one period and REMCFO\_2 is lagged in two periods

Column 2: Lagging effect of REMCFO with REMCFO\_1 is lagged in one period, REMCFO\_2 is lagged in two periods.

Column 3: Lagging effect of REMDIS with REMDIS\_1 is lagged in one period, REMDIS\_2 is lagged in two periods.

### **2.5.3 Empirical results and analysis of the impact of foreign ownership on both accrual based earning management and real activities manipulation**

#### *2.5.3.1 Regression*

Column 1 in table 7a and table 7b reports the regression results. While the coefficient of Fown is not significant with AEM using modified Jones model, it is significantly positive with abnormal production costs (REMPROD, at 5%) and abnormal discretionary expenses (REMDIS, at 1%). Thus, the results in column 1, 3 on table 7b give evidence that an increase of 1% in Fown leads to an increase in both REMPROD and REMDIS of 6.46% and 10.3%, respectively.

These results suggest that firms with a high proportion of foreign owners doesn't manipulate their earnings through accruals but engage in more manipulation of real activities regarding both overproduction cost and discretionary expenses. Overall, the results do not provide support to hypothesis 2 (more foreign ownership mitigates earnings management) in terms of AEM and REM.

**Table 7a: Foreign ownership and Accruals based earnings management (main results and robustness tests)**

VARIABLES	(1) AEMmjm	(2) AEMkotha	(3) AEMkotha	(4) AEMkotha
Fown	-0.0261 (0.0201)	-0.0307 (0.0198)	-0.0279* (0.0163)	-0.0298* (0.0165)
dbdipen	-0.0150* (0.00910)	-0.0151* (0.00878)	-0.0141* (0.00748)	0.170*** (0.0268)
CEO_D	0.00202 (0.00504)	0.00275 (0.004870)	0.00356 (0.00425)	0.100*** (0.0247)
AUDIT	-0.00754 (0.00548)	-0.00996* (0.00534)	-0.00518 (0.00435)	-0.0149** (0.00750)
ROA	-0.0196 (0.0295)	-0.0322 (0.00534)	-0.00822 (0.0284)	0.00351 (0.00427)
BMRatio	-2.69e-06 (0.000610)	0.00027 (0.0006)	9.14e-05 (0.000523)	-0.00446 (0.00436)
firmsize	-0.0101*** (0.00218)	-0.00823*** (0.00216)	-0.00765*** (0.00185)	-0.00848 (0.0285)
Finlever	-0.00851 (0.0171)	-0.0071 (0.01666)	-0.00803 (0.0147)	0.000169 (0.000518)
SaleG	0.00193*** (0.000460)	0.00189*** (0.000415)	0.00189*** (0.000455)	-0.00915*** (0.00209)
AEMkotha_1			0.170*** (0.0268)	0.170*** (0.0268)
AEMkotha_2			0.0992*** (0.0247)	0.100*** (0.0247)
_lexchange_2				0.00793 (0.00488)
Constant	0.382*** (0.0641)	0.354*** (0.0584)	0.301*** (0.0514)	0.337*** (0.0557)
Year effects	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes
Observations	2,967	2,947	2,736	2,736
R-squared	0.067	0.069	0.112	0.112

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Where: Column 1: Represent the results of the regression for AEM measured by Jones modified model as a dependent variable

Column 2: Robustness test for AEM measured by Kothari model as a dependent variable

Column 3: Robustness test for AEMkotha model with lag length two periods (two years). AEMkotha\_1 is AEMkotha with a lag of one year, AEMkotha\_2 is AEMkotha with a lag of two years

Column 4: Robustness test for Kothari model with lag length two periods (two years) and stock exchange fixed effect HSX and HNX (Iexchange\_2)

**Table 7b: Foreign ownership and Real activities manipulation**

VARIABLES	(1) REMPROD	(2) REMCFO	(3) REMDIS
Fown	0.0646** (0.0313)	-0.0215 (0.0205)	0.103*** (0.0252)
dbdipen	-0.00251 (0.0124)	-0.0187** (0.00817)	-0.00610 (0.00805)
CEO_D	-8.15e-05 (0.00747)	0.00590 (0.00532)	-0.00850* (0.00471)
AUDIT	0.0179** (0.00816)	-0.00602 (0.00511)	0.00625 (0.00743)
ROA	0.297*** (0.0540)	0.187*** (0.0460)	0.118*** (0.0304)
BMRatio	-0.00128 (0.000880)	-0.000671 (0.000653)	-0.00310** (0.00128)
firmsize	-0.0206*** (0.00316)	-0.0101*** (0.00213)	-0.0141*** (0.00287)
Finlever	0.0702*** (0.0166)	-0.00418 (0.0159)	0.0228* (0.0133)
SaleG	0.00423*** (0.000954)	0.00120*** (0.000455)	6.63e-05 (0.000123)
Constant	0.622*** (0.0831)	0.386*** (0.0573)	0.487*** (0.0765)
Year effects	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes
Observations	2,969	2,947	2,648
R-squared	0.151	0.077	0.194

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

where: column 1: Represent the results of the regression for REMPROD as a dependent variable

column 2: Represent the results of the regression for REMCFO as a dependent variable.

column 3: Represent the results of the regression for REMDIS as a dependent variable.

Consistent with prior literature, firm size is significantly negatively associated in all AEM and REM regressions, suggesting that larger firms have better internal control systems, leading to lower earnings management. Besides, the coefficient between sale growth and both AEM, REM (except REMDIS) is positively significant. It means that firms with strong growth rates engage in higher EM, which is consistent with prior literature.

#### *2.5.3.2 Robustness check*

Additional tests have been widely used to examine the robustness of the empirical findings.

The paper applies three methods like in the section 5.2.2.

For AEM, the results exhibit high differences with the previous regression results as can be seen in column 3 and 4 on table 7a (robustness tests for AEM, measured by Kothari Model). The results are sensitive to the lag effect and stock exchange effects.

Concerning REM, as shown one 8a, there is no significant stock exchange effects. Nevertheless the results are changed to the lag effect, as shown on Table 8b: the coefficient between Fown and REM is still significant (at the same level of 1%), and also positive, when REM is measured by REMDIS.

**Table 8a: Foreign ownership and Real activities manipulation-Robustness check (for stock-exchange place effect)**

VARIABLES	(1) REMPROD	(2) REMCFO	(3) REMDIS
Fown	0.0631** (0.0312)	-0.0234 (0.0207)	0.105*** (0.0254)
dbdipen	-0.00327 (0.0126)	-0.0196** (0.00819)	-0.00546 (0.00789)
CEO_D	-0.000111 (0.00747)	0.00588 (0.00534)	-0.00837* (0.00471)
AUDIT	0.0185** (0.00813)	-0.00534 (0.00515)	0.00575 (0.00747)
ROA	0.297*** (0.0539)	0.187*** (0.0459)	0.118*** (0.0303)
BMRatio	-0.00122 (0.000883)	-0.000595 (0.000657)	-0.00324** (0.00127)
firmsize	-0.0218*** (0.00349)	-0.0116*** (0.00240)	-0.0130*** (0.00304)
Finlever	0.0737*** (0.0177)	-6.61e-05 (0.0161)	0.0196 (0.0141)
SaleG	0.00423*** (0.000953)	0.00120*** (0.000454)	6.56e-05 (0.000125)
_Iexchange_2	0.00666 (0.00906)	0.00781 (0.00589)	-0.00622 (0.00674)
Constant	0.653*** (0.0898)	0.421*** (0.0631)	0.461*** (0.0796)
Year effects	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes
Observations	2,969	2,947	2,648
R-squared	0.151	0.078	0.195

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

where: column 1: Represent the results of the regression for REMPROD as a dependent variable

column 2: Represent the results of the regression for REMCFO as a dependent variable.

column 3: Represent the results of the regression for REMDIS as a dependent variable.

-Iexchange\_2: Stock exchange fixed effects

**Table 8b: Foreign ownership and Real activities manipulation-Robustness check**

**(for lagging effect)**

VARIABLES	(1) REMPROD	(2) REMCFO	(3) REMDIS
Fown	0.0221 (0.0198)	-0.0191 (0.0170)	0.0254*** (0.00707)
dbdipen	-0.00559 (0.00842)	-0.0179** (0.00692)	-0.00261 (0.00304)
CEO_D	0.00292 (0.00470)	0.00547 (0.00455)	-0.000264 (0.00144)
AUDIT	0.0119** (0.00509)	-0.00114 (0.00430)	-0.000178 (0.00188)
ROA	0.152*** (0.0328)	0.128*** (0.0398)	0.0207 (0.0129)
BMRatio	-0.00114** (0.000518)	-0.000482 (0.000539)	-0.000755* (0.000402)
firmsize	-0.0129*** (0.00227)	-0.00873*** (0.00182)	-0.00304*** (0.000758)
Finlever	0.0395*** (0.0122)	-0.0108 (0.0137)	0.00783** (0.00392)
SaleG	0.00418*** (0.000935)	0.00120** (0.000520)	-0.000113 (7.10e-05)
REMPROD_1	0.361*** (0.0320)		
REMPROD_2	0.131*** (0.0297)		
REMCFO_1		0.185*** (0.0313)	
REMCFO_2		0.111*** (0.0232)	
REMDIS_1			0.710*** (0.0332)
REMDIS_2			0.181*** (0.0298)
Constant	0.339*** (0.0558)	0.315*** (0.0510)	0.0540* (0.0317)
Year effects	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes
Observations	2,765	2,736	2,490
R-squared	0.309	0.130	0.765

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Where: Robustness test with lag length two periods (two years)

Column 1: Lagging effect of REMPROD with REMPROD\_1 is lagged in one period and REMCFO\_2 is lagged in two periods

Column 2: Lagging effect of REMCFO with REMCFO\_1 is lagged in one period, REMCFO\_2 is lagged in two periods.

Column 3: Lagging effect of REMDIS with REMDIS\_1 is lagged in one period, REMDIS\_2 is lagged in two periods.

For robustness tests for AEM we only use the Kothari model after we run several regressions with AEMmjm and AEMkotha. However, the results show that Fown and AEMkotha exhibit a negative and significant coefficient at the 10% level only when adding AEM lags as reported in column 3 on table 7a show. It means that a 1 percent increase in Fown decreases by nearly 3% AEM. Furthermore, the same result is observed when the dummy variable related to the stock exchange is added. The result is presented in column 4 on table 7a. Hence, the hypothesis 2 (more foreign ownership is likely to mitigate earnings management) is confirmed in terms of AEM, but only when using the combined model. One explanation can be that foreign investors with deep knowledge and experience in finance and accounting enhance monitoring and consideration to financial reports and so limit accrual earnings management (J. Guo et al., 2015).

In the same way, the introduction of a lag structure of dependent variables and of a dummy variable for market place is made for REM, as presented in table 8b. The introduction of a lag structure doesn't question the positive influence of Fown on REMDIS, which remains highly significant. But it makes the influence of REMPROD insignificant. For its part, the listing place has no influence of the relationship.

In all the cases, the coefficients of all the lagged variables are positive and significant, indicating a firm uses manipulations (through accruals or real activities) over several successive years.

## **2.6 Conclusion**

This study examines the association between accrual based earnings management, real activities manipulation and various ownership structures. By using a sample of more than 3,000 firm year observations, the study runs several alternative panel regressions of accrual

based earnings management and real activities manipulation on a set of State and foreign ownership and firm-specific control variables. The results suggest that State and foreign ownerships positively affect the quality of financial reporting by reducing accrual based earnings management particularly. Our findings are totally consistent with the existing previous studies in emerging countries (Ding et al., 2007; T. Hoang et al., 2014; L. Wang & Yung, 2011). In terms of real activities manipulation, while more State ownership tends to reduce the probability that a firm's manager boosts earnings through abnormal cash-flows, a strong presence of foreign investors leads to the opposite effect, with higher manipulations through overproduction and abnormal expenses. So the influence of State ownership on the quality of the accounting numbers is positive, whatever the measure used, which allows us to validate our *Hypothesis 1: More State ownership mitigates earnings management.*

The results concerning foreign ownership are mixed. When the link is significant, it is positive, contrary to our expectation. Thus, we can't conclude on *Hypothesis 2: More foreign ownership mitigates earnings management.* This result is not totally consistent with studies of (J. Guo et al., 2015), who state that more foreign ownership is associated with a lower level of the three types of real earnings management, named abnormal cash flow from operations, abnormal discretionary expenses and abnormal production costs. These results may be explained by the fact that foreign investors have a lower level of control on managerial behavior because of the differences in geography, language and culture (B. B. Choi, Lee, & Park, 2013; Hoang, Abeysekera, & Ma, 2019). Moreover, the 49% maximum of allowed foreign ownership does not enhance enough the power and the access to the firm's operational information related to the firm monitoring. This information asymmetry between domestic and foreign investors may lead to an increase in managerial autonomy, for example by using REM (S. H. Kim et al., 2020). Furthermore, foreign investors often have a short term horizon while REM is a long term politics involving the timing and structuring of the normal business operations, and might affect future cash flows (Zang, 2012). Thus, managers prefer REM than AEM when firms have high foreign ownership. We can make the assumption that there is a substitution effect between AEM and REM, REM being more difficult to control by foreign investors.

We also apply many alternative thresholds effects of State ownership as percentage of Sown higher than percentage of Fown, or percentage of Sown lower than percentage of Fown, or percentage of Sown is divided into three thresholds (1) firms having Sown as blockholders, who hold more than 5 percent, (2) Sown holds more than 20 percent shares, but lower than 50

percent shares and (3) Sown holds more than 50 percent shares. However, these results are insignificant.

The paper brings several contributions. First, it contributes to prior literature as it expands the knowledge on the effect of ownership diversity literature. Second, the paper applies a rigorous methodology based on finance panel data proposed by Petersen (2009). Third, it helps Vietnamese policymakers to manage the capital of government effectively and to increase firms' reporting transparency and accountability to investors. It also helps other emerging nations with weak corporate governance and underdeveloped institutions even if there may be limits to the generalization outside Vietnam. With the expectation of a decrease in State listed firms and an increase in foreign ownership, this paper provides other arguments in emerging countries like Vietnam to consider how this tendency may influence financial reporting transparency.

## 2.7 References

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# **Chapter 3. Board gender diversity and earnings management. An empirical study in the Vietnamese context**

## **Abstract**

Our study investigates the effect of women on boards and women as corporate leaders on both accruals based earnings management and real activities manipulation. The study attempts to find empirical evidence that women on boards and women as corporate leaders have a negative impact on earnings management (EM) in Vietnamese listed firms, as shown in the previous literature. Using data from Vietnamese listed firms over the period 2008–2017, the results show that chairwomen reduce earnings management, whereas the number of women on the board of executives increases EM when measured by accrual based earnings management in the Kothari model. Women on boards measured by the Shannon index increase accrual-based earnings management in the Kothari model and real activities manipulation measured by abnormal overproduction cost. The contribution of this study is important for regulators to encourage gender quotas in Vietnamese listed firms in order to increase the level of shareholder protection.

### 3.1 Introduction

This study examines whether Vietnamese listed firms with gender-diverse boards show lower earnings management, as reported in previous studies. The study has several motivations: (i) The general context is increasing pressure on gender diversity of boards in developed nations because of growing regulations. Several studies have examined the relationships between women on boards and earnings management, but they have been focused on one-tier board systems like those in the UK and South Korea (Arun, Almahrog, & Aribi, 2015; H. A. Kim, Jeong, Kang, & Lee, 2017). So, the monitoring role of board gender diversity in a dual board system such as in Vietnam, on where board system does not belong to one-tier board or two-tier board, is less known. (iii) Vietnam is a newly emerging nation that is transitioning from a planned economy to a market-oriented economy, and Vietnam has low investor protection, a high ownership concentration, and singular governance rules. Thus, women on boards and women as corporate leaders may affect the quality of the monitoring role and the quality of financial report, leading to an improved information environment (Ferdinand A Gul et al., 2011).

This study investigates the relationship between gender diversity in the board room and women as corporate leaders and two types of earnings management (EM) measures: accrual-based earnings management (AEM) and real activities manipulation (REM). In particular, we ask the following question: **do women on boards and female corporate leaders mitigate AEM and/or REM?**

The findings of this study first reveal that chairwomen are less likely to engage in AEM, but that there is a positive association between the presence of women on boards—measured by the Shannon index—and both AEM management measured by the Kothari model and REM measured by abnormal overproduction. Moreover, we also find that a greater number of women on the board of executives induce more AEM in the Kothari model.

The results offer some contributions. First, the study can extend the existing knowledge about EM, as the area of investigation (Vietnam) is very unique and indicates much, too, about developing countries. Second, the findings are important for policymakers in terms of introducing mandatory quotas for women on boards or enforcing legislation and guidance for financial reporting in Vietnam.

This paper is organized as follows. Section 3.1 is an overview of internal governance structure and board gender diversity in Vietnamese listed firms. Section 3.2 presents the

literature review and the hypothesis development related to board gender diversity and EM. Section 3.3 describes the data, the model, and independent variables, and takes a look at the two types of EM measures. The empirical results are presented in Section 3.4 and Section 3.5. Section 3.6 concludes the paper.

## **3.2 Overview of internal governance structure and board gender diversity in Vietnamese listed firm.**

### **3.2.1 Corporate governance structure in Vietnam**

According to the law of enterprise (2014) for Vietnamese listed firms, which took effect beginning 1<sup>st</sup> July 2015, joint stock companies (JSC) may select one of the following models: (a) model 1: a general meeting of shareholders (GMS), a board of directors (BoD), a board of executives (BoE) which is appointed by the BoD, and board of supervisors (BoS), which is elected by the GMS and independent from both the BoD and BoE; or (b) model 2: a GMS, a BoD, and a BoE with the following caveats applicable to the BoD: there must be at least 20% of the members who are independent, to oversee and organize implementation of control over management and operation of the company, or there must be an audit committee under the board. These structural items are outlined below.

Concerning the GMS, it is the highest decision-making body. All major issues affecting the firm are decided by the GMS, such as approving (i) the nominations for the BoD and audit committee membership; (ii) the annual report and financial statements; (iii) the distribution of profits and losses (including the payment of dividends); and (iv) amendments of the statutes (including equity), reorganization and dissolution, and extraordinary transactions.

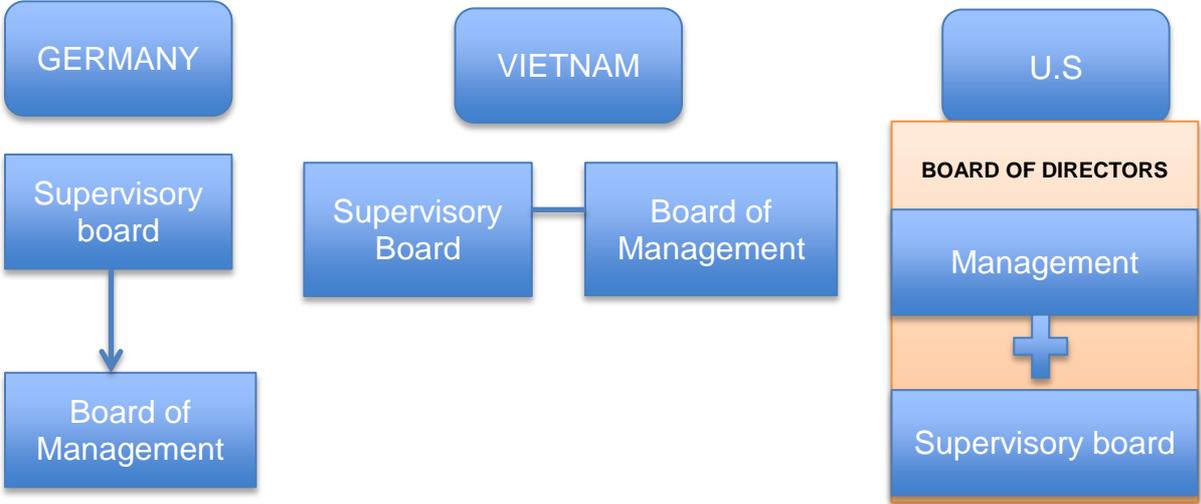
The second body of the corporate governance framework is the BoD, which plays a central role and acts in the interests of the company. The BoD of a listed firm consists of five to eleven members, one third of whom must be independent (i.e., members who do not hold management positions in the listed firm), because to exhibit good corporate governance practices, the BoD must be effective, professional, and independent. The main responsibility of the BoD is guiding and setting a firm's strategy and business priorities, including the annual financial and business plan, as well as guiding and controlling managerial performance. It protects the rights of all shareholders and oversees the work of the CEO, the BoE, and financial control systems.

The CEO, who can be the chairperson if the GMS approves, is responsible for day-to-day management of the firm. The CEO is the legal representative of the firm unless the firm statutes appoint the chairperson of the BoD to this position. The CEO is accountable to the BoD. Legislation, statutes and internal regulations, and the contract signed between the CEO and the firm regulate the authority and election of the CEO, as well as the nature of his or her relations with the other governing bodies.

The BoE is appointed by the BoD and could be selected from the BoD to be in charge of daily operations. The BoE is responsible for the day-to-day management of the firm and carries out the decisions set by the BoD.

Next, the BoS is elected by the shareholders. The control board has from three to five members, who must not hold any position in either the BoD or the BoE or be relatives of any member of those boards. The main duty of the BoS is to oversee and supervise the BoD and BoE in managing and operating the firm (according to the 2014 Vietnamese enterprise law, which has been effective since July 2015).

However, these practices vary among countries, especially regarding the board system. There are countries that have a one-tier board system, like the US, and others that have a two-tier board system, like Germany. In a one-tier board, all the directors (both executive directors and non-executive directors) form one board, called the board of directors. In a two-tier board there is an executive board (all executive directors) and a separate supervisory board (all non-executive directors). Vietnam is not characterized by either a one-tier or a two-tier board system, but the supervisory board is an independent body and there are compulsory internal governance structures in Vietnam. The Figure below will clearly show the distinction.



## **Figure 1: Comparison between board systems**

### **3.2.2 Corporate gender diversity in Vietnam**

Due to Vietnam pursuing a socialist market-oriented economy, the government intervenes strongly and directly in the economy to achieve government goals. Gender diversity is one of the central goals of development strategies. Thus Vietnamese government pushed firms to have more women on boards by promulgating, launching, and supporting policies. As a results, Vietnamese listed firms has achieved key gender equality. The proportion of women as CEO, for example, is more than 7%, and the proportion of women on boards has increased to nearly 14%, which is a higher percentage than in other countries in South Asia, the Middle East, North Africa, and Sub-Saharan Africa (IFRC, 2015).

But although one of an important first step in supporting women promoting in leadership positions is the National Gender Equality Strategy for 2011–2020 (Decision No. 2351/QD-TTg),, no special support to encourage a gender gap. Women are still subordinated to men rather than leaders. Women have the lowest female to male ratio in top management, whereas Vietnamese women have a high presence rate in labour force. In addition, women on boards in Vietnam still face many obstacles such as lack of knowledge, market information, trade promotion, resources, and opportunities to network for business development<sup>16</sup>.

### **3.3 Linkage between gender diversity and earnings management: literature review and hypothesis development**

Given the governance structure of Vietnamese firms, gender diversity may be appreciated at two different levels: as members of the different boards (BoD, BoE, and BoS), which we call in this paper “women on boards”; or in key executive positions (CEO or chair), which we call “women as corporate leaders”. In both cases, the previous literature and related theoretical frameworks provide insights on the linkage between gender diversity and EM.

#### **3.3.1 Women on boards and earnings management**

The impact of gender diversity on the quality of financial information can be considered

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<sup>16</sup> [http://www.mekongbiz.org/wp-content/uploads/2017/04/WBAs-Position-Paper\\_English.pdf](http://www.mekongbiz.org/wp-content/uploads/2017/04/WBAs-Position-Paper_English.pdf)

from two angles, given both its fiduciary and advisory nature (Ben - Amar, Francoeur, Hafsi, & Labelle, 2013; Labelle, Gargouri, & Francoeur, 2010)

### *3.3.1.1 Fiduciary perspective: gender diversity for better protection of shareholders' interests*

From the fiduciary perspective, statutory diversity, which is a measure of heterogeneity in the process of board composition, is crucial for the effective ability of management to defend shareholders' interests (Fama & Jensen, 1983a). The board's monitoring function is a vital element of an organization's governance system. One of the main objectives of the board is to monitor and protect the shareholders' interests (Fama & Jensen, 1983a). Recent studies have provided evidence that statutory diversity plays an active role in ensuring the quality of reported earnings (Arun, Almahrog, & Aribi, 2015; Srinidhi, Gul, & Tsui, 2011). According to the evidence on fiduciary governance, statutory diversity is likely to enhance the board's effectiveness by improving the strategic decision-making process and by enhancing effective monitoring of management, which in turn improves the firm's performance by reducing agency costs (Ben - Amar et al., 2013). So, according to agency theory, firms' performance would be more effective with women appointed to board roles. Boards with women may contribute more value for firms by monitoring management more effectively (Adams & Ferreira, 2009). Therefore, women on boards improve earnings quality as a tangible consequence of a higher level of monitoring by improving the board's oversight function (Srinidhi et al., 2011). In fact, greater board diversity can enhance monitoring, leading to less risky corporate outcomes (Adams, 2016), since many findings have suggested that men tend to take more risks than women (Adams & Ferreira, 2009; James P Byrnes, Miller, & Schafer, 1999; Faccio et al., 2016). And (Neffati, Fred, & Schalck, 2011) studied EM and risk through 222 US firms from 1994 to 2001 and showed that EM is positively correlated with all three types of risk (overall risk, operational risk, and financial risk). As already mentioned, one type of real EM is cutting investments, such as R&D, which has a relation to a firm's future risk profile (Comin & Philippon, 2005). Women are more risk-averse and have lower propensities to engage in EM, especially real activities manipulation. Thus, one may infer that gender diversity on boards leads to less EM in terms of the fiduciary perspective.

### *3.3.1.2 Advisory perspective: gender diversity for a greater value of corporate monitoring*

The advisory perspective is related to demographic diversity and resource provision. Boards of directors play an important in the firm through monitoring management on

behalf of shareholders and providing resources. In fact, boards with deeper knowledge and competencies have stronger critical thinking and are better in giving advice and counselling. By enrichment and as a complement to agency theory, the advisory perspective helps to explain clearly these questions: How and where does firm value come from? Furthermore, effective boards also require demographic diversity such as gender or experience diversity in order to contribute and improve their strategic management decisions. Gender diversity along with individual traits (experience, tenure, qualification) guide and contribute to organizational learning and decision making. Due to different age, tenure, and other characteristics, gender diversity could have a particular impact on outcomes and EM (Adams & Funk, 2012).

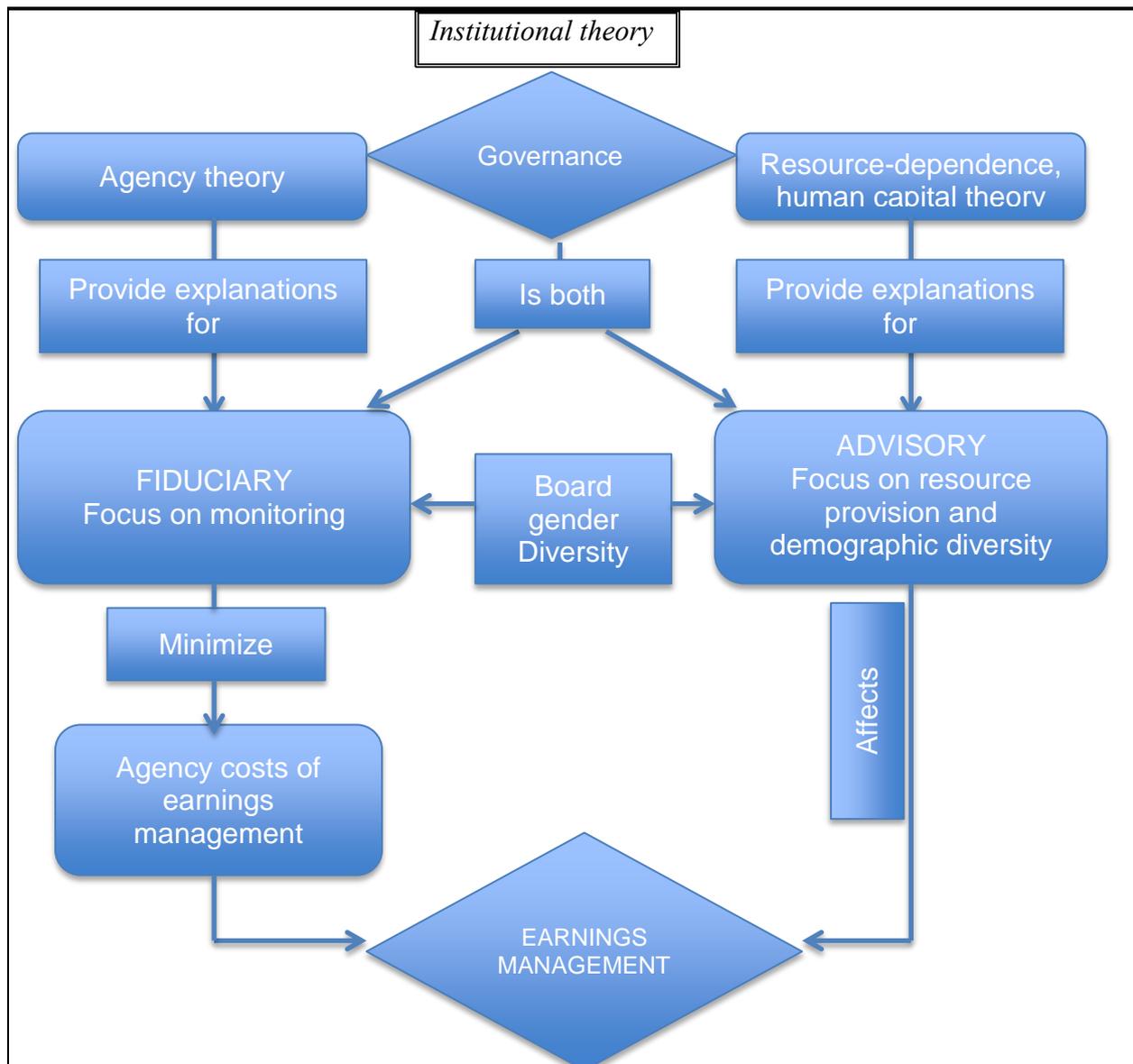
(Gull et al., 2018) were the first scholars who showed that women directors' expertise is a main factor that promotes the effective monitoring of EM by studying a sample of French firms listed during 2001–2010. Furthermore, they found that female directors' business knowledge level in finance or accounting contributes to the effective monitoring of EM. This is because financial expertise can be more intuitively linked to their knowledge and ability, helping female directors to understand how managerial decisions affect accounting numbers and therefore, helping them to detect managerial attempts to manage earnings (Lara, Osma, Mora, & Scapin, 2017).

Tenure is recognized by many studies as one of the factors that affect EM (Ali & Zhang, 2015; Park & Shin, 2004; Xie et al., 2003) Due to longer tenure as managers, male board members would be less effective monitors (Xie et al., 2003). But in terms of tenure, some studies have revealed that female CEOs have significantly shorter board tenure than male CEOs (Abbott, Parker, & Presley, 2012; Bugeja, Matolcsy, & Spiropoulos, 2012; Duong & Evans, 2016). And (Gull et al., 2018) found that women's experience, which they referred to as tenure, as well as multiple directorships and nationality have a positive effect on the magnitude of current discretionary accruals. One possible explanation is that EM can be considered as a virus that spreads from one organization to another through multiple directorships (Chiu, Teoh, & Tian, 2013). With regard to tenure (Xie et al., 2003) also found that the tenure of independent directors and the level of current discretionary accruals are positively associated.

Thus (Abbott et al., 2012), by using US data from 1997 to 2002, suggested that the heterogeneity created by the presence of women on boards has a group dynamic benefit which can be linked to an outcome-based measure of board monitoring efficacy at the

individual level.

Hence, from this perspective, EM may be reduced if women are designated on boards.



**Figure 2: Board gender diversity and earnings management**

Modified from model of (Labelle, Makni Gargouri, & Francoeur, 2010) and (Ben-Amar, Francoeur, Hafsi, & Labelle, 2013)

As a result, gender-diverse boards could lead to more EM detection and added value for firms.

So, the previous literature, according to two different theoretical frameworks, has found that female presence on boards tends to decrease EM. Thus, we propose the following hypothesis:

*Hypothesis 1: Women on boards are likely to curb earnings management.*

To measure the degree of gender diversity, we consider as proxies of board diversity

women on the BoD, women on the BoE, and women on the BoS.

### **3.3.2 Women as corporate leaders and earnings management**

The ability of the board to oversee management largely depends on key monitoring positions. Women may be appointed to different leading positions in a firm, such as the chair or the CEO. The presence of women at such high executive levels may have important implications on EM.

However, the effect of women in each position on EM is different. A chairwoman is the person who has the highest decision-making level in the firm in order to meet organizational goals. A chairwoman influences the firm's monitoring and control rather than running the business to meet shareholder needs. Instead a female CEO is mainly responsible for a firm's strategies and financial statements. Fiduciary governance is also based on the idea that the board's independence from management will improve the overseeing quality of the board, which will indirectly enhance the firm's performance (Fama & Jensen, 1983a). Statutory or fiduciary governance focuses on strongly recommended governance practices, for example, the separation of the CEO and chairperson roles. The board chair, alongside other directors, occupies the highest decision-making level in the organization. He or she has the strongest influence over monitoring and control (i.e., hiring, firing, and remuneration) concerning the CEO's and other executives' tasks. The chairperson is expected to lead the board by capturing the value of the diversity of opinions and maintaining coherence among board members in order to bring everyone around to shared organizational goals (Machold, Huse, Minichilli, & Nordqvist, 2011; McNulty, Pettigrew, Jobome, & Morris, 2011) by using their role and position. For his/her part, the CEO exerts most of his/her influence in the BoE on the firm's strategy such as decisions about financial issues or investment in order to fulfil firm performance well. Nevertheless, he/she runs the business in a way that is relevant to his/her characteristics.

According to precedent studies, some characteristics of boards may have an impact on the quality of financial reports and EM particularly. In this regard, a chairwoman and/or female CEO tends to be highly ethical, less aggressive or more cautious in financial decision making, and more risk-averse in making investments (Ali & Zhang, 2015; Arun, Almahrog, & Aribi, 2015; Duong & Evans, 2016; Gull et al., 2018; H. A. Kim et al., 2017; S. Yu, Lord, Peni, & Vähämaa, 2010).

Nevertheless, previous studies have shown contradictory results about the position of women as corporate leaders in terms of EM. (Gull et al., 2018) found that chairwomen do not mitigate EM through discretionary accruals, whereas (Lakhal et al., 2015) stated that female chairs reduce discretionary EM. In terms of female CEOs, (Gull et al., 2018; H. A. Kim et al., 2017) stated that they are negatively associated with discretionary accruals, whereas (Lakhal et al., 2015; S. Yu et al., 2010) found no relationship between discretionary accruals and female CEOs. But generally speaking, and with regard to their leadership style, the previous literature has suggested that a female chair is more likely to detect earnings manipulation (Lakhal et al., 2015). Therefore, we propose the following hypothesis:

*Hypothesis 2: Women as corporate leaders are likely to mitigate earnings management.*

### **3.4 Variables measurement and research design**

#### **3.4.1 Data and sample selection**

The sampling frame in this study is listed firms in Vietnam. The sample consists of all the Vietnamese firms listed on both the Ho Chi Minh Stock Exchange (HSX) and the Hanoi Stock Exchange (HNX), apart from those in banking and other financial industries. Industry classifications in Vietnam are based on the industry classifications benchmark (ICB), excluding banking firms. Only industries with more than 15 industry years were kept in the sample. Banks and financial institutions were excluded because their financial statements are prepared in a different regulatory environment, and the information reported on those financial statements also follows a different format. Most financial data were collected from StoxPlus (stoxplus.com), which is the main company providing data in Vietnam, and some were directly collected from the websites for HSX (www.hsx.vn) and HNX (www.hnx.vn). Corporate governance data were collected by hand on the financial reports of the firms.

The collecting period was from 2008 to 2017. HOSE began operations in 2000 and HNX in 2005, starting with the negotiation method. Until the end of the year 2005, HNX applied a continuous order matching method in parallel with the negotiation method. However, the number of listed firms in 2006/2007 is quite small and data are not available to collect and test hypotheses correctly. Thus, 2008 is set as the beginning year of the study.

### **3.4.2 Measures for dependent variable: earnings management**

AEM and REM are applied to measure EM. Basically, both AEM and REM may be used by firms to reach financial targets or to avoid earnings decreases/losses. However, the use of AEM may be limited since firms are restricted by the auditors' and regulators' scrutiny in accordance with regulations. As a result, although it is more costly than AEM (Daniel A Cohen et al., 2008b), REM can be chosen by managers trying to meet a firm's targets, because (i) it is not limited by regulations compared to AEM, (ii) it is harder for an outsider to observe (Schipper, 1989), and (iii) it is not judged to be in violation of securities law. A study of (Zang, 2012) suggested that AEM and REM can substitute for each other based on their relative costs, suggesting that if REM is less expensive than AEM, more REM will be applied, and vice versa. In particular, some previous studies have stated that State-owned enterprises are less engaged in AEM because they prefer to use REM (Aharony et al., 2000; Jian & Wong, 2010). This is a reason why we use both AEM and REM in this study. More precisely and following precedent studies, we use their absolute value. Indeed, their absolute values allow to capture the level of earnings management, whether upward or downward: for all of them, thus, the greater the measure and the greater is the earning management<sup>17</sup>.

#### *3.4.2.1 Accrual-based earnings management*

AEM refers to the considerable discretion that managers have to influence reported net income through discretionary accruals. Discretionary accruals are the accruals over which managers can exercise some control. Based on the existing literature, this research uses the magnitude of discretionary (abnormal) accruals to measure EM (Daniel A Cohen et al., 2008b; Dechow et al., 1995; Jones, 1991). The main arguments have been put forward for this measure to apply in the Vietnamese context. The system of accounting of Vietnamese listed firms has been traditionally tax oriented. Thus, Vietnamese authorities have fixed almost all accounting choices that may affect accounting results, such as the depreciation method for fixed assets or the life span used to calculate this depreciation in each specific industry. This has long made it difficult for Vietnamese firms to adjust their earnings via non-cash accruals. But this has changed over the last decade because Vietnamese listed firms have been required since the beginning of 2006 to make provisions for various potential losses (No. 15/2006/QD-BTC). This has brought the Vietnamese accounting language closer to international standards, while also offering Vietnamese firms the opportunity to manage their earnings via more discretionary

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<sup>17</sup> In terms of nominal values, a smaller REMDIS or REMCFO indicates a higher upward REM. For all others, it is a higher measure that indicates a higher REM.

accruals. Therefore, for the 2008–2017 period, using discretionary accruals for EM is relevant because this conservatism principle is applied in Vietnam.

To measure AEM, this study develops two models. First, this is consistent with previous studies according to which the modified Jones model provides the most powerful test in detecting earnings management and it is suitable in emerging markets and Vietnam particularly (B. Lin et al., 2012a; Q. Liu & Lu, 2007; Phuong, 2017). Second, we employ the performance adjusted model of Kothari (Frankel et al., 2002; Kothari et al., 2005). Because the modified Jones model is a simple model of accruals using change in revenues and fixed assets, it cannot be fully descriptive. So, different authors have suggested controlling for various factors to improve the model (McNichols & Stubben, 2018). Kothari et al. (2005) added ROA to mitigate the problematic heteroscedasticity and mis-specified issues that exist in other aggregate accruals models.

So, the AEM is measured as discretionary accrual using a cross-sectional version of the modified Jones model as follows. First, total accruals of a firm are divided into a discretionary part and a non-discretionary part and are defined as the difference between net income before extraordinary items (NI) and cash flow from operating activities (OCF):

$$TA_{i,t} = \text{Net income}_{i,t} - \text{OCF}_{i,t}$$

The next step is to determine the coefficients that are used to estimate the firm-specific normal accruals. This results in a modified Jones model, as shown in Equation (1):

$$\frac{TA_{i,t}}{Assets_{i,t-1}} = \alpha \left( \frac{1}{Assets_{i,t-1}} \right) + \beta_1 \left( \frac{\Delta Sales_{i,t}}{Assets_{i,t-1}} \right) + \beta_2 \left( \frac{PPE_{i,t}}{Assets_{i,t-1}} \right) + \varepsilon_{i,t} \quad (1)$$

The coefficients that are estimated with Equation (1) are used to determine the normal accruals (NA). The following model is used:

$$NA_{i,t} = \alpha \left( \frac{1}{Assets_{i,t-1}} \right) + \beta_1 \left( \frac{\Delta Sales_{i,t} - \Delta AR_{it}}{Assets_{i,t-1}} \right) + \beta_2 \left( \frac{PPE_{i,t}}{Assets_{i,t-1}} \right) \quad (2)$$

where:

- $TA_{i,t}$  is total accruals for firm I at time t
- $NA_{i,t}$  is normal accruals for firm i at time t
- $\Delta AR_{it}$  is the change in accounts receivable from the preceding year,
- $Assets_{i,t-1}$  is total assets for year  $t-1$  and firm  $i$ ,
- $\Delta Sale_{it}$  is the change in sales for firm i from year  $t-1$  to year t
- $PPE_{it}$  is the gross value of property, plant, and equipment in year  $t$ .

-  $\epsilon_{i,t}$  is the residual of firm  $i$  at time  $t$ .

While computing the normal accruals, reported revenues of the sample firms are adjusted from the change in accounts receivable to capture any potential accounting discretion arising from credit sales, which relates to non-discretionary accruals (Cohen et al., 2008).

Following the prior literature (Dechow et al., 1995), discretionary accruals are estimated as the absolute value of the difference between total accruals and normal accruals:

$$|DA_{i,t}| = \left| \left( \frac{TA_{i,t}}{Assets_{i,t-1}} \right) - NA_{i,t} \right| \quad (3)$$

All variables are scaled by prior year total assets to control for heteroscedasticity.

The Kothari model is based on the modified Jones model plus  $ROA_{t-1}$ , which is return on assets at the end of year  $t-1$ .

Following previous studies, we employ the absolute value of discretionary accruals as EM.

#### 3.4.2.2 *Real activities manipulation*

Different models may be applied to measure REM. Previous studies on Chinese firms have stated that REM measured by Roychowdhury (2006) may not be effective in an emerging context (C. A. Cheng et al., 2015). Thus, we use the model developed by (Gunny, 2010), because the estimation incorporates market valuation (Greiner et al., 2017). By including market value, the resulting REM in the Gunny model excludes information that has already been incorporated by the market. We use three different measures for REM<sup>18</sup>.

. Abnormal level of reduction of discretionary expenses (REMDIS)

The first type of real earnings management methods is the reduction of discretionary expenses (DIS) such as advertising expenses, research and development expenses (R&D) and selling, general and administrative expenses (SG&A) as the most preferred method for overstating earnings.

The formula of DIS below consists of advertising expenses and both R&D and SG&A, if SG&A is available; the formula still exists when advertising expenses and R&D are missing, set 0. Because some firms may be engaged in innovative activities without reporting

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<sup>18</sup> According to (Katherine A. Gunny, 2010), the timing of the sale of fixed assets to report gains is also one of the types of REM since it is used as a way to manage earnings by the difference between net book value and the current market value. However, our study does not take into account the timing of the sale of fixed assets for several reasons: previous studies have shown that REM is used in Vietnam through lenient credit terms and discount policies rather than using the timing sale of fixed assets in order to improve revenue and decrease cost (Loan & Thao); and due to data availability, we do not study the timing sale of fixed assets to date.

R&D expenses (Koh & Reeb, 2015) or missing data, these situations will not be captured in tests.

$$\frac{DIS_{i,t}}{A_{i,t-1}} = \alpha + \beta_1 \left(\frac{1}{A_{i,t-1}}\right) + \beta_2 MV_{it} + \beta_3 \text{Tobin}Q_{it} + \beta_4 \left(\frac{\text{Inter}F_t}{A_{i,t-1}}\right) + \beta_5 \left(\frac{\Delta Si,t}{A_{i,t-1}}\right) + \beta_6 \left(\frac{\Delta Si,t}{A_{i,t-1}} * DD\right) + \epsilon_{it} \quad (I)$$

where:

- discretionary expenses (DIS) is the sum of advertising expenses (AD); R&D expenses; and selling, general, and administrative expenses (SG&A).

- natural log of market value (MV) proxies for firm size;

- Tobin's Q measures the marginal benefit to cost for each unit of new investment;

- internal funds (InterF) controls for the funds available for investment that are generated from the firm;

- and change in sales ( $\Delta St/A_{t-1}$ ) controls for the impact of trends in sales on discretionary expenses.

Considering the "sticky" cost behaviour, Katherine A. Gunny (2010) interacted change in sales ( $\Delta St$ ) with an indicator variable (DD) that is equal to one when total sales decrease from the prior year (between t-1 and t), and zero if not. As a result, the impact of positive  $\Delta St$  on normal levels of discretionary expenses is not constrained by this model to be the same as that of negative  $\Delta St$ .

The abnormal discretionary expense (REMDIS) is the absolute value of the residuals of the model (I).

. Abnormal level of production costs (REMPROD)

The second measure detects abnormal production cost (PROD). Managers of manufacturing firms can manage earnings upward by producing more goods than necessary. With higher levels of production, firms can spread fixed overhead costs over a larger number of units, thereby lowering fixed costs per unit. Thus, overproduction results in a lower cost of goods sold (COGS) and better operating margins.

$$\frac{PROD_{i,t}}{A_{i,t-1}} = \alpha + \beta_1 \left(\frac{1}{A_{i,t-1}}\right) + \beta_2 MV_{it} + \beta_3 \text{Tobin}Q_{it} + \beta_4 \left(\frac{Si,t}{A_{i,t-1}}\right) + \beta_5 \left(\frac{\Delta Si,t}{A_{i,t-1}}\right) + \beta_6 \left(\frac{\Delta Si,t-1}{A_{i,t-1}}\right) + \epsilon_{it}$$

(II)

where:

- PROD is the sum of cost of goods sold (COGS) and change in inventory,

-  $(\Delta Si,t/A_{i,t-1})$  is the change in sales, and

-  $(\Delta Si,t-1/A_{i,t-1})$  is lagged change in sales.

The abnormal production cost (REMPROD) is the absolute value of the residuals of the model (II).

. Abnormal level of cash-flows from operations (REMCFO)

The third measure detects manipulation of sales through lenient credit terms. This model identifies the offering of lenient credit with negative abnormal cash flows from operations (CFO).

$$\frac{CFO_{i,t}}{A_{i,t-1}} = \alpha + \beta_1 \left(\frac{1}{A_{i,t-1}}\right) + \beta_2 MV_{it} + \beta_3 \text{Tobin}Q_{it} + \beta_4 \left(\frac{Si,t}{A_{i,t-1}}\right) + \beta_5 \left(\frac{\Delta Si,t}{A_{i,t-1}}\right) + \varepsilon_{it} \quad (\text{III})$$

Where: CFO is net cash flow from the operations of firm i for year t.

The abnormal cash-flow (REMCFO) is the absolute value of the residual of the model (III).

In our study, we use the absolute values of the residual to analyze the magnitude of accrual based earnings management (AEM) and real activities manipulation (REM). The reasons to explain why we use the absolute values for some following reasons: (i) using both signed or unsigned earnings management, whether income upward or downward result in concealing true firm performance (J.-B. Kim & Sohn, 2013). (ii) AEM, REM can be performed to temporarily in an unexpected direction if manager s' intention is intend to smooth earnings along different periods (Badertscher et al., 2009; B. Francis et al., 2016; H. Jiang et al., 2018). For example, managers can increase production level by increasing ending inventory level or offering deep discounts leading to a higher current demand from customers to temporality decrease earnings. Or they may also invest more in R&D, or advertising, leading to exhibit unusually lower discretionary expenditures. These activities are income decreasing in the current year but income increasing in the future when the benefits from those increased investment are realized. (iii) In particular, real activities manipulation may also automatically reverse in future from an economic perspective. Firms can make up by spending more on R&D for one period. However, managers cannot remain for a long period, they have to cut down in another period. Similarly, firms' overproduction in one period will become equal by a decrease in production in another period, because in a long term the total production quantity is balanced out to the total number of units that are actually sold (L. Li, 2012). (iv) (J.-B. Kim & Sohn, 2013) also show that the main thrust of results do not change whether the absolute value of AEM and REM are used. The larger absolute values of residuals show the greater of earnings management.

### **3.4.3 Measures for independent variable: gender diversity**

According to our theoretical framework, our study develops two types of measures of gender diversity: one type that measures the importance of “women on boards” and another one measures the presence of “women as corporate leaders”.

#### **- Women on boards**

The study measures women’s participation on the boards each year as the number of women on the different boards: BoD, BoE, and BoS. These data were collected by hand for firms having women represented on boards for a majority of the year (more than six months) or a full year (Francoeur, Labelle, & Sinclair-Desgagné, 2007), because some women were not appointed for a full year or a company may have had incomplete data (e.g., delisted firms exist for only some months of the year).

This metric of gender diversity on corporate boards was used as the number of women on boards (FOBlevel), the presence of women on boards (FOB dummy), and a percentage (dFOB), measured by the number of women on boards divided by total board members. However, this is a simple method but not always a true measure of diversity. For example, boards having only women or men become completely homogeneous boards. Therefore we also employ the Shannon index as a measure to examine whether the boards are diverse in terms of gender or not.

To measure the degree of gender diversity, we consider as proxies the number of women on the BoD, BoE, and BoS as FBODlevel, FBOElevel, and FBOSlevel, respectively, and the presence of women on the BoD, BoE, and BoS as FBODdummy, FBOEdummy, and FBOSdummy, respectively. Percentage (dFBOD, dFBOE, dFBOS) is measured by the number of women on the BoD (BoE, BoS) divided by total board (BoD, BoE, BoS) members.

#### **- Women as corporate leaders**

Concerning the second type of variables for “women as corporate leaders”, we also consider women in two leader positions: female chairs and female CEOs. We use a dummy variable to measure these leader positions. If one of the members is appointed to various positions in boards, we examine only the highest position.

### **3.4.4 Measures for control variables**

We employ several control variables that have been used in previous EM studies.

Although, audit committee is importance in EM studies, most of Vietnamese listed firms still apply the traditional corporate governance model (model 1) without audit committee. Thus, audit committee does not use in this paper. All control variables are measured at the end of the previous year.

- Board independence (*Dbdipen*). Boards with independent members may curb corporate misconduct. (Beasley, 1996; Fama & Jensen, 1983b; Klein, 2002; Xie et al., 2003) found a negative relationship between the percentage of independent directors on the board and EM. Similarly, for US companies, (Klein, 2002) showed the existence of a negative relationship between the independent board and EM. Conversely, another previous study also found no relation between them (Park & Shin, 2004). It is measured by the proportion of non-executive members on the board of directors.

- CEO duality (*CEO\_D*). Some previous studies of the relationship between CEO duality and EM have exhibited mixed results. (Gull et al., 2017) found that CEO duality positively affects EM. In a meta analysis (seven studies), (García-Meca & Sánchez-Ballesta, 2009) could find no evidence of any correlation between CEO duality and EM. CEO is measured by a dummy variable coded 1 if the CEO is chairman of the board, and otherwise 0.

- Auditors' reputation (*AUDIT*). Big-4 auditors are supposed to better detect EM because of their supposed deeper knowledge, larger competence, and incentive to curb EM to protect their reputation. Thus they may have more motivation to maintain greater audit quality because they usually have larger clients and globally known brand names (Becker et al., 1998; Chi et al., 2011; Daniel A. Cohen & Zarowin, 2010; J. R. Francis et al., 1999; Watts & Zimmerman, 1986). The involvement of a Big-4 auditor is measured by a dummy variable.

- Firm size (*Firmsize*). Many previous studies have examined the relationship between firm size and EMs. On the one hand, larger firms are more likely to design and maintain a well-developed governance framework in order to control the internal system effectively and to reduce the likelihood of manipulating earnings by management (Beasley et al., 2000). And they should receive better audit services from established audit firms due to larger operating budgets, which in turn could help prevent earnings misrepresentations (Becker et al., 1998; J. R. Francis et al., 1999). Moreover, the stricter disclosure requirements placed by regulators on larger firms reduce information asymmetry and may discourage such firms from engaging in EM activity (Lee & Choi, 2002). Finally, larger firms are more likely to be under closer scrutiny by outsiders than smaller firms, which can potentially reduce managers' opportunity to exercise their accounting discretion (Koh, 2003). But on the other hand, larger firms are

controlled by sophisticated investors who may push for the adoption of aggressive accounting policies and EM particularly (Richardson, 2000). Although large firms may have stronger internal control systems, they also have stronger management power, which may be used to override the internal control systems to manipulate earnings. Finally, larger firms are more likely to exploit latitude in accounting discretion to reduce political attention by reducing reported earnings (Watts & Zimmerman, 1986, 1990). Firm size is computed as the log of the firm's total assets.

- Leverage (*Finlever*). Leverage plays an important role in monitoring the discretionary activities of managers (Jensen & Meckling, 1976). Companies that select short-maturity debts are probably less involved in EM by reducing agency costs (Alzoubi, 2018). Moreover, firms with high levels of debt may constrain the discretionary accruals manipulation because they undergo better monitoring through third parties such as creditors and bankers. Most of the scholars working in this area have shown that debt is significantly negatively related to EM (Becker et al., 1998; DeAngelo et al., 1994). However, (DeFond & Jiambalvo, 1994; Lazzem & Jilani, 2017) highlighted that leverage is positively associated with EM because of the existence of covenants in the firm's debt contracts. In addition, (Watts & Zimmerman, 1986) suggested that the managers of highly leveraged firms are likely to manage earnings to improve the firm's negotiating power in order to get funds at satisfactory conditions. Financial leverage is estimated as total liabilities divided by total assets.

- ROA (*ROA*). In order to measure financial performance, ROA is chosen as a proxy and appears as a control variable in the regression model. (Barua et al., 2010; Dechow & Dichev, 2002) documented a negative association between ROA and discretionary accruals, in line with Watts and Zimmerman (1990), who showed that firms with higher financial performance tend to manage earnings downwards because of a desire to avoid tax or to limit political cost. ROA is calculated as net profit over total assets of the firm.

- Firm growth (*SalesG* and *B/MRatio*). Sales growth and book-to-market value are included to control for firm growth. Firms with good growth opportunities need to raise external funds to expand (Lemma et al., 2013), and such firms have incentives to improve earnings quality to benefit from a lower cost of capital (Gaio, 2010) and to present a good picture of their future potential. In the same vein, Shen and Chih (2007) remarked that growth firms, which need external financing, may find it optimal to improve their earnings quality through EM, though they may find it harder to fool the market by manipulating earnings when they come under scrutiny. Sales growth is calculated as the change in sales between the previous year and

the current year, whereas book-to-market value is the ratio of book value to market value of equity.

- State ownership (*Sown*). State-owned enterprises (SOEs) are always provided additional funds or guaranteed to have state support (Bhattacharya et al., 2003; Ding et al., 2007; L. Wang & Yung, 2011). Thus, managers have less financial pressure to engage in earnings management. (Y. Wang & Campbell, 2012) demonstrated that a higher degree of *Sown* tends to deter EM<sup>19</sup>.

- Foreign ownership (*Fown*). The presence of foreign investors can enhance the oversight function of internal governance mechanisms, leading to better monitoring. Previous studies have reached different conclusions in different contexts. For instance, (H. J. Kim & Yoon, 2008a) and (Mazumder, 2016) documented that the level of accruals, which is a measure of EM, decreases with foreign equity ownership, whereas there is no statistically significant impact of *Fown* on EM (Lai & Tam, 2017). The scholars also stated that foreign-owned firms, especially firms with a high and stable foreign proportion in the capital structure, engage in less REM (J. Guo et al., 2015; Shayan-Nia et al., 2017). Specifically, these firms are able to constrain upwards REM related to discretionary expenditure but not the operating cycle (Shayan-Nia et al., 2017). (J. Guo et al., 2015), in studying Japanese firms, also stated that firms with more foreign ownership curb EM, but via operating activities<sup>20</sup>.

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<sup>19</sup> Our study in chapter 1 confirms these results.

<sup>20</sup> Our study in chapter 1 confirms the literature when we consider AEM but not with REM. A substitution effect between AEM and REM is likely to occur.

**Table 1: Variables definition**

<b>Variable</b>	<b>Definition</b>	<b>Measure</b>
<b><i>Dependent variable : earnings management</i></b>		
AEMmjm	Discretionary accruals using Jones modified model (1995)	Absolute value of residuals estimated using Jones modified model
AEMkotha	Discretionary accruals using Kothari et al. (2005)	Absolute value of residuals estimated using Kothari et al.(2005)
REMDIS	The abnormal discretionary expenses	Absolute value of residuals from Gunny (2010) model
REMPROD	The abnormal production cost	Absolute value of residuals from Gunny (2010) model
REMCFO	The abnormal cash flow from operations	Absolute value of residuals from Gunny (2010) model
<b><i>Independent variable : gender diversity</i></b>		
<b>A. Gender diversity through Female on Boards (H1)</b>		
<b>Female on all the boards</b>		
FOBlevel	Number of female members on the boardroom	Total number of women members on boards
dFOB	Proportion of female on the boardroom	The number of women board members to the number of all board members
FOBdummy	Female presence on boards	Dummy variable coded 1 if having female on all boards, otherwise 0
Shannon index	Shannon index for gender	Shannon= $-\sum_i(P_i/N)\ln(P_i/N)$ where $P_i$ is calculated the proportion of female board members in the category and N denotes the number of categories for an attribute of interest. The values range from 0 to 0.69, the later figure corresponding to the greatest possible degree of diversity (Shannon, 1948)
<b>Female on Boards of directors (BOD)</b>		
FBOD level	Number of female members on board of directors	The number of women board members of the board of directors
dFBOD	Proportion of female on the board of directors	The number of women board members of the board of directors to the number of all board members of the board of directors
FBODdummy	Female presence on board of directors	Dummy variable coded 1 if having female on board of directors, otherwise 0
<b>Female on Boards of executives (BOE)</b>		
FBOElevel	Number of female members on board of executives	Total number of female appointed on board of executives
dFBOE	Proportion of female on the board of executives	The number of women board members of the board of executives to the number of all board members of the board of executives

<b>Variable</b>	<b>Definition</b>	<b>Measure</b>
FBOEdummy	Female presence on board of executives	Dummy variable coded 1 if having female on board of executives, otherwise 0
<b>Female on Boards of supervisory (BOS)</b>		
FBOS	Number of female on board of supervisory	The number of female on board of supervisory to the number of all members of board of supervisory
dFOS	Proportion of female on the board of supervisory	The number of women board members of the board of supervisory to the number of all board members of the board of supervisory
FBOSdummy	Female presence on board of supervisory	Dummy variable coded 1 if having female on board of supervisory, otherwise 0
<b>B. Gender diversity through Female as corporate leaders (H2)</b>		
FCHAIR	A female chair	A dummy variable that equals to 1 if the chair is a women and to 0 otherwise
FCEO	A female promoted for CEO position	A dummy variable that equals to 1 if the CEO is a women and to 0 otherwise
<b>Control variables</b>		
Dbdipen	Board independence	The proportion of non-executive members in board of directors (independent directors/total directors)
CEO_D	CEO duality	Dummy variable coded 1 if CEO is chairman of the board, otherwise 0
AUDIT	Audit by big four auditor	Dummy variable that equals 1 if the firm is audited by a Big4, otherwise 0.
Firmsize	Firm size	Natural logarithm of the total assets
Finlever	Financial leverage	Total liabilities divided by total assets
ROA	Return on assets	Net income in year t divided by total assets in year end t-1
SalesG	Sale growth	Change in sales from year t-1 to year t
B/MRatio	Book-to-market value	Ratio of book value to market value of equity
Sown	The percentage of shareholding owned by State	Number of shares owned by State divided by total shares
Fown	The percentage of shareholding owned by foreign	Number of shares owned by foreign investor divided by total shares

### 3.4.5 Research model

The paper employs Petersen (2009) techniques to analyse the effect of gender diversity on EM. According to Petersen, standard errors in panel data studies are often miscalculated. Thus, he offers ways to correct such miscalculations by various estimation techniques. In finance applications, firm effect, according to which the residuals of a given firm may be correlated across years, and time effect, according to which the residuals of a given year may be correlated

across firms, are general forms of dependence. In this study, the data contain a strong significant firm effect. In fact, possible biases or underestimation of the true variability of the coefficient estimates in standard errors may occur in OLS if the residuals are correlated across observations. Thus, we use a wide variety of techniques to estimate standard errors. First, a potential problem with the pooled regressions is the possibility of within-firm autocorrelations, which would bias the standard errors. To control for this bias, we use the robust standard errors methodology, as it produces unbiased standard errors and correct confidence intervals (Petersen, 2009). Second, standard errors clustered by firm are used because they are unbiased and produce correctly sized confidence intervals, as illustrated by Petersen (2009). Moreover, year and industry fixed effects are considered in the model to control the industry and year impact on this relationship. One important thing is that the independent variables are lagged one year relative to the dependent variable (Petersen, 2009), except for dummy variables that are less affected by time series, such as CEO duality. This lag is employed to show the effect of changes on the governance structure in firm behaviour and earnings.

Four equations are used to test the impact of gender diversity on EM. Three of these deal with women on boards (Hypothesis 1) and measures based on proportions (Equation 1), number of instances (Equation 2), and dummy variables (Equation 3). Each of those three equations are declined along the four types of board presence that we identified (all boards, BoD, BoE, and BOS). The fourth equation addresses women as corporate leaders (Hypothesis 2) and is tested for both types of corporate leaders we identified (CHAIR and CEO).

They are as follows:

**- Hypothesis 1**

$$AEM/REM_{i,t} = \alpha + \beta_1 shannon\ index/dFOB/dFBOD/dFBOE/dFBOS_{i,t} + \beta_2 Dbdipen_{i,t-1} + \beta_3 CEO\_D_{i,t} + \beta_4 AUDIT_{i,t-1} + \beta_5 ROA_{i,t-1} + \beta_6 BMRatio_{i,t-1} + \beta_7 firmsize_{i,t-1} + \beta_8 Finlever_{i,t-1} + \beta_9 SaleG_{i,t-1} + \beta_{10} Sown_{i,t-1} + \beta_{11} Fown_{i,t-1} + \varepsilon_t (1)$$

$$AEM/REM_{i,t} = \alpha + \beta_1 FOBlevel/FBODlevel/FBOElevel/FBOSlevel_{i,t} + \beta_2 Dbdipen_{i,t-1} + \beta_3 CEO\_i,t + \beta_4 AUDIT_{i,t-1} + \beta_5 ROA_{i,t-1} + \beta_6 BMRatio_{i,t-1} + \beta_7 firmsize_{i,t-1} + \beta_8 Finlever_{i,t-1} + \beta_9 SaleG_{i,t-1} + \beta_{10} Sown_{i,t-1} + \beta_{11} Fown_{i,t-1} + \varepsilon_t (2)$$

$$AEM/REM_{i,t} = \alpha + \beta_1 FOBdummy/FBODdummy/FBOEdummy/FBOSdummy_{i,t} + \beta_2 Dbdipen_{i,t-1} + \beta_3 CEO\_D_{i,t} + \beta_4 AUDIT_{i,t-1} + \beta_5 ROA_{i,t-1} + \beta_6 BMRatio_{i,t-1} + \beta_7 firmsize_{i,t-1} + \beta_8 Finlever_{i,t-1} + \beta_9 SaleG_{i,t-1} + \beta_{10} Sown_{i,t-1} + \beta_{11} Fown_{i,t-1} + \varepsilon_t (3)$$

**-Hypothesis 2**

$$AEM/REM_{i,t} = \alpha + \beta_1 FCHAIR/FCEO_{i,t} + \beta_2 Dbdipen_{i,t-1} + \beta_3 CEO\_D_{i,t} + \beta_4 AUDIT_{i,t-1} + \beta_5 ROA_{i,t-1} + \beta_6 BMRatio_{i,t-1} + \beta_7 firmsize_{i,t-1} + \beta_8 Finlever_{i,t-1} + \beta_9 SaleG_{i,t-1} + \beta_{10} Sown_{i,t-1} + \beta_{11} Fown_{i,t-1} + \varepsilon_t (4)$$

All hypotheses were tested using OLS regression estimators for all Vietnamese listed firms in two stock exchanges (HSX and HNX) from 2008 to 2017.

The analysis of the impact of the different female corporate occupations on EM has been done five times with five different EM measures: two for AEM and three for REM. The significant results are presented in the following sections, and the entire results are in the Appendix.

### 3.5 Empirical results

#### 3.5.1 Descriptive statistics

The sample consists of an unbalanced panel, over the period 2008–2017, of stocks listed on the HSX or the HNX. The financial data are from Stoxplus, whereas the data on board gender diversity were hand collected from annual reports provided by Stoxplus. The reports contain information about the BoD, BoE, and BoS. We filtered out firms with missing data. As a result, the sample consists of a panel of 4,367 firm-year observations of women on boards for the period 2008 to 2017, for firms listed either on the HSX or the HNX.

**Table 4-1a: Level and percentage of women on boards in sample firms**

Number of women	0		1		2		>=3	
	Number observations	%						
(N = 4 367)								
Women on at least one boards	901	20.63	907	20.77	703	16.1	1856	42.5
Women on BoD	1833	42	1144	26.2	476	10.9	914	20.9
Women on BoE	2268	51.93	1001	22.92	260	5.95	838	19.2
Women on BoS	1765	40.42	914	20.93	646	14.79	1042	23.86

Table 4.1a shows the summary statistics regarding the level of board gender diversity and percentage of board gender diversity across our sample. The statistics show that there is no woman on any board in our sample for only 901 (20.63%) firm year observations, whereas the board exhibiting the highest percentage of “no gender diversity” is the BoE (more than 50%). The BoS has the highest percentage of diversity with more than three women appointed (23.86%). Due to women seated on different boards and in different quantities, we consider three different measures of women on boards—a dummy variable, the fraction, and number of

women on boards - in four types of board occupations: women on boards, women on BoD, women on BoE, and women on BoS.

**Table 4-1b: Descriptive statistics of women on boards and earnings management**

Variable	Obs	Mean	Std.Dev.	Min	Max
AEMmjm	4318	.118	.131	0	.92
AEMkotha	4318	.114	.128	0	.856
REMPROD	4242	.135	.145	0	3.047
REMCFO	4318	.122	.13	0	.785
REMDIS	3899	.068	.065	0	.416
MEMBOARDS	3799	9.282	2.399	3	23
FOBlevel	3608	1.82	1.643	0	11
Shannon index	2707	.515	.134	.224	.693
FOBdummy	3608	.75	.433	0	1
dFOB	3576	.193	.165	0	.8
FBODlevel	3608	.72	.888	0	6
FBODdummy	3608	.492	.5	0	1
dFBOD	3571	.133	.159	0	.8
FBOElevel	3608	.5	.78	0	5
FBOEdummy	3608	.37	.48	0	1
dFBOE	3563	.133	.199	0	1
FBOSlevel	3608	.848	.983	0	4
FBOSdummy	4367	.595	.491	0	1
dFBOS	2457	.412	.318	0	1
FCHAIR	3608	.079	.27	0	1
FCEO	3608	.059	.236	0	1
dbdipen	3256	.677	.264	0	1
CEO_D	3606	.32	.467	0	1
AUDIT	3307	.205	.404	0	1
ROA	4367	.061	.086	-.996	.784
BMRatio	3942	-16.68	9.575	-43.113	7.185
firmsize	4367	26.86	1.478	21.154	32.843
Finlever	4367	.501	.223	0	.989
SaleG	3838	.596	7.921	-.99	316.056
Sown	3271	.245	.25	0	1
Fown	3271	.078	.122	0	.65

*Where MEMBOARDS = total members of BoD, BoE, and BoS*

The average number of board members (*MEMBOARDS*) is 9.282, within a range of 3 to 23, as shown in Table 4.1b. The average number of women on boards is 1.82, within a range of 0 to 11 members, in Vietnamese listed firms. The ratio women on boards is 19.3% that is higher than the 10.2% reported in China (Luo, Xiang, & Huang, 2017), and even the 12.4% in the UK (Arun, Almahrog, & Aribi, 2015).

Concerning the type of boards women are appointed to, most of the firms in the sample have women on boards (0.75). The mean of the FBOS is 0.595, which is higher than than the 0.492 mean of FBOD and 0.37 mean of FBOE. The level of women on the BoD has a mean value of 0.72, the proportion of women on boards of directors is around 13%.

The number of women on the BoE is lower than on the BoD, 0.5 compared with 0.72, whereas the fraction of women on the BoE is the same as the BoD.

The highest number and percentage of women on board is for BoS—nearly 0.85 and 41%, respectively.

The percentages of firms with women as chair and CEO are very low in the Vietnamese context—only 7.9% and 5.9% respectively.

The mean values of AEMmjm, AEMkotha, REMPROD, REMCFO, and REMDIS are 0.118, 0.114, 0.135, 0.122, and 0.068, respectively, indicating that on average Vietnamese listed firms are involved in EM. Those are higher than Korean listed firms which the means of AEM, REMPROD, REMCFO and REMDIS are 0.111, 0.094, 0.071 and 0.074, respectively (H. A. Kim et al., 2017; Oh & Jeon, 2017).

Table 4.1b also shows descriptive statistics for control variables. The proportion of independent directors is 67.7%. Only 20.5% of firms are audited by Big-4 accounting firms. The mean of financial leverage is approximately 50%. On average, 59.6% of Vietnamese listed firms show the increase in sales over 2008 to 2017. While on average only 7.8% of firms have foreign investors, the mean of state ownership in listed firms is 24.5%.

### **3.5.2 Empirical results and analysis: impact of “women on boards” on earnings management**

To check the impact of the presence of women as members of the boards (BoD, BoE, BoS), different measures have been done with different measures: women on boards (number and percentage of women on boards, the presence of women on boards by using a dummy variable, women on boards of directors (number and percentage of women on the BoD, the

presence of women on the BoD), women on the BoE (number and percentage of women on the BoE, the presence of women on the BoE), and women on the BoS (number and percentage of women on the BoS, the presence of women on the BoS). The results show no significant effect of the different variables capturing the presence of women (number, fraction, dummy variable on all boards, or BoD, BoE, BoS) on the two measures of AEM and on the three measures of REM, except for percentage of women on boards measured by the Shannon index and number of women on the BoE. Only those significant results are presented in the main text (the results for presence of women on boards in general through Shannon Index (3.4.2.1) and then when focusing on women on boards of executives (3.4.2.2)), while the results with other measures of women on different boards are in the Appendix 2.

### *3.5.2.1 Empirical results and analysis of the impact of women on boards on earnings management.*

#### *3.5.2.1.1 Correlation analysis*

**Table 4.2.1a: Correlation matrix for women on boards (Shannon index) and accrual based earnings management.**

	AEM mjm	AEM kotha	Shannon index	dbdipen	CEO_D	AUDIT	ROA	BMRatio	firmsize	Finlever	SaleG	Sown	Fown
AEM mjm	1												
AEM kotha	0.968 <sup>***</sup>	1											
Shannon index	0.052 <sup>*</sup>	0.054 <sup>*</sup>	1										
dbdipen	-0.01	-0.015	0.226 <sup>***</sup>	1									
CEO_D	0.05 <sup>**</sup>	0.05 <sup>*</sup>	0.053 <sup>*</sup>	0.168 <sup>***</sup>	1								
AUDIT	-0.093 <sup>***</sup>	-0.092 <sup>***</sup>	-0.109 <sup>***</sup>	-0.127 <sup>***</sup>	-0.043 <sup>**</sup>	1							
ROA	-0.052 <sup>*</sup>	-0.044 <sup>**</sup>	0.026	0.035	-0.01	0.012	1						
BMRatio	0.016	0.018	0.068 <sup>***</sup>	-0.0001	-0.09 <sup>***</sup>	-0.018	-0.105 <sup>***</sup>	1					
firmsize	-0.035	-0.019	-0.109 <sup>***</sup>	-0.311 <sup>***</sup>	-0.046 <sup>**</sup>	0.461 <sup>***</sup>	-0.067 <sup>***</sup>	-0.032	1				
Finlever	0.029	0.043 <sup>**</sup>	-0.165 <sup>***</sup>	-0.192 <sup>***</sup>	-0.022	-0.012	-0.376 <sup>***</sup>	-0.005	0.311 <sup>***</sup>	1			
SaleG	0.110 <sup>***</sup>	0.133 <sup>***</sup>	0.036	-0.047 <sup>**</sup>	-0.008	-0.007	0.036	0.03	0.047 <sup>**</sup>	0.038 <sup>**</sup>	1		
Sown	-0.097 <sup>***</sup>	-0.108 <sup>***</sup>	-0.143 <sup>***</sup>	-0.052 <sup>*</sup>	-0.201 <sup>***</sup>	-0.069 <sup>***</sup>	0.118 <sup>***</sup>	-0.054 <sup>*</sup>	-0.112 <sup>***</sup>	0.075 <sup>***</sup>	-0.024	1	
Fown	-0.065 <sup>***</sup>	-0.068 <sup>***</sup>	0.026	-0.013	0.007	0.402 <sup>***</sup>	0.188 <sup>***</sup>	-0.021	0.343 <sup>***</sup>	-0.223 <sup>***</sup>	0.005	-0.154 <sup>***</sup>	1

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

**Table 4.2.1b: Correlation matrix for women on boards (Shannon index) and real activities manipulation.**

	REM PROD	REM CFO	REM DIS	Shannon index	dbdipen	CEO_D	AUDIT	ROA	BMRatio	firmsize	Finlever	SaleG	Sown	Fown
REMPROD	1													
REMCFO	0.215***	1												
REMDIS	0.348***	-0.0067	1											
Shannon index	0.079***	0.03	0.054*	1										
dbdipen	0.074***	-0.004	0.055*	0.252***	1									
CEO_D	0.035	0.049**	-0.027	0.047**	0.184***	1								
AUDIT	0.018	-0.088***	0.077***	-0.118***	-0.109***	-0.030	1							
ROA	0.185***	0.177***	0.182***	0.0034	0.059*	-0.033	-0.009	1						
BMRatio	-0.002	0.012	0.003	0.096***	-0.009	-0.077***	-0.007	-0.07***	1					
firmsize	-0.097***	-0.032	-0.135***	-0.153***	-0.299***	-0.036	0.445***	-0.09***	-0.012	1				
Finlever	-0.051**	-0.034	-0.142***	-0.182***	-0.199***	-0.012	-0.015	-0.370***	-0.017	0.306***	1			
SaleG	0.087***	0.135***	0.018	0.029	-0.002	0.01	0.001	0.113***	0.032	0.054*	-0.003	1		
Sown	0.013	-0.038	0.073***	-0.139***	-0.052**	-0.225***	-0.069***	0.125***	-0.051**	-0.103***	0.07***	-0.085***	1	
Fown	0.115***	-0.032	0.187***	0.025	0.008	0.015	0.400***	0.154***	-0.006	0.359***	-0.202***	0.04	-0.148***	1

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

Tables 4.2.1 a and b show the correlation matrix for the measures of AEM (AEMmjm and AEMkotha) and REM (REMCFO, REMPROD, REMDIS), women on boards, and control variables.

The correlation coefficients between women on boards measured by the Shannon index and AEMmjm, AEMkotha, and REMPROD, REMDIS are significantly positive.

There are statistically significant correlations between the dependent variables (AEM/REM) and control variables. AEM measured by both the modified Jones model and the Kothari model are significantly positively correlated with the (CEO\_D) and SaleG, whereas those are negatively correlated with AUDIT, ROA, and State and foreign ownership. In terms of REM, REMPROD, REMCFO and REMDIS are significantly positively correlated with ROA.

The correlation matrix indicates that there are not multicollinearity problems because most of the correlation coefficient magnitudes are below 0.8 (Gujarati, 2009)

#### *3.5.2.1.2 Regression analysis*

In this section, we discuss regression analyses for both AEM and REM and percentage of women on boards measured by the Shannon index to examine the relation among the key variables. We employ the Shannon index because it is more sensitive to small changes in the gender diversity of boards because of a logarithmic measure. Diversity indexes reach their maximum value when the number of women on board is the same as the number of men. We control for industry and year.

**Table 4.2.1-1: Regression with Shannon index for women on boards and accrual based earnings management (and robustness tests)**

VARIABLES	(1) AEMmjm	(2) AEMkotha	(3) AEMkotha	(4) AEMkotha
shannonindex	0.0362 (0.0222)	0.0401* (0.0217)	0.0401* (0.0217)	0.0381** (0.0191)
AEMkotha_1				0.178*** (0.0313)
AEMkotha_2				0.0782*** (0.0260)
dbdipen	-0.0265** (0.0111)	-0.0257** (0.0108)	-0.0257** (0.0109)	-0.0254*** (0.00935)
AUDIT	-0.0115* (0.00647)	-0.0119* (0.00629)	-0.0119* (0.00634)	-0.00773 (0.00499)
CEO_D	-0.000591 (0.00652)	-0.000429 (0.00640)	-0.000430 (0.00640)	0.00187 (0.00551)
ROA	-0.0174 (0.0377)	-0.0205 (0.0351)	-0.0205 (0.0350)	0.00468 (0.0357)
BMRatio	-0.000193 (0.000753)	0.000153 (0.000746)	0.000152 (0.000747)	-5.33e-05 (0.000636)
firmsize	-0.0112*** (0.00246)	-0.00968*** (0.00243)	-0.00965*** (0.00291)	-0.00900*** (0.00208)
Finlever	0.00759 (0.0202)	0.00778 (0.0200)	0.00767 (0.0208)	0.00792 (0.0172)
SaleG	0.00237*** (0.000144)	0.00226*** (0.000134)	0.00226*** (0.000134)	0.00232*** (0.000147)
Sown	-0.0371*** (0.0130)	-0.0356*** (0.0127)	-0.0356*** (0.0126)	-0.0240** (0.0112)
Fown	-0.0308 (0.0253)	-0.0374 (0.0247)	-0.0373 (0.0247)	-0.0294 (0.0208)
Iexchange			-0.000211 (0.00747)	
Constant	0.420*** (0.0760)	0.365*** (0.0746)	0.364*** (0.0830)	0.334*** (0.0611)
Fixed effects	IY	IY	IY	IY
Observations	2,008	2,008	2,008	1,984
R-squared	0.091	0.093	0.093	0.138

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Column 1: Represent the results of the regression for AEM measured by Jones modified model as a dependent variable

Column 2: Represent the results of the regression for AEM measured by Kothari model as a dependent variable

Column 3: Robustness test for listing place with AEMkotha and stock exchange fixed effect (Iexchange\_2)

Column 4: Robustness test with lag in AEMkotha model with lag length two periods (two years). AEMkotha\_1 is AEMkotha with a lag of one period, AEMkotha\_2 is AEMkotha

with a lag of two periods.

Table 4.2.1-1 presents the results of panel regressions of gender diversity on AEM (columns 1 and 2). Surprisingly, the proportion of women on boards measured by the Shannon index has an insignificant effect on AEM measured by the modified Jones model), whereas it is significantly positive at the 10% level when AEM is measured by the Kothari model. The overall results show that a 1% rise in the percentage of women on boards increase AEMkotha by 2.17%. This result is not as expected. This finding does not confirm the first hypothesis and does not support agency theory. Hence, women negatively affect the effectiveness of board monitoring, leading to weakening the detection of AEM.

**Table 4.2.1-2: Regression with Shannon index for women on boards and real activities manipulations**

VARIABLES	(1) REMPROD	(2) REMCFO	(3) REMDIS
shannonindex	0.0635* (0.0330)	0.0290 (0.0226)	-0.00704 (0.0235)
dbdipen	-0.00729 (0.0144)	-0.0279*** (0.00984)	-0.0109 (0.0105)
AUDIT	0.0120 (0.0104)	-0.0143** (0.00646)	0.0122 (0.0116)
CEO_D	0.00855 (0.00881)	0.00703 (0.00682)	-0.00609 (0.00606)
ROA	0.291*** (0.0641)	0.128** (0.0569)	0.117*** (0.0401)
BMRatio	-0.00126 (0.000997)	-0.00119 (0.000765)	-0.00314** (0.00159)
firmsize	-0.0217*** (0.00406)	-0.00986*** (0.00254)	-0.0169*** (0.00358)
Finlever	0.0929*** (0.0198)	-0.00431 (0.0202)	0.0299* (0.0169)
SaleG	0.00487*** (0.000373)	0.00159*** (0.000201)	6.36e-05 (0.000142)
Sowner	-0.0160 (0.0175)	-0.0132 (0.0131)	0.0182 (0.0128)
Fowner	0.0827** (0.0370)	-0.0224 (0.0263)	0.126*** (0.0297)
Constant	0.807*** (0.182)	0.366*** (0.0717)	0.528*** (0.101)
Fixed effects	IY	IY	IY
Observations	2,024	2,008	1,808
R-squared	0.153	0.080	0.176

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

where: column 1: Represent the results of the regression for REMPROD as a dependent variable  
column 2: Represent the results of the regression for REMCFO as a dependent variable.  
column 3: Represent the results of the regression for REMDIS as a dependent variable.

Similarly, women on boards measured by the Shannon index are significantly positively correlated only with REMPROD, as shown in Table 4.2.1.2. This means that women on boards are associated with more abnormal overproduction cost (REMPROD) and as a consequence with more REM.

One argument to explain why women on boards measured by Shannon index is positively associated with EM is that the Vietnamese listed firms have highly-concentrated ownership structure in the top managers. In addition, most of Vietnamese listed firms are State owned firms or family owned firms, where families (founders) contribute to a large part of the boards and founders: (Kien & Duc), 2015) found on a sample of firms in 2013 that families (founders) account for 43.2 percent (55.3 percent) of the boards and founders. In family owned firms, managers have high control rights, which may manage the firm to obtain a private benefit and affect the firm's policies by seeking to allocate the firm's resources to generate the private benefits. It indicates that the higher the control rights, the higher EMs (Ratnawati, Abdul-Hamid, & Popoola, 2016). Women on boards in family owned firms may increase EM to maximize their private benefits. Furthermore, in emerging markets and particularly in Vietnam are weak for control and insider protection leading to complicated group associations and in both AEM (for short term) and REMPROD (for long term), which is far from auditors' eyes. This result is consistent with (Fan & Wong, 2002) who state that earnings management is higher among firms in which ownership is concentrated in the hands of blockholders like families. In addition, women exhibit characteristics of greater risk aversion and less confidence, indicating less added value for the firm, whereas there is an increased pressure for firm growth leading women on board reducing financial reporting quality by engaging in EM.

Thus, the hypothesis that “*women on boards mitigate earnings management*” is not confirmed in terms of AEM and REM.

Among control variables, the coefficient of firm size is negative and significant, whereas the coefficient of SaleG is significantly positive in terms of AEM and REMPROD. This means that large firms maintain a well developed governance framework in order to control internal systems effectively, leading to less EM (Beasley et al., 2000). The sign of

SaleG is in line with the study of Shen and Chih (2007), which found that growth firms engage in EM to misrepresent their statement to attract external funding. In addition, the coefficient of having a Big-4 audit is insignificant with EM measured by REMPROD, REMDIS, whereas it is significantly negative with AEM and REMCFO. The reason could be that auditors in Big-4 firms with deep expertise and experience are not sufficiently expert in the client's operations and technology to be able to affect REMPROD. The enforced GAAP framework is one of the main documents of auditors, and it is not a guide for real operations of the firm (Roychowdhury, 2006). In fact, firms audited by Big-4 practices are associated with less EM, which is consistent with previous studies (Becker et al., 1998; J. W. Lin & Hwang, 2010). The effect of firm size on AEM and REM is consistent with the findings of many prior studies (Beasley et al., 2000; Koh, 2003). The positive coefficient of leverage regarding REMPROD suggests that firms with higher leverage have greater incentives to manage earnings through overproduction cost.

#### *3.5.2.1.3 Robustness checks*

Some additional tests have been conducted to examine the robustness of the empirical findings.

First, we attempted to examine whether the empirical findings are induced by stock exchange effects. Because of the difference in size of the two stock exchanges in Vietnam, the requirements for listing a firm on HSX are generally different from those on HNX in terms of areas such as profitability and shareholders. Thus, we tried to ensure that the empirical results are not coming from stock exchange-related factors. To do this, the stock exchange is added as a fixed effect in the robustness check and the model is re-estimated with both AEM and REM. Regarding AEM, we perform robustness tests only with the Kothari model, given the insignificant results with AEM in the modified Jones model. This gives no significant difference neither for AEM nor for REM (see column 3 of Table 4.2.1-1 and Table 4.2.1-3).

Second, we also use lagged dependent variables (AEM, REMPROD, REMCFO, REMDIS). One important point is that adding lags of dependent variables to the right-hand side of the regression usually has sensitive effects on the autocorrelation degree in the errors. Thus, we also use lag length (two periods) to eliminate autocorrelation in the residuals. The results do not exhibit high differences with the previous regression results, as can be seen in column 4 in Table 4.2.1-1 and 4.2.1-4. Just, it has to be mentioned that the explanatory power of the models increases with lagged variables. The mean adjusted  $R^2$  is 32.8% for REMPROD (Table 4.2.1-4), and 13.8% for AEM (column 4 in Table 4.2.1-1).

**Table 4.2.1-3: Shannon index for women on Boards and real activities manipulation-  
Robustness check**

VARIABLES	(1) REMPROD	(2) REMCFO	(3) REMDIS
shannonindex	0.0626* (0.0325)	0.0285 (0.0226)	-0.00559 (0.0231)
dbdipen	-0.00802 (0.0146)	-0.0283*** (0.00991)	-0.0103 (0.0103)
AUDIT	0.0124 (0.0103)	-0.0141** (0.00647)	0.0118 (0.0118)
CEO_D	0.00856 (0.00882)	0.00705 (0.00682)	-0.00604 (0.00606)
ROA	0.291*** (0.0638)	0.128** (0.0568)	0.117*** (0.0401)
BMRatio	-0.00122 (0.00101)	-0.00117 (0.000768)	-0.00327** (0.00159)
firmsize	-0.0227*** (0.00431)	-0.0104*** (0.00289)	-0.0160*** (0.00376)
Finlever	0.0956*** (0.0209)	-0.00285 (0.0205)	0.0273 (0.0181)
SaleG	0.00487*** (0.000368)	0.00159*** (0.000201)	5.95e-05 (0.000143)
Sown	-0.0159 (0.0175)	-0.0131 (0.0131)	0.0181 (0.0127)
Fown	0.0812** (0.0371)	-0.0233 (0.0265)	0.127*** (0.0300)
Iexchange	0.00510 (0.0101)	0.00281 (0.00749)	-0.00491 (0.00864)
Constant	0.830*** (0.183)	0.378*** (0.0786)	0.335*** (0.0805)
Fixed effects	IY	IY	IY
Observations	2,024	2,008	1,808
R-squared	0.154	0.080	0.177

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

where: column 1: Represent the results of the regression for REMPROD as a dependent variable

column 2: Represent the results of the regression for REMCFO as a dependent variable.

column 3: Represent the results of the regression for REMDIS as a dependent variable.

-Iexchange\_2: Stock exchange fixed effects

**Table 4.2.1-4: Shannon index for women on Boards and real activities manipulation-  
Robustness check(using lag dependent variables)**

VARIABLES	(1) REMPROD	(2) REMCFO	(3) REMDIS
shannonindex	0.0438** (0.0217)	0.0256 (0.0193)	-0.00743 (0.00570)
dbdipen	-0.0112 (0.00983)	-0.0257*** (0.00789)	-0.00477 (0.00362)
AUDIT	0.00614 (0.00671)	-0.00765 (0.00510)	-0.000930 (0.00266)
CEO_D	0.00661 (0.00571)	0.00755 (0.00550)	0.00175 (0.00172)
ROA	0.183*** (0.0418)	0.0754 (0.0501)	0.0194 (0.0174)
BMRatio	-0.000726 (0.000581)	-0.00106* (0.000620)	-0.000620 (0.000458)
firmsize	-0.0131*** (0.00291)	-0.00894*** (0.00210)	-0.00276*** (0.000890)
Finlever	0.0564*** (0.0140)	-0.00586 (0.0167)	0.00903* (0.00475)
SaleG	0.00478*** (0.000420)	0.00161*** (0.000272)	-0.000144** (6.86e-05)
Sown	-0.0124 (0.0113)	-0.00588 (0.0108)	0.00413 (0.00391)
Fown	0.0329 (0.0216)	-0.0219 (0.0210)	0.0288*** (0.00867)
REMPROD_1	0.400*** (0.0354)		
REMPROD_2	0.121*** (0.0327)		
REMCFO_1		0.209*** (0.0377)	
REMCFO_2		0.105*** (0.0233)	
REMDISEXP_1			0.756*** (0.0355)
REMDISEXP_2			0.153*** (0.0327)
Constant	0.493*** (0.175)	0.330*** (0.0613)	-0.0304 (0.0391)
Fixed effects	IY	IY	IY
Observations	1,988	1,984	1,805
R-squared	0.328	0.148	0.790

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Robustness test with lag length two periods (two years). Column 1: Lagging effect of REMPROD with REMPROD\_1 is lagged in one period and REMCFO\_2 is lagged in two periods. Column 2: Lagging effect of REMCFO with REMCFO\_1 is lagged in one period, REMCFO\_2 is lagged in two periods. Column 3: Lagging effect of REMDIS with REMDIS\_1 is lagged in one period, REMDIS\_2 is lagged in two periods.

**Table 4.2.2a: Correlation matrix for women on boards (FBOE level) and accrual based earnings management.**

	AEM mjm	AEM kotha	FBOE level	dbdipen	CEO_D	AUDIT	ROA	BMRatio	firmsize	Finlever	SaleG	Sown	Fown
AEMmjm	1												
AEMkotha	0.965 <sup>***</sup>	1											
FBOElevel	0.046 <sup>**</sup>	0.051 <sup>*</sup>	1										
dbdipen	0.017	0.009	-0.104 <sup>***</sup>	1									
CEO_D	0.04 <sup>**</sup>	0.047 <sup>**</sup>	0.072 <sup>***</sup>	0.177 <sup>***</sup>	1								
AUDIT	-0.095 <sup>***</sup>	-0.099 <sup>***</sup>	0.017	-0.189 <sup>***</sup>	-0.1 <sup>***</sup>	1							
ROA	-0.002	-0.015	0.048 <sup>**</sup>	0.047 <sup>**</sup>	-0.005	0.015	1						
BMRatio	0.056 <sup>*</sup>	0.055 <sup>*</sup>	-0.017	-0.004	-0.057 <sup>*</sup>	-0.034	-0.098 <sup>***</sup>	1					
firmsize	-0.110 <sup>***</sup>	-0.095 <sup>***</sup>	0.105 <sup>***</sup>	-0.347 <sup>***</sup>	-0.083 <sup>***</sup>	0.470 <sup>***</sup>	-0.055 <sup>*</sup>	-0.063 <sup>*</sup>	1				
Finlever	-0.040 <sup>**</sup>	-0.025	-0.089 <sup>***</sup>	-0.212 <sup>***</sup>	-0.035	0.038	-0.375 <sup>***</sup>	-0.002	0.323 <sup>***</sup>	1			
SaleG	0.1 <sup>***</sup>	0.100 <sup>***</sup>	-0.01	0.004	0.017	0.006	0.034	0.031	-0.027	-0.022	1		
Sown	-0.094 <sup>***</sup>	-0.101 <sup>***</sup>	-0.206 <sup>***</sup>	-0.064 <sup>*</sup>	-0.213 <sup>***</sup>	0.013	0.116 <sup>***</sup>	-0.081 <sup>***</sup>	-0.048 <sup>**</sup>	0.079 <sup>***</sup>	-0.044 <sup>**</sup>	1	
Fown	-0.056 <sup>**</sup>	-0.064 <sup>**</sup>	0.155 <sup>***</sup>	-0.048 <sup>*</sup>	-0.007	0.323 <sup>***</sup>	0.196 <sup>***</sup>	-0.014	0.319 <sup>***</sup>	-0.224 <sup>***</sup>	-0.003	-0.164 <sup>***</sup>	1

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

**Table 4.2.2b: Correlation matrix for women on boards (FBOE level) and real activities manipulation.**

	REM PROD	REM CFO	REM DIS	FBOE level	dbdipen	CEO_D	AUDIT	ROA	BMRatio	firmsize	Finlever	SaleG	Sown	Fown
REMPROD	1													
REMCFO	0.218***	1												
REMDIS	0.283***	0.011	1											
FBOElevel	0.028	0.015	0.032	1										
dbdipen	0.040	0.006	0.037	-0.051**	1									
CEO_D	0.024	0.044**	-0.049**	0.079***	0.196***	1								
AUDIT	0.001	-0.08***	0.022	-0.029	-0.170***	-0.087***	1							
ROA	0.180***	0.152***	0.180***	0.001	0.070***	-0.024	0.004	1						
BMRatio	0.006	0.022	0.027	0.009	-0.003	-0.043**	-0.019	-0.071***	1					
firmsize	-0.138***	-0.105***	-0.146***	0.019	-0.335***	-0.071***	0.445***	-0.067*	-0.042**	1				
Finlever	-0.052**	-0.077***	-0.158***	-0.091***	-0.220***	-0.024	0.02	-0.369***	-0.023	0.321***	1			
SaleG	0.185***	0.073***	0.020	-0.013	0.005	0.017	0.006	0.035	0.033	-0.031	-0.024	1		
Sown	-0.012	-0.026	0.057*	-0.210***	-0.069***	-0.226***	0.002	0.130***	-0.064*	-0.054*	0.067*	-0.045**	1	
Fown	0.069***	-0.035	0.169***	0.107***	-0.022	-0.011	0.330***	0.162***	0.01	0.336***	-0.206***	-0.002	-0.155***	1

### 3.5.2.2 Empirical results and analysis of the impact of number of women on boards of executives (FBOElevel) and earnings management

#### 3.5.2.2.1 Correlation analysis

The correlation matrix for the measures of AEM (AEMmjm and AEMkotha) and REM (REMCFO, REMPROD, REMDIS), the number of women on the BoE (FBOElevel), and control variables are available in Table 4.2.2a, b. The firm year observations in sample are listed on the HSX and HNX from 2008 to 2017.

The correlation coefficients between the number of women on the BoE and AEMmjm, AEMkotha is significantly positive at 5% and 10% respectively, which means that number of female seats on board of executive is positively correlation EM measured by modified Jones model and Kothari model.

There are some statistically significant correlations between FBOElevel and dbdipen, CEO\_D, firmsize, Finlever, Sown, Fown. The correlation between presence of women on board of executive and dbdipen, Finlever and Sown are negatively, whereas FBOElevel is positively correlated with Fown, ROAROA, CEOCEO\_D and firmsize

There is no excessively high problem of multicollinearity between the independent variables because most of the correlation coefficient magnitudes are below 0.8 (Gujarati, 2009).

#### 3.5.2.2.2 Regression analysis

We estimate the model by the alternative number of women on the BoE. The coefficient number of women on the BoE is significantly positive at the 10% level when AEM is measured by the Kothari model, as shown in Table 4.2.2-1. Hypothesis H<sub>1</sub>, ***“Women on boards are likely to curb earnings management”***, is not validated regarding women on the BoE.

**Table 4.2.2-1: Number of women on board of executives and accruals based earnings management (and robustness tests)**

VARIABLES	(1) AEMmjm	(2) AEMkotha	(3) AEMkotha	(4) AEMkotha
FBOElevel	0.00541 (0.00346)	0.00576* (0.00337)	0.00569* (0.00337)	0.00535* (0.00279)
AEMkotha_1				0.168*** (0.0265)
AEMkotha_2				0.104*** (0.0250)
dbdipen	-0.0139 (0.00972)	-0.0145 (0.00933)	-0.0149 (0.00938)	-0.0139* (0.00783)
AUDIT	-0.00848 (0.00573)	-0.0106* (0.00554)	-0.0103* (0.00558)	-0.00626 (0.00438)
CEO_D	-0.000446 (0.00548)	0.00110 (0.00539)	0.00115 (0.00539)	0.00350 (0.00455)
ROA	-0.00315 (0.0311)	-0.0157 (0.0304)	-0.0160 (0.0304)	0.00834 (0.0299)
BMRatio	0.000128 (0.000624)	0.000400 (0.000617)	0.000432 (0.000616)	0.000137 (0.000531)
firmsize	-0.0102*** (0.00224)	-0.00826*** (0.00222)	-0.00882*** (0.00250)	-0.00777*** (0.00186)
Finlever	-0.00445 (0.0184)	-0.00407 (0.0181)	-0.00255 (0.0186)	-0.000540 (0.0153)
SaleG	0.00187*** (0.000478)	0.00182*** (0.000434)	0.00182*** (0.000434)	0.00186*** (0.000470)
Sown	-0.0325*** (0.0112)	-0.0325*** (0.0111)	-0.0321*** (0.0110)	-0.0177* (0.00961)
Fown	-0.0393* (0.0223)	-0.0472** (0.0217)	-0.0478** (0.0218)	-0.0379** (0.0179)
Constant	0.410*** (0.0606)	0.359*** (0.0589)	0.372*** (0.0642)	0.303*** (0.0512)
Fixed effects	IY	IY	IYE	IY
Observations	2,626	2,626	2,626	2,586
R-squared	0.070	0.075	0.075	0.121

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Column 1: Represent the results of the regression for AEM measured by Jones modified model as a dependent variable

Column 2: Represent the results of the regression for AEM measured by Kothari model as a dependent variable

Column 3: Robustness test for listing place with AEMkotha and stock exchange fixed effect

Column 4: Robustness test with lag in AEMkotha model with lag length two periods (two years). AEMkotha\_1 is AEMkotha with a lag of one period, AEMkotha\_2 is AEMkotha with a lag of two periods.

Women on the BoE, who may seat on multiple boards leading to multiple directorships, have greater stock ownership showing the longer director turnover. Due to longer turnover and multiple directorships, women on the BoE are higher experience and lower monitoring (Xie et al., 2003), weak corporate governance (Cashman, Gillan, & Jun, 2012), which in turns increase EM and financial fraud ((Larcker et al., 2007).

**Table 4.2.2-2: Number of women on board of executives and real activities manipulation**

VARIABLES	(1) REMPROD	(2) REMCFO	(3) REMDIS
FBOElevel	-0.000100 (0.00436)	0.00122 (0.00347)	-0.000981 (0.00343)
dbdipen	-0.00442 (0.0125)	-0.0221** (0.00888)	-0.00909 (0.00841)
AUDIT	0.0137 (0.00840)	-0.00899* (0.00540)	0.00523 (0.00799)
CEO_D	0.00108 (0.00775)	0.00634 (0.00585)	-0.00666 (0.00498)
ROA	0.308*** (0.0548)	0.189*** (0.0492)	0.107*** (0.0310)
BMRatio	-0.00147 (0.000904)	-0.000637 (0.000669)	-0.00316** (0.00137)
firmsize	-0.0213*** (0.00342)	-0.0103*** (0.00220)	-0.0146*** (0.00302)
Finlever	0.0836*** (0.0174)	-0.00163 (0.0171)	0.0216 (0.0143)
SaleG	0.00421*** (0.000959)	0.00116** (0.000468)	9.24e-05 (0.000118)
Sown	-0.0196 (0.0152)	-0.0165 (0.0113)	0.0150 (0.0109)
Fown	0.0608* (0.0328)	-0.0288 (0.0229)	0.115*** (0.0266)
Constant	0.638*** (0.0898)	0.396*** (0.0582)	0.351*** (0.0688)
Fixed effects	IY	IY	IY
Observations	2,645	2,626	2,339
R-squared	0.135	0.076	0.165

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

where: column 1: Represent the results of the regression for REMPROD as a dependent variable

column 2: Represent the results of the regression for REMCFO as a dependent variable.

column 3: Represent the results of the regression for REMDIS as a dependent variable.

Table 4.2.2-2 illustrates the relationship between the number women on the BoE and three types of REM. The result shows that the effect of the number of women on the BoE on REM is insignificant. Hypothesis H<sub>1</sub>, “*Women on boards are likely to curb earnings management*”, is thus rejected through REM.

#### *3.5.2.2.3 Robustness check*

We performed robustness test only with the Kothari model due to an insignificant coefficient of the number of women on the BoE with AEM using the modified Jones model as well as with all REM measures. We first tests the impact of lagged variables, and second, the stock exchange was added as a dummy variable. Then the model is re-estimated (columns 2, 3 of Table 4.2.2-1).

The results of the impact of the number of women on the BoE on AEM are similar to previous results. Thus the hypothesis that women on the BoE is likely to mitigate EM is not confirmed.

### **3.5.3 Empirical results and analysis of “women as corporate leaders” on earnings management**

The analysis for women as corporate leaders has been done with chairwoman and female CEO and five different measures: two for AEM and three for REM. The result is significant only with chairwoman. So it is the only measure we present in the following section. The results with the four other measures and the results of female CEO with the five measures are in the Appendix.

**Table 4.3.1-a: Correlation matrix for Chairwomen and accrual based earnings management.**

	AEM mjm	AEM kotha	FCHAIR	dbdipen	CEO_D	AUDIT	ROA	BMRatio	firmsize	Finlever	SaleG	Sown	Fown
AEMmjm	1												
AEM kotha	0.965 <sup>***</sup>	1											
FCHAIR	-0.032	-0.038	1										
dbdipen	0.016	0.008	0.022	1									
CEO_D	0.041 <sup>**</sup>	0.048 <sup>**</sup>	0.004	0.178 <sup>***</sup>	1								
AUDIT	-0.096 <sup>***</sup>	-0.099 <sup>***</sup>	0.049 <sup>**</sup>	-0.188 <sup>***</sup>	-0.100 <sup>***</sup>	1							
ROA	-0.002	-0.016	0.048 <sup>**</sup>	0.048 <sup>**</sup>	-0.006	0.020	1						
BMRatio	0.055 <sup>*</sup>	0.053 <sup>*</sup>	-0.037	-0.005	-0.057 <sup>*</sup>	-0.034	-0.099 <sup>***</sup>	1					
firmsize	-0.109 <sup>***</sup>	-0.094 <sup>***</sup>	0.074 <sup>***</sup>	-0.345 <sup>***</sup>	-0.084 <sup>***</sup>	0.47 <sup>***</sup>	-0.057 <sup>*</sup>	-0.062 <sup>*</sup>	1				
Finlever	-0.037	-0.022	-0.028	-0.211 <sup>***</sup>	-0.036	0.037 <sup>**</sup>	-0.383 <sup>***</sup>	-0.001	0.324 <sup>***</sup>	1			
SaleG	0.100 <sup>***</sup>	0.100 <sup>***</sup>	-0.010	0.004	0.017	0.006	0.034	0.032	-0.027	-0.022	1		
Sown	-0.096 <sup>***</sup>	-0.103 <sup>***</sup>	-0.063 <sup>*</sup>	-0.065 <sup>***</sup>	-0.215 <sup>***</sup>	0.015	0.114 <sup>***</sup>	-0.080 <sup>***</sup>	-0.047 <sup>**</sup>	0.079 <sup>***</sup>	-0.044 <sup>**</sup>	1	
Fown	-0.056 <sup>*</sup>	-0.064 <sup>*</sup>	0.1 <sup>***</sup>	-0.048 <sup>**</sup>	-0.008	0.324 <sup>***</sup>	0.195 <sup>***</sup>	-0.014	0.318 <sup>***</sup>	-0.225 <sup>***</sup>	-0.003	-0.165 <sup>***</sup>	1

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

**Table 4.3.1-b: Correlation matrix for Chairwomen and real activities manipulation.**

	REM PROD	REM CFO	REMDIS	FCHAIR	dbdipen	CEO_D	AUDIT	ROA	BMRatio	firmsize	Finlever	SaleG	Sown	Fown
REMPROD	1													
REMCFO	0.218 <sup>***</sup>	1												
REMDIS	0.283 <sup>***</sup>	0.01	1											
FCHAIR	0.061 <sup>*</sup>	-0.025	0.057 <sup>*</sup>	1										
dbdipen	0.04	0.006	0.036	0.058 <sup>*</sup>	1									
CEO_D	0.023	0.045 <sup>**</sup>	-0.049 <sup>**</sup>	-0.004	0.198 <sup>***</sup>	1								
AUDIT	0.002	-0.079 <sup>***</sup>	0.023	0.051 <sup>**</sup>	-0.169 <sup>***</sup>	-0.087 <sup>***</sup>	1							
ROA	0.18 <sup>***</sup>	0.151 <sup>***</sup>	0.179 <sup>***</sup>	0.009	0.073 <sup>***</sup>	-0.026	0.01	1						
BMRatio	0.006	0.023	0.026	-0.035	-0.003	-0.043 <sup>**</sup>	-0.019	-0.073 <sup>***</sup>	1					
firmsize	-0.139 <sup>***</sup>	-0.105 <sup>***</sup>	-0.146 <sup>***</sup>	0.041 <sup>**</sup>	-0.333 <sup>***</sup>	-0.072 <sup>***</sup>	0.445 <sup>***</sup>	-0.069 <sup>***</sup>	-0.042 <sup>**</sup>	1				
Finlever	-0.052 <sup>**</sup>	-0.076 <sup>***</sup>	-0.159 <sup>***</sup>	-0.018	-0.219 <sup>***</sup>	-0.025	0.021	-0.378 <sup>***</sup>	-0.022	0.322 <sup>***</sup>	1			
SaleG	0.185 <sup>***</sup>	0.073 <sup>***</sup>	0.02	-0.011	0.005	0.017	0.006	0.036	0.033	-0.031	-0.024	1		
Sown	-0.014	-0.028	0.057 <sup>*</sup>	-0.06 <sup>*</sup>	-0.07 <sup>***</sup>	-0.227 <sup>***</sup>	0.004	0.127 <sup>***</sup>	-0.062 <sup>*</sup>	-0.052 <sup>**</sup>	0.067 <sup>*</sup>	-0.045 <sup>**</sup>	1	
Fown	0.068 <sup>*</sup>	-0.035	0.169 <sup>***</sup>	0.058 <sup>*</sup>	-0.022	-0.012	0.33 <sup>***</sup>	0.161 <sup>***</sup>	0.01	0.336 <sup>***</sup>	-0.207 <sup>***</sup>	-0.002	-0.155 <sup>***</sup>	1

\* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.0

### *3.5.3.1 Correlation matrix for chairwomen and earnings management*

The correlation matrix between the variables are shown in Table 4.3.1 a and b and give a first indication about the sign and the impact of Chairwomen and EM. The correlation of Chairwomen is insignificantly correlated with AEM and REMCFO, whereas it is significantly positively correlated with REMPROD and REMDIS.

There are statistically significant correlations between the dependent variables (AEM/REM) and control variables. AEMmjm is also significantly positively correlated with CEO\_D, BMRatio, and SaleG and negatively correlated with AUDIT, firmsize, and ownership diversity.

Chairwomen is positively correlated with AUDIT, ROA, firmsize and Fown. The opposite applies for Sown.

There is no excessively high problem of multicollinearity between the independent variables because most of the correlation coefficient magnitudes are below 0.8 (Gujarati, 2009).

### *3.5.3.2 Regression analysis*

The purpose of this part is to examine the relationship between female chairs and both AEM and REM. The results are displayed in Tables 4.3.2-1 and 4.3.2-2. While the coefficient of chairwomen is not significant with REM, it exhibits a negative and significant coefficient at the 5% level with AEM measured by the Kothari model. In other words, a female chair contributes to improving the earnings by mitigating AEM. Thus, the hypothesis that chairwomen are less engaged in EM is confirmed in terms of AEMkothari. This result is consistent with results found by (Lakhal et al., 2015).

**Table 4.3.2-1: Chairwomen and accrual based earning management (and robustness tests)**

VARIABLES	(1) AEMmjm	(2) AEMkotha	(3) AEMkotha	(4) AEMkotha
FCHAIR	-0.0118 (0.00798)	-0.0154** (0.00769)	-0.0163** (0.00778)	-0.0125* (0.00676)
AEMkotha_1				0.168*** (0.0265)
AEMkotha_2				0.104*** (0.0250)
dbdipen	-0.0151 (0.00951)	-0.0157* (0.00912)	-0.0161* (0.00916)	-0.0152** (0.00768)
AUDIT	-0.00934 (0.00568)	-0.0115** (0.00548)	-0.0111** (0.00551)	-0.00707 (0.00436)
CEO_D	-0.000234 (0.00551)	0.00129 (0.00540)	0.00134 (0.00541)	0.00369 (0.00456)
ROA	-0.00167 (0.0315)	-0.0140 (0.0306)	-0.0144 (0.0306)	0.01000 (0.0299)
BMRatio	5.92e-06 (0.000608)	0.000261 (0.000602)	0.000309 (0.000604)	1.50e-05 (0.000515)
firmsize	-0.00979*** (0.00226)	-0.00777*** (0.00224)	-0.00862*** (0.00249)	-0.00735*** (0.00188)
Finlever	-0.00460 (0.0185)	-0.00415 (0.0181)	-0.00182 (0.0186)	-0.000625 (0.0153)
SaleG	0.00187*** (0.000482)	0.00182*** (0.000439)	0.00182*** (0.000439)	0.00185*** (0.000474)
Sowner	-0.0361*** (0.0109)	-0.0364*** (0.0107)	-0.0358*** (0.0107)	-0.0214** (0.00926)
Fowner	-0.0353 (0.0226)	-0.0427* (0.0220)	-0.0435** (0.0221)	-0.0339* (0.0182)
Iexchange			0.00467 (0.00618)	
Constant	0.401*** (0.0613)	0.348*** (0.0597)	0.368*** (0.0641)	0.294*** (0.0517)
	IY	IY	IY	IY
Observations	2,626	2,626	2,626	2,586
R-squared	0.070	0.074	0.075	0.121

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Where: Column 1: Represent the results of the regression for AEM measured by Jones modified model as a dependent variable

Column 2: Represent the results of the regression for AEM measured by Kothari model as a dependent variable

Column 3: Robustness test for listing place with AEMkotha and stock exchange fixed effect (Iexchange\_2)

Column 4: Robustness test with lag in AEMkotha model with lag length two periods (two years). AEMkotha\_1 is AEMkotha with a lag of one period, AEMkotha\_2 is AEMkotha

with a lag of two periods.

**Table 4.3.2-2: Chairwomen and real activities manipulation**

VARIABLES	(1) REMPROD	(2) REMCFO	(3) REMDIS
FCHAIR	0.0217 (0.0174)	-0.00986 (0.00794)	0.00949 (0.0127)
dbdipen	-0.00549 (0.0124)	-0.0220** (0.00868)	-0.00957 (0.00809)
AUDIT	0.0137 (0.00846)	-0.00917* (0.00534)	0.00522 (0.00792)
CEO_D	0.00134 (0.00775)	0.00630 (0.00584)	-0.00656 (0.00499)
ROA	0.307*** (0.0549)	0.190*** (0.0489)	0.108*** (0.0309)
BMRatio	-0.00140 (0.000880)	-0.000688 (0.000669)	-0.00309** (0.00135)
firmsize	-0.0216*** (0.00345)	-0.0102*** (0.00219)	-0.0147*** (0.00303)
Finlever	0.0830*** (0.0174)	-0.00147 (0.0172)	0.0214 (0.0142)
SaleG	0.00421*** (0.000956)	0.00116** (0.000470)	9.24e-05 (0.000118)
Sowner	-0.0185 (0.0151)	-0.0177 (0.0110)	0.0160 (0.0105)
Fowner	0.0582* (0.0329)	-0.0271 (0.0230)	0.114*** (0.0267)
Constant	0.648*** (0.0908)	0.391*** (0.0582)	0.354*** (0.0687)
Fixed effects	IY	IY	IY
Observations	2,645	2,626	2,339
R-squared	0.137	0.076	0.166

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

where: column 1: Represent the results of the regression for REMPROD as a dependent variable

column 2: Represent the results of the regression for REMCFO as a dependent variable.

column 3: Represent the results of the regression for REMDIS as a dependent variable.

### 3.5.3.3 Robustness check

Regarding AEM, we added the stock exchange as a fixed effect in the model which measured AEM by the Kothari model, and we re-estimated it. The result is presented in column 4 of Table 4.3.2-1. The choice of a lag structure of dependent variables was made, as shown in column 3 of Table 4.3.2-1.

The coefficient of Chairwomen is significantly negative using the alternative models. Once again the hypothesis that women as corporate leaders mitigates EM is confirmed when we work with AEMkothari.

## 3.6 Conclusion

**Table 2: Summary of the empirical results**

Board	Variables	Results			
		AEM	REMPROD	REMCFO	REMDIS
<b>Board gender diversity</b>					
<i>Women on boards</i>	Shannon index	+	+	Insignificant	Insignificant
	dFOB/FOBlevel/FOBdummy	Insignificant	Insignificant	Insignificant	Insignificant
<i>Board of directors</i>	dFBOD/dFOBDlevel/FBODdummy	Insignificant	Insignificant	Insignificant	Insignificant
<b>Board of executives</b>	dFBOE/FBOEdummy	Insignificant	Insignificant	Insignificant	Insignificant
	FBOElevel	+	Insignificant	Insignificant	Insignificant
<b>Board of supervisory</b>	dFBOS/FBOSlevel/FBOSdummy	Insignificant	Insignificant	Insignificant	Insignificant
<b>Female as corporate leaders</b>					
	Chairwomen	-	Insignificant	Insignificant	Insignificant
	Female CEO	Insignificant	Insignificant	Insignificant	Insignificant

The objective of this study was to investigate whether the presence of women on boards and women as corporate leaders has an impact on earnings management of Vietnamese listed firms. We performed several alternative panel regressions of accrual-based earnings management and real activities manipulation on women's participation on boards (all boards,

boards of directors, boards of executives, and supervisory boards) and women as corporate leaders (chairwoman and CEO). Our findings are consistent with previous studies, that chairwomen mitigate accruals-based earnings management (Lakhal et al., 2015). This result is consistent with the idea that women are more ethical and less prone to taking risk in their decisions that affect earnings management. The empirical results also show the number of women on boards of executives engage in AEM measured by the Kothari model. But the results are most different concerning the influence of women, not as corporate leaders but “just” as present on boards : indeed, women on boards, measured by the Shannon index among the different boards and in terms of number in the board of executives (FBOElevel), engage in more accrual-based earnings management measured by the Kothari model and real activities manipulation measured by abnormal overproduction. It would be interesting to deepen the analysis by studying board diversity related to the education, experience, and tenure of women on boards. Unfortunately, due to limitations in data, this analysis could not be done. An important point of explanation is that the decision to appoint women on corporate boards, who keep improving the effectiveness and efficiency of the corporate governance mechanism, should be based not only on the implementation of gender quotas but also on their statutory and demographic attributes (Gull et al., 2018) in Vietnamese listed firms. Another important point to consider is the type of company, which may be a family-owned enterprise or a State-owned firm.

So, women on boards and women on board of executives engage more in EM, whereas Chairwomen are associated with less EM. Thus, we suspect that the presence of women on boards lead to weaker monitoring related to EM. Thus, we also follow the critical mass theory to divide women on board into two groups (Lakhal et al., 2015), (i) the first group is under the mean of FOB (one women on board) and (ii) the second group is board with two or more FOB. Our result shows that the coefficient between one FOB and AEM is negative, but insignificant except REMPROD (as presented in table 1.1, 1.2, 1.3 and 1.4 in appendix 1-C).

The results of this study contribute to the literature on corporate governance in emerging markets. As shown by the empirical results, policies and reforms should emphasize the promotion of women as leading position such as chairwomen instead of putting pressure on increasing the number of women in the boardroom.

The findings of the study are subject to several limitations. First, gender is only one aspect of women on boards, and the study did not investigate the effects of other characteristics and tendencies regarding gender diversity, such as education, financial

experience, and tenure, in examining the relationship between board gender diversity and EM. Second, the study also does not investigate the role of blockholders as family owned enterprises because of limited data. Third, the study was focused on Vietnamese firms, and thus can hardly be generalized to other markets.

### 3.7 References

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**APPENDIX 1: Results with different other measures of gender diversity and various measures for AEM and REM**

**APPENDIX 1-A :** Different other measures of “Female on boards” (Shannon Index and FBOLevel being tabulated in the paper)

**1. Female on Boards**

**Table 1-1: Percentage of women on boards and accruals based earnings management**

VARIABLES	(1) AEMmjm	(2) AEMkotha
dFOB	0.00820 (0.0172)	0.0149 (0.0174)
dbdipen	-0.0164* (0.00960)	-0.0178* (0.00927)
AUDIT	-0.00886 (0.00570)	-0.0105* (0.00551)
CEO_D	-4.48e-05 (0.00550)	0.00141 (0.00541)
ROA	0.000679 (0.0327)	-0.0137 (0.0313)
BMRatio	5.24e-05 (0.000618)	0.000327 (0.000615)
firmsize	-0.00995*** (0.00223)	-0.00803*** (0.00221)
Finlever	-0.00198 (0.0187)	-0.00195 (0.0183)
SaleG	0.00185*** (0.000485)	0.00180*** (0.000439)
Sown	-0.0365*** (0.0109)	-0.0363*** (0.0108)
Fown	-0.0367 (0.0225)	-0.0450** (0.0219)
Constant	0.403*** (0.0606)	0.353*** (0.0589)
Fixed effects	IY	
Observations	2,616	2,616
R-squared	0.070	0.074

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 1-2: Percentage women on boards and real activities manipulation**

VARIABLES	(2) REMPROD	(3) REMCFO	(4) REMDIS
dFOB	0.0127 (0.0244)	0.0117 (0.0177)	0.00193 (0.0149)
dbdipen	-0.00536 (0.0128)	-0.0233*** (0.00877)	-0.00922 (0.00831)
AUDIT	0.0143* (0.00847)	-0.00852 (0.00543)	0.00557 (0.00833)
CEO_D	0.000904 (0.00775)	0.00638 (0.00587)	-0.00676 (0.00499)
ROA	0.314*** (0.0556)	0.191*** (0.0504)	0.109*** (0.0319)
BMRatio	-0.00144 (0.000895)	-0.000631 (0.000668)	-0.00317** (0.00136)
firmsize	-0.0213*** (0.00342)	-0.0103*** (0.00218)	-0.0146*** (0.00303)
Finlever	0.0854*** (0.0177)	2.91e-06 (0.0174)	0.0218 (0.0145)
SaleG	0.00419*** (0.000959)	0.00115** (0.000469)	9.12e-05 (0.000121)
Sown	-0.0192 (0.0150)	-0.0175 (0.0111)	0.0156 (0.0104)
Fown	0.0602* (0.0327)	-0.0283 (0.0231)	0.114*** (0.0266)
Constant	0.835*** (0.169)	0.393*** (0.0579)	0.350*** (0.0692)
Fixed effects	IY	IY	IY
Observations	2,635	2,616	2,329
R-squared	0.136	0.076	0.165

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 1-3: Number of women on boards and accruals based earnings management**

VARIABLES	(1) AEMmjm	(2) AEMkotha
FOBlevel	0.000891 (0.00172)	0.00127 (0.00170)
Dbdipen	-0.0159* (0.00952)	-0.0167* (0.00915)
AUDIT	-0.00868 (0.00575)	-0.0106* (0.00555)
CEO_D	-0.000143 (0.00551)	0.00141 (0.00542)
ROA	-0.00247 (0.0315)	-0.0151 (0.0305)
BMRatio	6.64e-05 (0.000620)	0.000342 (0.000616)
Firmsize	-0.0101*** (0.00225)	-0.00814*** (0.00223)
Finlever	-0.00460 (0.0185)	-0.00411 (0.0182)
SaleG	0.00186*** (0.000479)	0.00181*** (0.000434)
Sown	-0.0348*** (0.0110)	-0.0347*** (0.0109)
Fown	-0.0373* (0.0225)	-0.0454** (0.0219)
Constant	0.407*** (0.0609)	0.00127 (0.00170)
Observations	2,626	-0.0167* (0.00915)
R-squared	0.069	-0.0106*

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 1-4: Number of women on boards and real activities manipulation**

VARIABLES	(1) REMPROD	(2) REMCFO	(3) REMDIS
FOBlevel	0.00224 (0.00239)	0.000923 (0.00172)	-5.43e-05 (0.00151)
dbdipen	-0.00475 (0.0126)	-0.0227*** (0.00868)	-0.00881 (0.00832)
AUDIT	0.0155* (0.00849)	-0.00848 (0.00545)	0.00536 (0.00836)
CEO_D	0.000934 (0.00775)	0.00636 (0.00587)	-0.00673 (0.00497)
ROA	0.308*** (0.0549)	0.189*** (0.0491)	0.108*** (0.0311)
BMRatio	-0.00141 (0.000889)	-0.000633 (0.000668)	-0.00313** (0.00135)
firmsize	-0.0216*** (0.00342)	-0.0104*** (0.00220)	-0.0146*** (0.00303)
Finlever	0.0844*** (0.0175)	-0.00141 (0.0172)	0.0216 (0.0144)
SaleG	0.00420*** (0.000953)	0.00116** (0.000467)	9.33e-05 (0.000120)
Sown	-0.0178 (0.0149)	-0.0165 (0.0111)	0.0155 (0.0103)
Fown	0.0592* (0.0325)	-0.0289 (0.0230)	0.114*** (0.0266)
Constant	0.642*** (0.0894)	0.397*** (0.0583)	0.350*** (0.0692)
Fixed effects	IY	IY	IY
Observations	2,645	2,626	2,339
R-squared	0.136	0.076	0.165

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 1-5: Presence of women on boards and accruals based earnings management**

VARIABLES	AEMmjm	(2) AEMkotha
FOBdummy	-0.002 (0.00576)	-0.000680 (0.00567)
Dbdipen	-0.0158* (0.00952)	-0.0165* (0.00915)
AUDIT	-0.00980* (0.00567)	-0.0117** (0.00550)
CEO_D	-3.72e-05 (0.00550)	0.00150 (0.00540)
ROA	-0.00216 (0.0316)	-0.0148 (0.0306)
BMRatio	3.66e-05 (0.000611)	0.000308 (0.000606)
Firmsize	-0.00994*** (0.00223)	-0.00797*** (0.00222)
Finlever	-0.00497 (0.0184)	-0.00458 (0.0181)
SaleG	0.00186*** (0.000483)	0.00182*** (0.000438)
Sown	-0.0356*** (0.0109)	-0.0357*** (0.0107)
Fown	-0.0362 (0.0225)	-0.0444** (0.0219)
Constant	0.355*** (0.0589)	0.355*** (0.0589)
Fixed effects	IY	IY
Observations	2,626	2,626
R-squared	0.073	0.073

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 1-6: Presence of women on boards and real activities manipulation**

VARIABLES	(1) REMPROD	(2) REMCFO	(3) REMDIS
FOBdummy	-0.00813 (0.00757)	0.00323 (0.00575)	0.00778 (0.00474)
dbdipen	-0.00438 (0.0125)	-0.0225*** (0.00868)	-0.00888 (0.00832)
AUDIT	0.0121 (0.00850)	-0.00856 (0.00543)	0.00692 (0.00821)
CEO_D	0.00125 (0.00775)	0.00634 (0.00586)	-0.00695 (0.00498)
ROA	0.308*** (0.0544)	0.189*** (0.0492)	0.108*** (0.0310)
BMRatio	-0.00150* (0.000892)	-0.000645 (0.000667)	-0.00302** (0.00134)
firmsize	-0.0213*** (0.00342)	-0.0103*** (0.00218)	-0.0146*** (0.00301)
Finlever	0.0833*** (0.0173)	-0.00164 (0.0171)	0.0217 (0.0143)
SaleG	0.00420*** (0.000966)	0.00117** (0.000466)	9.75e-05 (0.000116)
Sown	-0.0201 (0.0150)	-0.0170 (0.0110)	0.0157 (0.0105)
Fown	0.0625* (0.0327)	-0.0289 (0.0231)	0.113*** (0.0266)
Constant	0.646*** (0.0897)	0.392*** (0.0580)	0.346*** (0.0685)
Fixed effects	IY	IY	IY
Observations	2,645	2,626	2,339
R-squared	0.136	0.076	0.167

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

## 2. Female on boards of directors

**Table 2-1: Percentage women on boards of directors and accruals based earnings management**

VARIABLES	(1) AEMmjm	(2) AEMkotha
dFBOD	-0.00337 (0.0152)	0.00364 (0.0156)
Dbdipen	-0.0156 (0.00969)	-0.0169* (0.00932)
AUDIT	-0.00954* (0.00566)	-0.0114** (0.00546)
CEO_D	7.58e-05 (0.00550)	0.00149 (0.00541)
ROA	0.000290 (0.0328)	-0.0143 (0.0314)
BMRatio	3.11e-05 (0.000612)	0.000299 (0.000607)
Firmsize	-0.00990*** (0.00223)	-0.00802*** (0.00221)
Finlever	-0.00236 (0.0186)	-0.00243 (0.0183)
SaleG	0.00186*** (0.000487)	0.00181*** (0.000442)
Sown	-0.0373*** (0.0108)	-0.0371*** (0.0107)
Fown	-0.0361 (0.0226)	-0.0448** (0.0220)
Constant	0.519*** (0.0794)	0.474*** (0.0739)
Fixed effects	IY	IY
Observations	2,615	2,615
R-squared	0.070	0.074

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 2-2: Percentage women on boards of directors and real activities manipulation**

VARIABLES	(1) REMPROD	(2) REMCFO	(3) REMDIS
dFBOD	-0.0197 (0.0237)	0.000248 (0.0163)	-0.00493 (0.0166)
dbdipen	-0.00327 (0.0127)	-0.0224** (0.00886)	-0.00880 (0.00839)
AUDIT	0.0128 (0.00840)	-0.00933* (0.00533)	0.00526 (0.00817)
CEO_D	0.00123 (0.00781)	0.00651 (0.00588)	-0.00661 (0.00501)
ROA	0.313*** (0.0552)	0.191*** (0.0504)	0.108*** (0.0319)
BMRatio	-0.00150* (0.000904)	-0.000654 (0.000669)	-0.00318** (0.00137)
firmsize	-0.0211*** (0.00341)	-0.0103*** (0.00217)	-0.0146*** (0.00303)
Finlever	0.0844*** (0.0175)	-0.000415 (0.0173)	0.0216 (0.0144)
SaleG	0.00421*** (0.000967)	0.00116** (0.000471)	9.39e-05 (0.000119)
Sown	-0.0212 (0.0151)	-0.0182* (0.0110)	0.0154 (0.0105)
Fown	0.0622* (0.0332)	-0.0279 (0.0232)	0.114*** (0.0269)
Constant	0.634*** (0.0896)	0.494*** (0.0757)	0.500*** (0.0806)
Observations	IY 2,634	IY 2,615	IY 2,328
R-squared	0.136	0.076	0.165

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 2-3: Number of women on boards of directors and real activities manipulation**

VARIABLES	(1) REMPROD	(2) REMCFO	(3) REMDIS
FBODlevel	-0.00235 (0.00419)	0.000435 (0.00281)	-0.000478 (0.00331)
Dbdipen	-0.00353 (0.0127)	-0.0227** (0.00885)	-0.00862 (0.00842)
AUDIT	0.0134 (0.00841)	-0.00913* (0.00533)	0.00532 (0.00814)
CEO_D	0.00125 (0.00779)	0.00639 (0.00587)	-0.00669 (0.00499)
ROA	0.308*** (0.0544)	0.189*** (0.0491)	0.107*** (0.0311)
BMRatio	-0.00149* (0.000900)	-0.000653 (0.000668)	-0.00313** (0.00135)
Firmsize	-0.0211*** (0.00340)	-0.0103*** (0.00217)	-0.0146*** (0.00303)
Finlever	0.0834*** (0.0173)	-0.00170 (0.0171)	0.0216 (0.0143)
SaleG	0.00421*** (0.000961)	0.00116** (0.000468)	9.34e-05 (0.000118)
Sown	-0.0205 (0.0150)	-0.0170 (0.0110)	0.0153 (0.0103)
Fown	0.0623* (0.0331)	-0.0285 (0.0232)	0.114*** (0.0271)
Constant	0.634*** (0.0894)	0.396*** (0.0580)	0.349*** (0.0691)
Fixed effects	IY	IY	IY
Observations	2,645	2,626	2,339
R-squared	0.135	0.076	0.165

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 2-4: Presence and number of women on boards of directors and accruals based earnings management**

VARIABLES	(1) AEMmjm	(2) AEMkotha	(3) AEMmjm	(4) AEMkotha
FBODdummy	0.00138 (0.00500)	0.00437 (0.00492)		
FBODlevel			-0.000481 (0.00270)	0.000628 (0.00272)
dbdipen	-0.0160* (0.00963)	-0.0173* (0.00926)	-0.0156 (0.00970)	-0.0168* (0.00934)
AUDIT	-0.00919 (0.00567)	-0.0110** (0.00548)	-0.00944* (0.00568)	-0.0115** (0.00549)
CEO_D	-9.49e-05 (0.00550)	0.00146 (0.00541)	-5.12e-05 (0.00550)	0.00144 (0.00541)
ROA	-0.00221 (0.0316)	-0.0145 (0.0305)	-0.00231 (0.0316)	-0.0149 (0.0305)
BMRatio	5.33e-05 (0.000616)	0.000340 (0.000612)	4.04e-05 (0.000613)	0.000315 (0.000608)
firmsize	-0.00998*** (0.00223)	-0.00808*** (0.00222)	-0.00991*** (0.00223)	-0.00802*** (0.00222)
Finlever	-0.00480 (0.0184)	-0.00422 (0.0181)	-0.00494 (0.0184)	-0.00452 (0.0181)
SaleG	0.00186*** (0.000480)	0.00181*** (0.000434)	0.00187*** (0.000482)	0.00181*** (0.000437)
Sown	-0.0353*** (0.0109)	-0.0349*** (0.0108)	-0.0357*** (0.0109)	-0.0354*** (0.0108)
Fown	-0.0372 (0.0227)	-0.0462** (0.0220)	-0.0364 (0.0226)	-0.0450** (0.0219)
Constant	0.406*** (0.0607)	0.356*** (0.0592)	0.405*** (0.0608)	0.356*** (0.0592)
Fixed effects	IY	IY	IY	IY
Observations	2,626	2,626	2,626	2,626
R-squared	0.069	0.074	0.069	0.073

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 2-5: Presence of women on boards of directors and real activities manipulation**

VARIABLES	(1) REMPROD	(2) REMCFO	(3) REMDIS
FBODdummy	-0.00304 (0.00729)	0.00380 (0.00528)	-0.000183 (0.00508)
Dbdipen	-0.00387 (0.0126)	-0.0232*** (0.00876)	-0.00879 (0.00836)
AUDIT	0.0133 (0.00838)	-0.00870 (0.00535)	0.00537 (0.00817)
CEO_D	0.00109 (0.00776)	0.00640 (0.00586)	-0.00673 (0.00496)
ROA	0.308*** (0.0542)	0.189*** (0.0492)	0.108*** (0.0312)
BMRatio	-0.00149* (0.000895)	-0.000631 (0.000665)	-0.00312** (0.00136)
Firmsize	-0.0212*** (0.00343)	-0.0104*** (0.00218)	-0.0146*** (0.00302)
Finlever	0.0833*** (0.0174)	-0.00144 (0.0171)	0.0216 (0.0143)
SaleG	0.00421*** (0.000961)	0.00116** (0.000465)	9.32e-05 (0.000119)
Sown	-0.0200 (0.0149)	-0.0166 (0.0110)	0.0155 (0.0104)
Fown	0.0619* (0.0330)	-0.0297 (0.0232)	0.114*** (0.0270)
Constant	0.638*** (0.0899)	0.396*** (0.0581)	0.350*** (0.0691)
Fixed effects	IY	IY	IY
Observations	2,645	2,626	2,339
R-squared	0.135	0.076	0.165

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 2-6: Number of women on boards of directors and real activities manipulation**

VARIABLES	(1) REMPROD	(2) REMCFO	(3) REMDIS
FBODlevel	-0.00235 (0.00419)	0.000435 (0.00281)	-0.000478 (0.00331)
Dbdipen	-0.00353 (0.0127)	-0.0227** (0.00885)	-0.00862 (0.00842)
AUDIT	0.0134 (0.00841)	-0.00913* (0.00533)	0.00532 (0.00814)
CEO_D	0.00125 (0.00779)	0.00639 (0.00587)	-0.00669 (0.00499)
ROA	0.308*** (0.0544)	0.189*** (0.0491)	0.107*** (0.0311)
BMRatio	-0.00149* (0.000900)	-0.000653 (0.000668)	-0.00313** (0.00135)
firmsize	-0.0211*** (0.00340)	-0.0103*** (0.00217)	-0.0146*** (0.00303)
Finlever	0.0834*** (0.0173)	-0.00170 (0.0171)	0.0216 (0.0143)
SaleG	0.00421*** (0.000961)	0.00116** (0.000468)	9.34e-05 (0.000118)
Sown	-0.0205 (0.0150)	-0.0170 (0.0110)	0.0153 (0.0103)
Fown	0.0623* (0.0331)	-0.0285 (0.0232)	0.114*** (0.0271)
Constant	0.634*** (0.0894)	0.396*** (0.0580)	0.349*** (0.0691)
Fixed effects	IY	IY	IY
Observations	2,645	2,626	2,339
R-squared	0.135	0.076	0.165

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

### 3. Female on boards of executives

**Table 3-1: Percentage women on boards of executives and accruals based earnings management**

VARIABLES	(1) AEMmjm	(1) AEMkotha
dFBOE	0.0175 (0.0137)	0.0209 (0.0137)
Dbdipen	-0.0164* (0.00957)	-0.0172* (0.00919)
AUDIT	-0.00871 (0.00570)	-0.0106* (0.00550)
CEO_D	0.000144 (0.00551)	0.00168 (0.00542)
ROA	0.00423 (0.0321)	-0.0101 (0.0305)
BMRatio	5.43e-05 (0.000613)	0.000320 (0.000605)
firmsize	-0.0100*** (0.00223)	-0.00808*** (0.00221)
Finlever	-0.000633 (0.0185)	-0.000619 (0.0181)
SaleG	0.00187*** (0.000486)	0.00182*** (0.000442)
Sown	-0.0355*** (0.0111)	-0.0352*** (0.0110)
Fown	-0.0398* (0.0223)	-0.0480** (0.0216)
Constant	0.378*** (0.0628)	0.313*** (0.0609)
Fixed effects	IY	IY
Observations	2,612	2,612
R-squared	0.070	0.075

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 3-2: Percentage women on boards of executives sand real activities manipulation**

VARIABLES	(1) REMPROD	(2) REMCFO	(3) REMDIS
dFBOE	0.00180 (0.0213)	0.0124 (0.0144)	-0.00433 (0.0134)
Dbdipen	-0.00408 (0.0126)	-0.0232*** (0.00869)	-0.00902 (0.00836)
AUDIT	0.0136 (0.00848)	-0.00869 (0.00538)	0.00512 (0.00803)
CEO_D	0.000751 (0.00779)	0.00656 (0.00588)	-0.00668 (0.00501)
ROA	0.312*** (0.0554)	0.194*** (0.0501)	0.107*** (0.0317)
BMRatio	-0.00146 (0.000901)	-0.000646 (0.000664)	-0.00318** (0.00138)
firmsize	-0.0212*** (0.00345)	-0.0103*** (0.00218)	-0.0147*** (0.00304)
Finlever	0.0842*** (0.0176)	0.000950 (0.0172)	0.0212 (0.0145)
SaleG	0.00421*** (0.000964)	0.00116** (0.000473)	9.17e-05 (0.000118)
Sown	-0.0201 (0.0152)	-0.0177 (0.0112)	0.0154 (0.0108)
Fown	0.0602* (0.0331)	-0.0322 (0.0224)	0.116*** (0.0266)
Constant	0.637*** (0.0900)	0.399*** (0.0742)	0.360*** (0.0706)
Fixed effects	IY	IY	
Observations	2,631	2,612	2,31Y25
R-squared	0.136	0.077	0.166

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 3-3: The presence of women on boards of executives and accruals based earnings management**

VARIABLES	(1) AEMmjm	(2) AEMkotha
FBOEdummy	0.00574 (0.00597)	0.00746 (0.00590)
Dbdipen	-0.0150 (0.00955)	-0.0156* (0.00919)
AUDIT	-0.00891 (0.00571)	-0.0109** (0.00551)
CEO_D	-0.000253 (0.00547)	0.00127 (0.00538)
ROA	-0.00241 (0.0315)	-0.0150 (0.0305)
BMRatio	5.96e-05 (0.000614)	0.000331 (0.000606)
Firmsize	-0.00992*** (0.00223)	-0.00794*** (0.00222)
Finlever	-0.00467 (0.0184)	-0.00424 (0.0180)
SaleG	0.00188*** (0.000478)	0.00183*** (0.000434)
Sown	-0.0335*** (0.0113)	-0.0330*** (0.0112)
Fown	-0.0378* (0.0224)	-0.0459** (0.0218)
Constant	0.403*** (0.0606)	0.350*** (0.0589)
Fixed effects	IY	IY
Observations	2,626	2,626
R-squared	0.069	0.074

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 3-4: Presence of women on boards of executives and real activities manipulation**

VARIABLES	(1) REMPROD	(2) REMCFO	(3) REMDIS
FBOEdummy	-0.000167 (0.00727)	0.00585 (0.00603)	0.000721 (0.00509)
Dbdipen	-0.00440 (0.0124)	-0.0218** (0.00873)	-0.00874 (0.00833)
AUDIT	0.0137 (0.00840)	-0.00872 (0.00537)	0.00545 (0.00800)
CEO_D	0.00108 (0.00774)	0.00625 (0.00584)	-0.00677 (0.00497)
ROA	0.308*** (0.0547)	0.189*** (0.0493)	0.108*** (0.0309)
BMRatio	-0.00147 (0.000899)	-0.000640 (0.000661)	-0.00311** (0.00137)
Firmsize	-0.0213*** (0.00342)	-0.0103*** (0.00218)	-0.0146*** (0.00301)
Finlever	0.0836*** (0.0174)	-0.00149 (0.0171)	0.0216 (0.0143)
SaleG	0.00421*** (0.000959)	0.00117** (0.000466)	9.41e-05 (0.000118)
Sown	-0.0196 (0.0153)	-0.0151 (0.0114)	0.0158 (0.0108)
Fown	0.0608* (0.0328)	-0.0293 (0.0229)	0.114*** (0.0265)
Constant	0.639*** (0.0898)	0.392*** (0.0577)	0.349*** (0.0683)
	IY	IY	IY
Observations	2,645	2,626	2,339
R-squared	0.135	0.076	0.165

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

#### 4. Female on supervisory boards

**Table 4.1-The number women on supervisory boards and accrual based earnings management**

VARIABLES	(1) AEMmjm	(2) AEMkotha
FBOSlevel	0.000739 (0.00281)	0.000401 (0.00273)
dbdipen	-0.0160* (0.00948)	-0.0166* (0.00914)
AUDIT	-0.00897 (0.00587)	-0.0113** (0.00565)
CEO_D	-5.04e-05 (0.00550)	0.00151 (0.00540)
ROA	-0.00262 (0.0314)	-0.0150 (0.0305)
BMRatio	5.05e-05 (0.000617)	0.000314 (0.000609)
firmsize	-0.00997*** (0.00224)	-0.00799*** (0.00222)
Finlever	-0.00480 (0.0185)	-0.00450 (0.0181)
SaleG	0.00186*** (0.000481)	0.00181*** (0.000437)
Sown	-0.0355*** (0.0108)	-0.0356*** (0.0107)
Fown	-0.0367 (0.0225)	-0.0445** (0.0219)
Constant	0.405*** (0.0607)	0.354*** (0.0590)
Fixed effects	IY	IY
Observations	2,626	2,626
R-squared	0.069	0.073

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 4.2-The number women on supervisory boards and real activities manipulation**

VARIABLES	(1) REMPROD	(4) REMCFO	(5) REMDIS
FBOSlevel	0.00607 (0.00421)	0.000840 (0.00286)	0.00134 (0.00245)
Dbdipen	-0.00612 (0.0127)	-0.0228*** (0.00864)	-0.00926 (0.00832)
AUDIT	0.0170** (0.00859)	-0.00874 (0.00556)	0.00611 (0.00815)
CEO_D	0.00137 (0.00783)	0.00646 (0.00587)	-0.00663 (0.00497)
ROA	0.306*** (0.0548)	0.189*** (0.0492)	0.108*** (0.0309)
BMRatio	-0.00143 (0.000885)	-0.000649 (0.000668)	-0.00311** (0.00135)
Firmsize	-0.0215*** (0.00341)	-0.0103*** (0.00220)	-0.0146*** (0.00302)
Finlever	0.0845*** (0.0175)	-0.00161 (0.0172)	0.0218 (0.0143)
SaleG	0.00416*** (0.000968)	0.00116** (0.000470)	8.12e-05 (0.000124)
Sown	-0.0192 (0.0150)	-0.0172 (0.0110)	0.0154 (0.0105)
Fown	0.0609* (0.0324)	-0.0282 (0.0230)	0.114*** (0.0264)
Constant	0.638*** (0.0889)	0.395*** (0.0580)	0.350*** (0.0691)
Observations	2,645	2,626	2,339
R-squared	0.137	0.076	0.165

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 4.3-The presence women on supervisory boards and accrual based earnings management**

VARIABLES	(1) AEMmjm	(2) AEMkotha
FBOSdummy	0.00226 (0.00508)	0.00105 (0.00500)
Dbdipen	-0.0157* (0.00951)	-0.0165* (0.00915)
AUDIT	-0.00875 (0.00591)	-0.0113** (0.00572)
CEO_D	-3.19e-05 (0.00551)	0.00151 (0.00541)
ROA	-0.00295 (0.0316)	-0.0151 (0.0306)
BMRatio	5.21e-05 (0.000616)	0.000314 (0.000608)
firmsize	-0.00999*** (0.00224)	-0.00800*** (0.00222)
Finlever	-0.00470 (0.0184)	-0.00446 (0.0181)
SaleG	0.00186*** (0.000482)	0.00181*** (0.000438)
Sown	-0.0353*** (0.0109)	-0.0356*** (0.0107)
Fown	-0.0367 (0.0226)	-0.0445** (0.0219)
Constant	0.405*** (0.0607)	0.354*** (0.0590)
Fixed effects	IY	IY
Observations	2,626	2,626
R-squared	0.069	0.073

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 4.4-The presence women on supervisory boards and real activities manipulation**

VARIABLES	(1) REMPROD	(2) REMCFO	(3) REMDIS
FBOSdummy	0.00114 (0.00713)	0.000601 (0.00510)	0.00387 (0.00438)
Dbdipen	-0.00449 (0.0125)	-0.0226*** (0.00868)	-0.00900 (0.00830)
AUDIT	0.0138 (0.00857)	-0.00903 (0.00556)	0.00626 (0.00810)
CEO_D	0.00104 (0.00780)	0.00643 (0.00587)	-0.00666 (0.00495)
ROA	0.307*** (0.0547)	0.189*** (0.0493)	0.107*** (0.0308)
BMRatio	-0.00146 (0.000895)	-0.000654 (0.000666)	-0.00306** (0.00134)
firmsize	-0.0213*** (0.00344)	-0.0103*** (0.00220)	-0.0147*** (0.00303)
Finlever	0.0836*** (0.0175)	-0.00168 (0.0172)	0.0217 (0.0143)
SaleG	0.00421*** (0.000958)	0.00116** (0.000469)	8.54e-05 (0.000120)
Sown	-0.0191 (0.0149)	-0.0172 (0.0110)	0.0158 (0.0104)
Fown	0.0612* (0.0329)	-0.0282 (0.0230)	0.114*** (0.0264)
Constant	0.590*** (0.0918)	0.395*** (0.0579)	0.350*** (0.0689)
Fixed effects	IY	IY	IY
Observations	2,646	2,626	2,340
R-squared	0.135	0.076	0.166

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 4.5-The percentage women on supervisory boards and accrual based earnings management**

VARIABLES	(1) AEMmjm	(2) AEMkotha
dFBOS	0.0100 (0.00974)	0.00993 (0.00947)
Dbdipen	-0.0178 (0.0116)	-0.0193* (0.0111)
AUDIT	-0.0115 (0.00731)	-0.0119* (0.00712)
CEO_D	-0.00105 (0.00625)	-0.000109 (0.00606)
ROA	0.00565 (0.0454)	-0.0223 (0.0435)
BMRatio	2.21e-05 (0.000764)	0.000314 (0.000750)
Firmsize	-0.0113*** (0.00277)	-0.00959*** (0.00268)
Finlever	-0.000151 (0.0234)	-0.00126 (0.0232)
SaleG	0.00187*** (0.000501)	0.00184*** (0.000453)
Sown	-0.0328** (0.0129)	-0.0280** (0.0128)
Fown	-0.0272 (0.0273)	-0.0327 (0.0264)
Constant	0.416*** (0.0752)	0.391*** (0.0708)
Fixed effects	IY	IY
Observations	1,851	1,851
R-squared	0.078	0.081

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 4-6-The percentage women on supervisory boards and real activities manipulation**

VARIABLES	(1) REMPROD	(2) REMCFO	(3) REMDIS
dFBOS	0.0247 (0.0162)	0.0110 (0.0101)	0.00311 (0.00937)
Dbdipen	0.0143 (0.0164)	-0.0220** (0.0102)	-0.0179* (0.0105)
AUDIT	0.0181 (0.0115)	-0.0147** (0.00679)	0.0124 (0.0104)
CEO_D	0.00169 (0.00981)	0.00604 (0.00659)	-0.00613 (0.00593)
ROA	0.349*** (0.0794)	0.178*** (0.0662)	0.0884** (0.0386)
BMRatio	-0.00218** (0.00108)	-0.000639 (0.000749)	-0.00437** (0.00170)
firmsize	-0.0241*** (0.00479)	-0.0113*** (0.00281)	-0.0185*** (0.00401)
Finlever	0.0980*** (0.0221)	0.00425 (0.0217)	0.0277 (0.0181)
SaleG	0.00411*** (0.00100)	0.00119*** (0.000441)	1.26e-05 (0.000138)
Sown	-0.0300 (0.0195)	-0.00915 (0.0127)	0.0185 (0.0125)
Fown	0.0553 (0.0416)	-0.00895 (0.0283)	0.143*** (0.0297)
Constant	0.660*** (0.134)	0.406*** (0.0781)	0.439*** (0.0939)
Fixed effects	IY	IY	IY
Observations	1,866	1,851	1,657
R-squared	0.160	0.084	0.199

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**APPENDIX 1-B : Other measure of “Female as corporate leaders” : Female CEOs  
(Chairwomen being tabulated in the paper)**

**Table 1-1: Female CEOs and accrual based earnings management**

VARIABLES	(1) AEMmjm	(2) AEMkotha
FCEO	-0.00577 (0.00824)	-0.00534 (0.00868)
Dbdipen	-0.0158* (0.00951)	-0.0165* (0.00913)
AUDIT	-0.00928 (0.00571)	-0.0115** (0.00552)
CEO_D	2.59e-05 (0.00551)	0.00159 (0.00542)
ROA	-0.00171 (0.0316)	-0.0143 (0.0307)
BMRatio	-3.58e-06 (0.000611)	0.000266 (0.000599)
Firmsize	-0.00990*** (0.00225)	-0.00793*** (0.00223)
Finlever	-0.00462 (0.0184)	-0.00429 (0.0181)
SaleG	0.00187*** (0.000482)	0.00182*** (0.000438)
Sown	-0.0359*** (0.0109)	-0.0361*** (0.0108)
Fown	-0.0357 (0.0226)	-0.0436** (0.0220)
Constant	0.404*** (0.0611)	0.353*** (0.0594)
Fixed effects	IY	IY
Observations	2,626	2,626
R-squared	0.069	0.073

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 1-2: Female CEOs and real activities manipulation**

VARIABLES	(1) REMPROD	(2) REMCFO	(3) REMDIS
FCEO	0.00180 (0.0188)	-0.000222 (0.0101)	0.00947 (0.0145)
dbdipen	-0.00438 (0.0125)	-0.0226*** (0.00868)	-0.00924 (0.00829)
AUDIT	0.0137 (0.00840)	-0.00919* (0.00536)	0.00519 (0.00801)
CEO_D	0.00104 (0.00774)	0.00642 (0.00587)	-0.00691 (0.00496)
ROA	0.308*** (0.0547)	0.189*** (0.0491)	0.107*** (0.0307)
BMRatio	-0.00145 (0.000886)	-0.000658 (0.000665)	-0.00309** (0.00136)
firmsize	-0.0213*** (0.00346)	-0.0103*** (0.00219)	-0.0146*** (0.00303)
Finlever	0.0835*** (0.0173)	-0.00172 (0.0171)	0.0211 (0.0143)
SaleG	0.00421*** (0.000958)	0.00116** (0.000469)	9.31e-05 (0.000118)
Sown	-0.0194 (0.0150)	-0.0172 (0.0110)	0.0161 (0.0106)
Fown	0.0604* (0.0332)	-0.0282 (0.0229)	0.113*** (0.0269)
Constant	0.639*** (0.0911)	0.395*** (0.0584)	0.352*** (0.0690)
Fixed effects	IY	IY	IY
Observations	2,645	2,626	2,339
R-squared	0.135	0.076	0.166

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**APPENDIX 1-C: Results with different level of number of women on boards and various measures for AEM and REM**

**Table 1-1: Difference number of women on boards and accrual based earnings management.**

VARIABLES	(1) AEMmjm	(2) AEMkotha	(3) AEMmjm	(4) AEMkotha	(5) AEMmjm	(6) AEMkotha
FOBlevel_1	-0.00873 (0.00531)	-0.0081 (0.0051)				
FOBlevel_2			0.00513 (0.00623)	0.00511 (0.00611)		
FOBlevel_3					0.00219 (0.00601)	0.00286 (0.00591)
dbdipen	-0.016* (0.0095)	-0.0168* (0.0091)	-0.0156 (0.00950)	-0.0164* (0.00913)	-0.0159* (0.00950)	-0.0167* (0.00913)
AUDIT	-0.0089 (0.0057)	-0.0111** (0.0055)	-0.00898 (0.00570)	-0.0111** (0.00550)	-0.00900 (0.00575)	-0.0111** (0.0056)
CEO_D	0.00019 (0.0055)	0.00174 (0.0054)	3.24e-05 (0.00551)	0.00160 (0.00541)	-0.000119 (0.00551)	0.00144 (0.0054)
ROA	-0.0018 (0.0315)	-0.0144 (0.0306)	-0.00224 (0.0316)	-0.0148 (0.0306)	-0.00241 (0.0315)	-0.015 (0.0305)
lagBMRatio	9.39e-05 (0.00062)	0.00036 (0.00061)	6.72e-05 (0.000612)	0.000333 (0.000605)	5.42e-05 (0.000618)	0.000324 (0.000613)
lagfirmsize	-0.0101*** (0.0022)	-0.0081*** (0.00221)	-0.0099*** (0.00224)	-0.00794*** (0.00223)	-0.01*** (0.00224)	-0.008*** (0.00222)
Finlever	-0.0044 (0.0183)	-0.0041 (0.018)	-0.00483 (0.0184)	-0.00448 (0.0181)	-0.00475 (0.0185)	-0.00435 (0.0181)
SaleG	0.00185*** (0.00048)	0.0018*** (0.00044)	0.0019*** (0.000481)	0.0018*** (0.000437)	0.0019*** (0.000480)	0.0018*** (0.000436)
Sown	-0.0341*** (0.0108)	-0.0343*** (0.011)	-0.0352*** (0.0108)	-0.0353*** (0.0107)	-0.0351*** (0.0110)	-0.0352*** (0.0109)
Fown	-0.0358 (0.0224)	-0.0437** (0.022)	-0.0363 (0.0224)	-0.0441** (0.0218)	-0.0371* (0.0224)	-0.0450** (0.0218)
Constant	0.411*** (0.0606)	0.359*** (0.059)	0.402*** (0.0607)	0.351*** (0.0592)	0.406*** (0.0608)	0.355*** (0.0591)
Fixed effects	IY	IY	IY	IY	IY	IY
Observations	2,626	2,626	2,626	2,626	2,626	2,626
R-squared	0.070	0.074	0.069	0.074	0.069	0.073

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

where: Column 1,2: General modified Jones model, Kothari model and Board with one women on board (FOBlevel\_1). Column 3,4: General modified Jones model, Kothari model and Board with two women on board (FOBlevel\_2). Column 5,6: General modified Jones model, Kothari model and Board with three and higher three women on board (FOBlevel\_3).

**Table 1-2: One woman on boards and real activities manipulation**

VARIABLES	(1) REMPROD	(2) REMCFO	(3) REMDIS
FOBlevel_1	-0.0121* (0.00712)	-0.00510 (0.00529)	0.00693 (0.00534)
dbdipen	-0.00493 (0.0125)	-0.0228*** (0.00866)	-0.00851 (0.00833)
AUDIT	0.0141* (0.00835)	-0.00894* (0.00534)	0.00492 (0.00793)
CEO_D	0.00138 (0.00779)	0.00658 (0.00587)	-0.00702 (0.00498)
ROA	0.308*** (0.0543)	0.189*** (0.0490)	0.107*** (0.0307)
BMRatio	-0.00139 (0.000887)	-0.000627 (0.000668)	-0.00314** (0.00135)
firmsize	-0.0215*** (0.00341)	-0.0104*** (0.00219)	-0.0146*** (0.00300)
Finlever	0.0842*** (0.0173)	-0.00142 (0.0171)	0.0211 (0.0143)
SaleG	0.00419*** (0.000962)	0.00115** (0.000471)	0.000105 (0.000116)
Sown	-0.0173 (0.0148)	-0.0164 (0.0111)	0.0145 (0.0104)
Fown	0.0625* (0.0326)	-0.0277 (0.0229)	0.114*** (0.0264)
Constant	0.597*** (0.0916)	0.399*** (0.0584)	0.348*** (0.0686)
Fixed effects	IY	IY	IY
Observations	2,646	2,626	2,340
R-squared	0.137	0.076	0.167

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 1-3: Two women on boards and real activities manipulation**

VARIABLES	(1) REMPROD	(2) REMCFO	(3) REMDIS
FOBlevel_2	-0.00760 (0.00788)	0.00819 (0.00664)	0.000904 (0.00465)
dbdipen	-0.00471 (0.0125)	-0.0223** (0.00867)	-0.00883 (0.00831)
AUDIT	0.0129 (0.00837)	-0.00856 (0.00536)	0.00531 (0.00799)
CEO_D	0.000835 (0.00776)	0.00661 (0.00585)	-0.00676 (0.00496)
ROA	0.307*** (0.0547)	0.189*** (0.0490)	0.107*** (0.0309)
BMRatio	-0.00150* (0.000892)	-0.000619 (0.000666)	-0.00309** (0.00136)
firmsize	-0.0213*** (0.00341)	-0.0102*** (0.00219)	-0.0146*** (0.00303)
Finlever	0.0834*** (0.0173)	-0.00160 (0.0171)	0.0216 (0.0143)
SaleG	0.00420*** (0.000958)	0.00118** (0.000469)	9.46e-05 (0.000118)
Sown	-0.0197 (0.0149)	-0.0167 (0.0109)	0.0157 (0.0105)
Fown	0.0607* (0.0329)	-0.0276 (0.0228)	0.115*** (0.0264)
Constant	0.592*** (0.0915)	0.390*** (0.0584)	0.350*** (0.0692)
Fixed effects	IY	IY	IY
Observations	2,646	2,626	2,340
R-squared	0.136	0.077	0.165

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 1-4: Three women on boards and real activities manipulation**

VARIABLES	(1) REMPROD	(2) REMCFO	(3) REMDIS
FOBlevel_3	0.0108 (0.00789)	0.000884 (0.00608)	-0.000707 (0.00504)
dbdipen	-0.00520 (0.0126)	-0.0226*** (0.00866)	-0.00880 (0.00834)
AUDIT	0.0154* (0.00846)	-0.00904* (0.00544)	0.00512 (0.00817)
CEO_D	0.000856 (0.00775)	0.00641 (0.00587)	-0.00677 (0.00496)
ROA	0.307*** (0.0549)	0.189*** (0.0491)	0.107*** (0.0309)
BMRatio	-0.00141 (0.000885)	-0.000652 (0.000667)	-0.00311** (0.00135)
firmsize	-0.0215*** (0.00341)	-0.0103*** (0.00220)	-0.0146*** (0.00303)
Finlever	0.0844*** (0.0174)	-0.00167 (0.0172)	0.0215 (0.0144)
SaleG	0.00418*** (0.000952)	0.00116** (0.000469)	9.51e-05 (0.000120)
Sown	-0.0175 (0.0149)	-0.0171 (0.0112)	0.0156 (0.0104)
Fown	0.0592* (0.0324)	-0.0284 (0.0230)	0.115*** (0.0265)
Constant	0.593*** (0.0907)	0.396*** (0.0583)	0.350*** (0.0691)
Fixed effects	IY	IY	IY
Observations	2,646	2,626	2,340
R-squared	0.136	0.076	0.165

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

# **Chapter 4. Linking corporate governance and earnings management in Vietnam: insider trading as a mediator.**

## **Abstract**

In this study, we analyse how the relation between corporate governance on earnings management is mediated by insider trading in the context of Vietnamese listed firms. This study examines three dimensions of corporate governance that are relevant in the Vietnamese context : gender diversity of the boards, State ownership and foreign ownership. And it contemplates two kinds of earnings management: accruals based management (AEM) and real activities manipulations (REM). Using an unbalanced sample over the investigation period 2008 – 2017, the findings suggest that the mediating role of insider trading is significant only when EM is measured by the abnormal discretionary expense (REMDIS) and for State or foreign ownerships. In those both models, our results show that, if the indirect effect is negative, it does not offset the positive direct effect. Implications of this study are useful for improving corporate governance to monitor earnings in Vietnamese listed firms.

## 4.1 Introduction

This paper examines the relationship between ownership structure, board gender diversity and insider trading. More precisely, it is focused on the mediating effect of insider trading on relationship of those three features of corporate governance with earnings management. The paper is motivated by some reasons: (i) The general context is increasing pressure on gender diversity of boards in developed nations because of growing regulations. Several studies have examined the relationships between women on boards and insider trading, earnings management, but they have been focused on one-tier board systems like those in the UK and South Korea (Arun, Almahrog, & Aribi, 2015; H. A. Kim et al., 2017). So, the monitoring role of board gender diversity in a dual board system such as in Vietnam is less known. Moreover, earnings management comes from the desire to prop up the firms' stock price to get high managerial compensation, in a developed capital market where ownership and management are separated and corporate governance is strong. Meanwhile, Vietnam is a newly emerging nation that is transitioning from a planned economy to a market-oriented economy and Vietnam has weak investor protection and corporate governance in comparison to developed countries. (ii) The Vietnamese listed firms have highly-concentrated ownership structure the State still controls some major industries in Vietnam but foreign investors have increased sharply with the ceiling up to 49%. With various goals, there is a difference in the way the state and foreign ownership impact on earnings management. (iii) According to the No 58/2012/NĐ-CP law issued in July 2012, the firms that have reported losses for three consecutive years, will be delisted. Therefore, listed companies may potentially use earnings management to avoid losses. (iv) Vietnamese insider law and regulations permit insiders announcement their trade cancelations within 3 trading days after the end of the requested period, which caused by incentives managers to manage stock price by postponing disclosure information. (v) There is no research using audited data on a long period (nearly 10 years) to examine the relationship between ownership structure and earnings management, especially real activities manipulation in Vietnam.

Our research question deals with the link between corporate governance and earnings management on one hand and insider trading on earnings management, on the other hand, all in the specific context of Vietnam. But, given the link between corporate

governance and insider trading, a more global view of the relation between those three dimensions maybe contemplated with insider trading as a mediator between corporate

governance and earnings management.

While the relation between State ownership on earnings management through accruals has been well examined in Vietnam (T. C. Hoang, I. Abeysekera, & S. Ma, 2014), the paper takes the first look at the relationship between ownership structure (State and foreign investors) and women on boardrooms on both accruals-based earnings management and real activities manipulation. Moreover, we highlight the role of insider trading as mediator between ownership structure, women on boards and earnings management. After filtering out firms with missing data, the sample consists of an unbalanced panel for the period 2008 to 2017, which were both in the Ho Chi Minh Stock Exchange (HSX) and Hanoi Stock Exchange (HNX).

The paper is organized as follows: section 1 provides the background of this study (1). Section 2 presents a literature review and the development of the hypotheses about the link between corporate governance, insider trading and earnings management. Section 3 describes the data, the variables and the empirical model. The empirical results in the special context of Vietnam are presented in section 4, whereas section 5 brings a conclusion and discussion of the results.

## **4.2 Background for the study**

After Vietnam has persured a socialist market-oriented economy in 1986, the national economy has opened a new chapter. Especially, two stock exchanges named Ho Chi Minh stock exchange (HSX) and Ha noi stock exchange (HNX) were well-known. Vietnam has become one of the financial center in the Asian region. Furthermore, Vietnam has become one of the countries with the highest economic growth rate in Asia (IMF, 2010<sup>21</sup>). All those elements make the transparency, reliability and accountability of the reports disclosure critical for investors.

But in this context, Vietnam has a low investor protection and firms remain with a weak corporate governance. Vietnam follows the socialist oriented market economy, named “equitization”. But State owned enterprises (SOEs) still has to preserve the State’s assets to fulfill government’ aims. Therefore, this process is not “privatization”. The equitization of SOEs is incomplete because the Vietnamese government still holds a large percentage (above 50%) of ownership in the listed SOEs in strategic industries or key sectors like electricity

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<sup>21</sup> [https://www.imf.org/~media/Websites/IMF/imported-flagship\\_issues/external/pubs/ft/ar/2010/eng/pdf/ar10engpdf.ashx](https://www.imf.org/~media/Websites/IMF/imported-flagship_issues/external/pubs/ft/ar/2010/eng/pdf/ar10engpdf.ashx)

production, telecommunications, mineral exploration, oil, gas and water supply (Vu, 2012). As a result, supervision of the State ownership holder over the enterprise managers is irregular, undisciplined, inefficient and weak because of the lack of a mechanism for ensuring coordination between State authorities. Moreover, rights of foreign investors are not clear and effectively implemented in the reality, which means owners are not treated equally in joint ventures. For example, the conflict between article 10-the law on foreign investment which posits that foreign owners will bear all risks and losses in percentage of their capital share, and article 11- decree 24/2000/ND-CP, Joint Venture' owners will bear all risk and losses within capital amount that they contributed to the legal capital of the Joint Ventures. In terms of board gender diversity, the role of gender diversity has also not been paid enough attention in spite of some of policies support to women such as the National Gender Equality Strategy for 2011–2020. These policies have not been implemented in practice. Moreover, women on boards in Vietnam still meet many obstacles.

Vietnam has become an attractive investment destination with lots of opportunities and perspectives, and is the country with the highest foreign direct investment (C. Wang & Balasubramanyam, 2011). The efforts to monitor and protect shareholders in Vietnam market through market regulations, legal framework and corporate governance are promulgated. One of the rules is guidelines for disclosure of insider trading. Insiders in Vietnam are defined as top executives, institutional investors and their family members and three specific rules apply to them : (1) they must announce their trading on annual reports at least three days prior to the actual trade executions ; (ii) their expected trading time frame does not exceed 30 trading days, (iii) insiders must report their trade results to State Securities Committee (SSC), stock exchange (SE), their own company and relevant media (Circular No. 155/2015/TT-BTC). In terms of insider trading on private information, Act 181 of Criminal Laws No. 37/2009/QH12 (Criminal Laws) issued in 2009 stipulates that the insiders who violate the Criminal Laws may be prohibited from their current positions of the company from one to five years, be required to give back abnormal profits from their trades, be liable for a fine of VND 100 million - VND 500 million (about \$ 5,000 -\$ 25,000) and a term of imprisonment from 6 months to 3 years (enhanced to 2 to 7 years if insider trading activities have severe consequences). However, insiders still may impact market reactions and stock prices because if their operations are not executed, they must announce their cancelations within 3 trading days after the end of the requested period. Compared with UK and Hong Kong where insiders only publish their trades within 3 and 5 trading days, respectively after their trade completion,

investors on Vietnamese market may manipulate stock price by postponing disclosure information.

Transparency, Vietnam may provide an excellent case study of the impact of corporate governance (ownership structure, board gender diversity and trade of insiders) on earnings management. Vietnam differs from other countries in respect of various institutional characteristics as concentrated ownership, political system and policies as analyses above.

### **4.3 Linkage between earnings management, corporate governance and insider trading: literature review and hypothesis development**

#### **4.3.1 Linkage between insider trading and earnings management**

Insiders, who have superior information analysis ability and may take advanced information to serve their interest, may impact financial market through their trading. In fact, insider trading bases on firms' accounting information to reflect the market. It means that if the market incorrectly interpreted the earnings as a value-relevant signal, insider may take advanced accounting information to serve their interest. Basically, insiders trade on the basis of both superior information and contrarian beliefs of future earnings of a firm (Piotroski & Roulstone, 2004). The previous empirical studies emphasise that insiders get their interest from managing the earnings. They have strong incentives and motivation to manipulate or influence earnings for a number of reasons, such as blowing up the stock price before seasoned equity offerings (Jo, Kim, & Park, 2007). (Aboody, Hughes, & Liu, 2005) argue that pricing of the earnings quality and informed insiders are larger profits when trading shares with greater exposure risk aspect. (Q. Cheng & Warfield, 2005) suggest that managers are motivated to become involved in earnings management when they have high equity incentives to increase the value of the shares and then sell. In addition, (Sawicki & Shrestha, 2008) reveal that insiders manage earnings downward when they buy stocks of their own firms and manage earnings upward when they sell shares. (Chowdhury, Mollah, & Al Farooque, 2018) find that the effect of insider trading on absolute value of discretionary accruals is positive. The paper also follows previous studies to predict:

*Hypothesis 1: Insider trading is positively associated with earnings management.*

### **4.3.2 Corporate governance and earnings management**

The three features of corporate governance that we focus on, and which are specific in Vietnam, may have an incidence on earnings management. These features are: the place of women in firm's governance, State ownership and foreign ownership.

#### *4.3.2.1 Board gender diversity and earnings management*

One of the governance issues is the change in female positions in firms all over the world caused by changes in other director characteristics and firm circumstances (Ferreira, 2015). Board gender diversity is said to lead to more ethics, less risk-taking, better monitoring and thus to improve the quality of financial reports through mitigating earnings management (Faccio et al., 2016). As a result, gender-diverse boards could lead to more earnings management detection and added value for firms. Previous studies highlight that female appointed on the boards improve the effectiveness of corporate governance (Adams, 2016; Adams & Ferreira, 2009; Y. Liu, Wei, & Xie, 2014; Sila, Gonzalez, & Hagendorff, 2016). ). Information is more published and transparent (Adams & Ferreira, 2009). (Srinidhi et al., 2011) provided evidence that, as a tangible consequence of women on board, earnings quality would be improved through a higher level of monitoring function of the board. Numerous researchers state that board gender diversity mitigates earnings management (Arun, Almahrog, & Aribi, 2015; Gull et al., 2018; S. Yu et al., 2010). Thus, we suggest that:

*Hypothesis 2a - Earnings management is negatively associated with board gender diversity*

#### *4.3.2.2 State ownership and earnings management*

SOEs have a growing vital in the economic and social life not only in developed countries but also in emerging countries. Concerning SOE in emerging countries, there may be opposite views concerning the impact of State ownership on earnings management.

On one hand, The State is likely to report lower earnings quality for some reasons. First, managers in SOEs who are politicians or ex-politicians than businessmen (C. A. Cheng et al., 2015), must hide the expropriation of corporate resources for political purposes than for their financial or positive firm's results (Fan et al., 2007). Second, State owned enterprises are low level of governance in management and monitoring leading to engage management autonomy caused by an increase in earnings management activities (D. Choi et al., 2020). Furthermore, the combined ownership in firms, where the state retains a percentage of shares and family or

founder's private firms also maintain their controlling, may have contrasting interests or conflicting views leading to motivate data manipulation and remained the establishment for earnings management (D. Choi et al., 2020; F. Guo & Ma, 2015). State ownership is positively associated with earnings management when State is not a largest shareholder of the firms. Because a firm can be held by several of parties as State asset management. Each parties has their own interest that State owned firms may engage in management (F. Guo & Ma, 2015).

There are also opposite reasons that may mention the existence of a negative correlation between State ownership and EM. First, agency problems give raise to conflicts between the managers and shareholders about the way firms distribute their benefits (Fama & Jensen, 1983b). These problems do not develop in SOEs because the main aims of SOEs are generally to behave according to the interests of their State rather than to maximize the wealth of their shareholders. Second, agency theory also suggests that using debt affects managerial behaviors (Jensen, 1986). Managers work for firm value rather than for their own interests because of the external monitoring (banks) and debt covenants. Regarding this point, SOEs are always provided additional funds or guaranteed by State support (Bhattacharya et al., 2003; Ding et al., 2007; L. Wang & Yung, 2011). In other words, they have an easy access to capital from the government. Therefore, managers have less financial pressure to engage in earnings management. Third, another common agency problem is related to the remuneration of manager. Managers are rewarded based on firm performance. With advantages of internal information and a better understanding of "firm's-health", managers can opportunistically take action, to reach good firm performance even, which may have a negative impact on owners. Nevertheless, the compensation of managers in SOEs is uncommon because various social and political goals limit the maximizing of their firm value (C. A. Cheng et al., 2015; Fan et al., 2007).

Although (Ben-Nasr et al., 2015) found that State owner engages in discretionary abnormal accruals by using 350 privatized firms from 45 countries, most of previous studies about the relationship between earnings management and State ownership come from China. And they mostly support a negative relationship between earnings management and State ownership. First, by using 273 State and privately-owned Chinese companies listed in 2002, (Ding et al., 2007) establish a link between ownership structure and firms' earnings management practices through discretionary accruals: the results show that privately-owned listed firms favor earnings boosting methods more than their State-owned counterpart. Second, using 557 listed firms in China from 1998 to 2006, (L. Wang & Yung, 2011) also

found the same result. Based on a sample of 1329 Chinese listed companies and 11,947 company years from 1998 to 2009, (Y. Wang & Campbell, 2012) demonstrate that a higher degree of state ownership tends to deter earnings management.

Thus, based on the above-mentioned arguments and findings, we propose the following hypothesis:

*Hypothesis 3a: More state ownership mitigates earnings management.*

#### *4.3.2.3 Foreign ownership and earnings management*

Foreign ownership has become more important in emerging markets, which may bring some advantages in terms of accounting quality. First, the presence of foreign investors can enhance the oversight function of internal governance mechanisms leading to better monitoring (Aggarwal et al., 2011; Gilson & Milhaupt, 2005; W. Huang & Zhu, 2015; Paik & Koh, 2014). Thus, the conflicts of interests may be reduced, the monitoring of the firms may be enhanced, which should lead to better corporate reporting behaviors and better earnings quality. Second, foreign investors may improve corporate governance, leading to prevent managers from taking advantage of corporate information asymmetry to serve their own interests. In other words, foreign investors may be more effective in deterring managerial opportunism (R. Chung et al., 2004; J. Guo et al., 2015; W. Huang & Zhu, 2015).

Foreign investors affect earnings management in two opposite signs. On one hand, with higher foreign ownership, managers are more likely to manage earnings to meet market expectations because they try to satisfy their foreign investors who, in turn focus, on current profits to boost stock prices (Paik & Koh, 2014).

Previous studies bring different conclusions in different contexts. For instance (H. J. Kim & Yoon, 2008a; Mazumder, 2016) document that the level of accruals, which is a measure of earnings management, decreases with foreign equity ownership, whereas there is no statistically significant impact of foreign ownership on earnings manipulation (Lai & Tam, 2017). Related to REM, scholars also state that foreign owned firms, especially for firms with a high and stable foreign proportion in the capital structure, engage in less real earnings management (F. Guo & Ma, 2015; Shayan-Nia et al., 2017). Specifically, they are able to constrain upwards real earnings management related to discretionary expenditure but not the operating cycle (Shayan-Nia et al., 2017). And according to (J. Guo et al., 2015), Japanese firms with foreign ownership curb earnings manipulations related to operating activities. On the other hand, (S. H. Kim et al., 2020) mention that managers in firms with more foreign

investors are more likely to manage earnings in both AEM and REM, caused by information asymmetry between domestic and foreign investors. It means that foreign investors face difficulties to access the firm's operational information, leading to information gap to insiders (managers and domestic shareholders) to manage earnings opportunistically.

Based on the aforementioned arguments and prediction of agency theory, the hypothesis is formulated as follows:

*Hypothesis 4a: More foreign ownership mitigates earnings management*

### **4.3.3 The mediating role of insider trading between board gender diversity, ownership structure and earnings management**

#### *4.3.3.1 Board gender diversity and insider trading*

Previous studies highlight that females appointed on the boards improve the effectiveness of corporate governance (Adams, 2016; Adams & Ferreira, 2009; Y. Liu et al., 2014; Sila et al., 2016). Gender diversity, which is supposed to bring better monitoring, more risk aversion and more ethics, may constrain insider trading. Hence, (Adams & Ferreira, 2009) suggest that in firms with women on boards, the information is more published and transparent. Moreover, having women on boards reduces asymmetric information: male directors could not take advanced information to serve their interests when female directors are on the board (Abad, Lucas-Pérez, Minguez-Vera, & Yagüe, 2017). Next, women on boards are more ethical than male whereas illegal or legal insider trading may be seen as unethical. (Scarlat, Shields, & Clacher, 2015) find that insider trading profits decline following switches from male to female CEOs and they argue that female executives change the corporate culture and encourage more ethical decisions related to insider trading.

In summary, the more women sitting on the boards, the "better" is the boardroom's behavior, the more transparent is company information, the more limited is the opportunistic behaviors of males.

Thus, we formulate the hypothesis related to the influence of a gender-diverse boards on insider trading as follows: *Insider trading is negatively associated with board gender diversity (Hypothesis 2b-H<sub>2b</sub>).*

And hence, combined with H2a : *Insider trading is a mediator in the association between board gender diversity and EM (Hypothesis 2c-H<sub>2c</sub>)*

#### 4.3.3.2 *State ownership and insider trading*

Some scholars find that State ownership is positively related to insider trading because of information asymmetry (R. Chen, El Ghoul, Guedhami, & Wang, 2017; J. J. Choi, Sami, & Zhou, 2010). In fact, there are informational consequences of particular State policies as privatization, IPO (initial public offering) or unfolded new investment policies which are related to strategic and plan of Government. This lack of transparency increases the level of information asymmetry in the market, which leads to an increase in the cost of capital for uninformed traders. Thus, there is a specific information asymmetry in SOE, which results in insider trading. Although some Vietnamese listed firms have been transferred from State-owned to private-owned step by step, the government still has a significant ownership. The main aim of Vietnamese SOE is the maximization of public welfare. Therefore, the government tries to enhance general transparency information for all interested people, leading to an agency costs reduction (Hope, Thomas, & Vyas, 2009). And this may lead to a decrease in insider trading since there is less information asymmetry in SOE in Vietnam because of an increase in information transparency. As a result, the paper also predicts that *insider trading is negatively related to State ownership (Hypothesis 3b-H<sub>3b</sub>)*

And hence:

*Insider trading is a mediator in the association between State ownership and EM (Hypothesis 3c-H<sub>3c</sub>)*

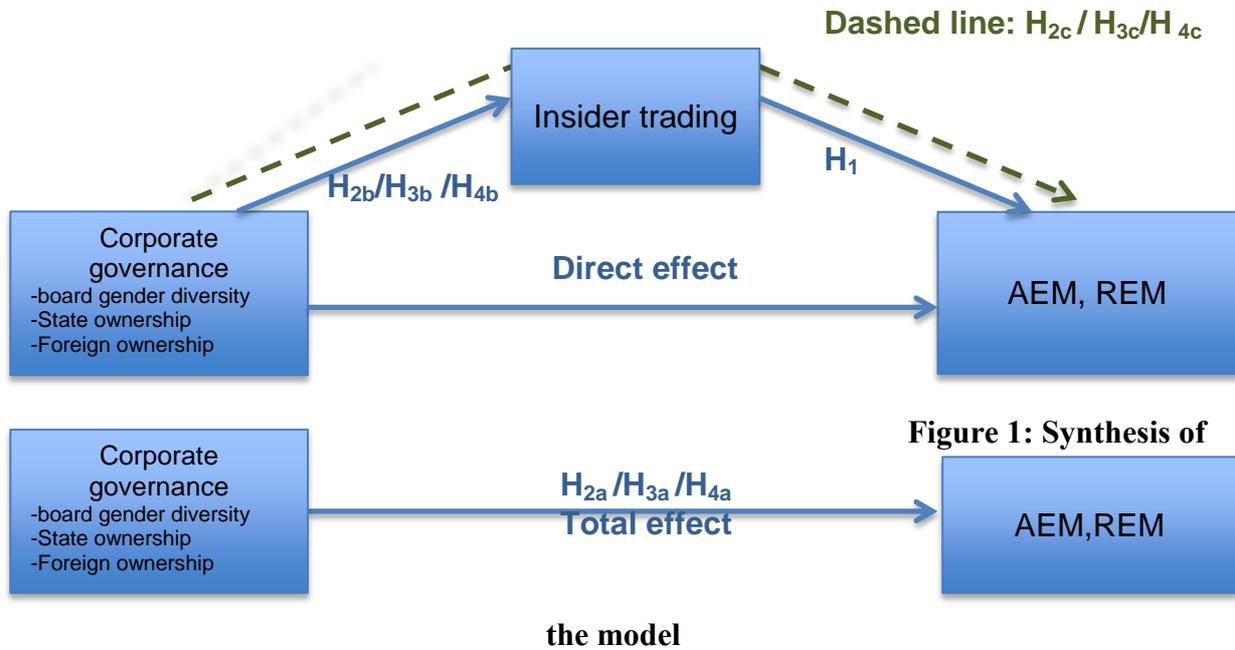
#### 4.3.3.3 *Foreign ownership and insider trading*

It is commonly thought that foreign investors have an information disadvantage about a local firm compared with domestic investors (Choe, Kho, & Stulz, 2005). If so, foreign investors could be associated with a firm with low information asymmetry (L. Jiang & Kim, 2004). In this case, an increase in foreign ownership leads to an increased demand and pressure for increased disclosure by local firms, resulting in higher value relevance of accounting information (Sami & Zhou, 2004). This should lead to a strengthening shareholder activism and board representation (Abad et al., 2017).

Increased information transparency can improve market liquidity and reduce information asymmetry in the market, which, in return, means lower insider trading because managers don't need to trade based on private information (insider information). As a result, *insider trading is negatively associated with foreign investors (Hypothesis 4b-(H<sub>4b</sub>))*

And hence, combined with H4a : *Insider trading is a mediator in the association between foreign ownership and EM (Hypothesis 4c-(H<sub>4c</sub>))*

Figure 1 and table 1 below give a synthesis of the hypotheses and show the framework of the mediation analysis



**Table 1: Synthesis of the hypotheses**

<p><b>Effect of IIT on EM</b></p> <p>H<sub>1</sub> –Insider trading is positively associated with earnings management.</p>
<p><b>Effect of CG on EM</b></p> <p>H2a - Earnings management is negatively associated with board gender diversity            H3a - Earnings management is negatively associated with State ownership            H4a - Earnings management is negatively associated with foreign ownership</p>
<p><b>Effect of CG on IIT</b></p> <p>H2b - Insider trading is negatively associated with board gender diversity            H3b - Insider trading is negatively associated with State ownership            H4b - Insider trading is negatively associated with foreign ownership</p>
<p><b>Mediator effect of IIT on EM</b></p> <p>H2c - Insider trading is a mediator in the association between board gender diversity and EM            H3c - Insider trading is a mediator in the association between State ownership and EM            H4c - Insider trading is a mediator in the association between foreign ownership and EM</p>

## 4.4 Variable measurement and research design

In this section, the paper presents the collected data, the measuring of dependent and control variables as well as the research model.

### 4.4.1 Data and sample selection

The sampling frame in this study is listed firms in Vietnam. The sample consists of all Vietnamese firms listed on both the Ho Chi Minh Stock Exchange (HOSE) and the Hanoi Stock Exchange (HNX), apart from banks and other financial industries. Banks and financial institutions are excluded because their financial statements are prepared in a different regulatory environment, and the information reported on those financial statements also follows a different format. The financial statement data items were collected from StoxPlus company (stoxplus.com), which is the main company providing data in Vietnam from 2008 to 2017. HOSE began operations in 2000 and HNX in 2005 with the negotiation method in the beginning. Until the end of the year 2005 (2/11/2015), HNX applied continuous order matching method in parallel with the negotiation method. However, the number of listed firms in 2006, 2007 is quite small and data is not available to collect and test hypotheses correctly. Thus, 2008 is set as the starting year of the study.

Industry classifications in Vietnam are based on the industry classifications benchmark (ICB), excluding bank firms. Only industries with more than 15 industry-years, REM measures are kept.

#### 4.4.1.1 Measures for dependent variable: earnings management

AEM and REM are applied to measure EM. Basically, both AEM and REM may be used by firms to reach financial targets or to avoid earnings decreases/losses. However, the use of AEM may be limited since firms are restricted by the auditors' and regulators' scrutiny in accordance with regulations. As a result, although it is more costly than AEM (Daniel A Cohen et al., 2008b), REM can be chosen by managers trying to meet a firm's targets, because (i) it is not limited by regulations compared to AEM, (ii) it is harder for an outsider to observe (Schipper, 1989), and (iii) it is not judged to be in violation of securities law. A study of (Zang, 2012) suggested that AEM and REM can substitute for each other based on their relative costs, suggesting that if REM is less expensive than AEM, more REM will be applied, and vice versa. In particular, some previous studies have stated that State-owned

enterprises are less engaged in AEM because they prefer to use REM (Aharony et al., 2000; Jian & Wong, 2010). This is a reason why we use both AEM and REM in this study. More precisely and following precedent studies, we use their absolute value. Indeed, their absolute values allow to capture the level of earnings management, whether upward or downward: for all of them, thus, the greater the measure and the greater is the earning management<sup>22</sup>.

#### *4.4.1.1.1 Accrual-based earnings management*

AEM refers to the considerable discretion that managers have to influence reported net income through discretionary accruals. Discretionary accruals are the accruals over which managers can exercise some control. Based on the existing literature, this research uses the magnitude of discretionary (abnormal) accruals to measure EM. The main arguments have been put forward for this measure to apply in the Vietnamese context. The system of accounting of Vietnamese listed firms has been traditionally tax oriented. Thus, Vietnamese authorities have fixed almost all accounting choices that may affect accounting results, such as the depreciation method for fixed assets or the life span used to calculate this depreciation in each specific industry. This has long made it difficult for Vietnamese firms to adjust their earnings via non-cash accruals. But this has changed over the last decade because Vietnamese listed firms have been required since the beginning of 2006 to make provisions for various potential losses (No. 15/2006/QD-BTC). This has brought the Vietnamese accounting language closer to international standards, while also offering Vietnamese firms the opportunity to manage their earnings via more discretionary accruals. Therefore, for the 2008–2017 period, using discretionary accruals for EM is relevant because this conservatism principle is applied in Vietnam. To measure AEM, this study develops two models. First, this is consistent with previous studies according to which the modified Jones model provides the most powerful test in detecting earnings management and it is suitable in emerging markets and Vietnam particularly (B. Lin et al., 2012a; Q. Liu & Lu, 2007; Phuong, 2017). Second, we employ the performance adjusted model of Kothari (Frankel et al., 2002; Kothari et al., 2005). Because the modified Jones model is a simple model of accruals using change in revenues and fixed assets, it cannot be fully descriptive. So, different authors have suggested controlling for various factors to improve the model (McNichols & Stubben, 2018). Kothari et al. (2005) added ROA to mitigate the problematic heteroscedasticity and mis-specified issues that exist in other aggregate accruals models.

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<sup>22</sup> In terms of nominal values, a smaller REMDIS or REMCFO indicates a higher upward REM. For all others, it is a higher measure that indicates a higher REM.

So, the AEM is measured as discretionary accrual using a cross-sectional version of the modified Jones model as follows. First, total accruals of a firm are divided into a discretionary part and a non-discretionary part and are defined as the difference between net income before extraordinary items (NI) and cash flow from operating activities (OCF):

$$TA_{i,t} = \text{Net income}_{i,t} - \text{OCF}_{i,t}$$

The next step is to determine the coefficients that are used to estimate the firm-specific normal accruals. This results in a modified Jones model, as shown in Equation (1):

$$\frac{TA_{i,t}}{\text{Assets}_{i,t-1}} = \alpha \left( \frac{1}{\text{Assets}_{i,t-1}} \right) + \beta_1 \left( \frac{\Delta \text{Sales}_{i,t}}{\text{Assets}_{i,t-1}} \right) + \beta_2 \left( \frac{\text{PPE}_{i,t}}{\text{Assets}_{i,t-1}} \right) + \varepsilon_{i,t} \quad (1)$$

The coefficients that are estimated with Equation (1) are used to determine the normal accruals (NA). The following model is used:

$$NA_{i,t} = \alpha \left( \frac{1}{\text{Assets}_{i,t-1}} \right) + \beta_1 \left( \frac{\Delta \text{Sales}_{i,t} - \Delta AR_{it}}{\text{Assets}_{i,t-1}} \right) + \beta_2 \left( \frac{\text{PPE}_{i,t}}{\text{Assets}_{i,t-1}} \right) \quad (2)$$

where:

- $TA_{i,t}$  is total accruals for firm  $I$  at time  $t$
- $NA_{i,t}$  is normal accruals for firm  $i$  at time  $t$
- $\Delta AR_{it}$  is the change in accounts receivable from the preceding year,
- $\text{Assets}_{i,t-1}$  is total assets for year  $t-1$  and firm  $i$ ,
- $\Delta \text{Sale}_{it}$  is the change in sales for firm  $i$  from year  $t-1$  to year  $t$
- $\text{PPE}_{it}$  is the gross value of property, plant, and equipment in year  $t$ .
- $\varepsilon_{i,t}$  is the residual of firm  $i$  at time  $t$ .

While computing the normal accruals, reported revenues of the sample firms are adjusted from the change in accounts receivable to capture any potential accounting discretion arising from credit sales, which relates to non-discretionary accruals (Cohen et al., 2008).

Following the prior literature (Dechow et al., 1995), discretionary accruals are estimated as the absolute value of the difference between total accruals and normal accruals:

$$|DA_{i,t}| = \left| \left( \frac{TA_{i,t}}{\text{Assets}_{i,t-1}} \right) - NA_{i,t} \right| \quad (3)$$

All variables are scaled by prior year total assets to control for heteroscedasticity.

The Kothari model is based on the modified Jones model plus  $ROA_{t-1}$ , which is return on assets at the end of year t-1.

Following previous studies, we employ the absolute value of discretionary accruals as EM.

#### 4.4.1.1.2 Real activities manipulation

Different models may be applied to measure REM. Previous studies on Chinese firms have stated that REM measured by Roychowdhury (2006) may not be effective in an emerging context (C. A. Cheng et al., 2015). Thus, we use the model developed by (Gunny, 2010), because the estimation incorporates market valuation (Greiner et al., 2017). By including market value, the resulting REM in the Gunny model excludes information that has already been incorporated by the market. We use three different measures for REM<sup>23</sup>.

##### . Abnormal level of reduction of discretionary expenses (REMDIS)

The first type of real earnings management methods is the reduction of discretionary expenses (DIS) such as advertising expenses, research and development expenses (R&D) and selling, general and administrative expenses (SG&A) as the most preferred method for overstating earnings.

The formula of DIS below consists of advertising expenses and both R&D and SG&A, if SG&A is available; the formula still exists when advertising expenses and R&D are missing, set 0. Because some firms may be engaged in innovative activities without reporting R&D expenses (Koh & Reeb, 2015) or missing data, these situations will not be captured in tests.

$$\frac{DIS_{i,t}}{A_{i,t-1}} = \alpha + \beta_1 \left(\frac{1}{A_{i,t-1}}\right) + \beta_2 MV_{it} + \beta_3 \text{Tobin}Q_{it} + \beta_4 \left(\frac{\text{Inter}Ft}{A_{i,t-1}}\right) + \beta_5 \left(\frac{\Delta Si,t}{A_{i,t-1}}\right) + \beta_6 \left(\frac{\Delta Si,t}{A_{i,t-1}} * DD\right) + \varepsilon_{it} \quad (I)$$

where:

- discretionary expenses (DIS) is the sum of advertising expenses (AD); R&D expenses; and selling, general, and administrative expenses (SG&A).

- natural log of market value (MV) proxies for firm size;

- Tobin's Q measures the marginal benefit to cost for each unit of new investment;

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<sup>23</sup> According to (Katherine A. Gunny, 2010), the timing of the sale of fixed assets to report gains is also one of the types of REM since it is used as a way to manage earnings by the difference between net book value and the current market value. However, our study does not take into account the timing of the sale of fixed assets for several reasons: previous studies have shown that REM is used in Vietnam through lenient credit terms and discount policies rather than using the timing sale of fixed assets in order to improve revenue and decrease cost (Loan & Thao); and due to data availability, we do not study the timing sale of fixed assets to date.

- internal funds (InterF) controls for the funds available for investment that are generated from the firm;

- and change in sales ( $\Delta St/At-1$ ) controls for the impact of trends in sales on discretionary expenses.

Considering the “sticky” cost behaviour, Katherine A. Gunny (2010) interacted change in sales ( $\Delta St$ ) with an indicator variable (DD) that is equal to one when total sales decrease from the prior year (between t-1 and t), and zero if not. As a result, the impact of positive  $\Delta St$  on normal levels of discretionary expenses is not constrained by this model to be the same as that of negative  $\Delta St$ .

The abnormal discretionary expense (REMDIS) is the absolute value of the residuals of the model (I).

. Abnormal level of production costs (REMPROD)

The second measure detects abnormal production cost (PROD). Managers of manufacturing firms can manage earnings upward by producing more goods than necessary. With higher levels of production, firms can spread fixed overhead costs over a larger number of units, thereby lowering fixed costs per unit. Thus, overproduction results in a lower cost of goods sold (COGS) and better operating margins.

$$\frac{PRODi,t}{Ai,t-1} = \alpha + \beta_1 \left(\frac{1}{Ai,t-1}\right) + \beta_2 MV_{it} + \beta_3 TobinQ_{it} + \beta_4 \left(\frac{Si,t}{Ai,t-1}\right) + \beta_5 \left(\frac{\Delta Si,t}{Ai,t-1}\right) + \beta_6 \left(\frac{\Delta Si,t-1}{Ai,t-1}\right) + \epsilon_{it} \quad (II)$$

where:

- PROD is the sum of cost of goods sold (COGS) and change in inventory,
- $(\Delta Si,t/Ai,t-1)$  is the change in sales, and
- $(\Delta Si,t-1/Ai,t-1)$  is lagged change in sales.

The abnormal production cost (REMPROD) is the absolute value of the residuals of the model (II).

. Abnormal level of cash-flows from operations (REMCFO)

The third measure detects manipulation of sales through lenient credit terms. This model identifies the offering of lenient credit with negative abnormal cash flows from operations (CFO).

$$\frac{CFOi,t}{Ai,t-1} = \alpha + \beta_1 \left(\frac{1}{Ai,t-1}\right) + \beta_2 MV_{it} + \beta_3 TobinQ_{it} + \beta_4 \left(\frac{Si,t}{Ai,t-1}\right) + \beta_5 \left(\frac{\Delta Si,t}{Ai,t-1}\right) + \epsilon_{it} \quad (III)$$

Where: CFO is net cash flow from the operations of firm  $i$  for year  $t$ .

The abnormal cash-flow (REMCFO) is the absolute value of the residual of the model (III).

In our study, we use the absolute values of the residual to analyze the magnitude of accrual based earnings management (AEM) and real activities manipulation (REM). The reasons to explain why we use the absolute values for some following reasons: (i) using both signed or unsigned earnings management, whether income upward or downward result in concealing true firm performance (J.-B. Kim & Sohn, 2013). (ii) AEM, REM can be performed to temporarily in an unexpected direction if manager s' intention is intend to smooth earnings along different periods(Badertscher et al., 2009; B. Francis et al., 2016; H. Jiang et al., 2018). For example, managers can increase production level by increasing ending inventory level or offering deep discounts leading to a higher current demand from customers to temporality decrease earnings. Or they may also invest more in R&D, or advertising, leading to exhibit unusually lower discretionary expenditures. These activities are income decreasing in the current year but income increasing in the future when the benefits from those increased investment are realized. (iii) In particular, real activities manipulation may also automatically reverse in future from an economic perspective. Firms can make up by spending more on R&D for one period. However, managers cannot remain for a long period, they have to cut down in another period. Similarly, firms' overproduction in one period will become equal by a decrease in production in another period, because in a long term the total production quantity is balanced out to the total number of units that are actually sold (L. Li, 2012). (iv) (J.-B. Kim & Sohn, 2013) also show that the main thrust of results do not change whether the absolute value of AEM and REM are used. The larger absolute values of residuals show the greater of earnings management.

#### *4.4.1.2 Measuring independent variables, mediator and control variables*

##### *4.4.1.2.1 Independent variables*

The State and foreign ownership are measured as the number of shareholdings by State /Foreign to total shares, whereas percentage women on boards is measured by the number of women board members to the number of all board members.

##### *4.4.1.2.2 Insider trading as a mediator variable*

There are many methods to measure insider trading as net sales (Kraft, Lee, &

Lopatta, 2014), net purchase ratio (NPR) (Khan, Baker, Chaudhry, & Maheshwari, 2005). However, these measurements do not reflect insider trading exactly if buying and selling are equal. Thus, the paper uses the number of shares traded by insiders to measure insider trading.

$$IIT = \frac{(\text{Number of stocks sold} + \text{number of stocks purchased})}{\text{Total shares outstanding of firm}}$$

#### 4.4.1.2.3 Measures for control variables

- Board independence (*Dbdipen*). boards with independent CEO curb corporate misconduct and make different decisions because those are outsiders and independent from the firm. Therefore, they do not impact their wealth if they give ideals and take the risk of challenging assumptions about what is good for the firm. Furthermore, they also do not support actions that would reduce shareholders' wealth.

Regarding EM, (Beasley, 1996; Fama & Jensen, 1983b; Klein, 2002; Xie et al., 2003) found a negative relationship between the percentage of independent directors on the board and EM. Similarly, for US companies, (Klein, 2002) showed the existence of a negative relationship between the independent board and EM. Conversely, another previous study also found no relation between them (Park & Shin, 2004).

In term of insider trading, by using board independence as a feature of corporate governance, (Dai, Fu, Kang, & Lee, 2016) state that the board independence is likely to be crucial for corporate governance to be effective in controlling and monitoring insiders' incentives, who engaged in opportunistic insider trading.

It is measured by the proportion of non-executive members on the board of directors.

- CEO duality (*CEO\_D*). Some previous studies of the relationship between CEO duality and EM have exhibited mixed results. (Gull et al., 2018) found that CEO duality positively affects EM. In a meta analysis (seven studies), (García-Meca & Sánchez-Ballesta, 2009) could find no evidence of any correlation between CEO duality and EM.

Related to insider trading, (Tang, Chen, & Chang, 2013) show that a CEO duality engages more private information trading.

CEO is measured by a dummy variable coded 1 if the CEO is chairman of the board, and otherwise 0.

- Big-4/5/6 auditors (AUDIT): they are better to detect earnings management because of their supposed deep knowledge, competence and act to curb earnings

management to protect their reputation. Moreover, they have more motivation to maintain greater audit quality because they usually have a larger client and are globally known brand names (Becker et al., 1998; Chi et al., 2011; Daniel A. Cohen & Zarowin, 2010; J. R. Francis et al., 1999; Watts & Zimmerman, 1986). The involvement of a Big-4 auditor is measured by a dummy variable.

- Firm size (*Firmsize*). There are a lot of previous studies on the relationship between firm size and EMs. On the one hand, larger firms may have less. They are more likely to design and maintain a well-developed governance framework in order to control internal system effectively in comparison to smaller ones, and to reduce the likelihood of manipulating earnings by management (Beasley et al., 2000). And they should receive better audit services from established audit firms due to larger operating budgets, which in turn could help prevent earnings misrepresentations (Becker et al., 1998; J. R. Francis et al., 1999). Moreover, the stricter disclosure requirements placed by regulators on larger firms reduce information asymmetry and may discourage such firms from engaging in EM activity (Lee & Choi, 2002). Finally, larger firms are more likely to be under closer scrutiny by outsiders than smaller firms, which can potentially reduce managers' opportunity to exercise their accounting discretion (Koh, 2003).

On the other hand, firm size may have a positive impact on EM due to the following reasons. First, large firms are controlled by investors leading to adopt aggressive accounting policies and earnings management particularly (Richardson, 2000). Second, although large firms may have stronger internal control system, they also have a stronger management power, which may be used to override the internal control systems to manipulate earnings. Third, larger firms are more likely to exploit latitude in accounting discretion to reduce political attention by reducing reported earnings (Watts & Zimmerman, 1986, 1990).

Related to insider trading, (K. H. Chung & Charoenwong, 1998) mentioned that larger firms are less engaged in insider trading.

Firm size is computed as the log of the firm's total assets.

- Leverage (*Finlever*). it plays an important role in monitoring discretionary activities of managers (Jensen & Meckling, 1976). Companies that select short-maturity debts are probably less involved in EM by reducing agency costs (Alzoubi, 2018). Moreover, firms with high levels of debt may constrain the discretionary accruals manipulation because they undergo better monitoring through third parties such as creditors and bankers. Most of the scholars working in this area have shown that debt is significantly negatively related to EM

(Becker et al., 1998; DeAngelo et al., 1994). However, (DeFond & Jiambalvo, 1994; Lazzem & Jilani, 2017) highlighted that leverage is positively associated with EM because of the existence of covenants in the firm's debt contracts. In addition, (Watts & Zimmerman, 1986) suggested that the managers of highly leveraged firms are likely to manage earnings to improve the firm's negotiating power in order to get funds at satisfactory conditions.

In term of insider trading, (Dai et al., 2016) found that insider trading is negatively associated with leverage. It means that firms using more leverage are minimizing gains of insiders.

Financial leverage is estimated as total liabilities divided by total assets.

- ROA (*ROA*): in order to measure financial performance, ROA is chosen as a proxy and appears as a control variable in the regression model. (Barua et al., 2010; Dechow & Dichev, 2002) documented a negative association between ROA and discretionary accruals in line with Watts and Zimmerman (1990), who showed that firms with higher financial performance tend to manage earnings downwards because of a desire to avoid tax or to limit political cost.

(Piotroski & Roulstone, 2005) suggest that insider trades are positively associated with ROA  
ROA is calculated as net profit over total assets of the firm.

- Firm growth (*SalesG* and *B/MRatio*). Sales growth and book-to-market value are included to control for firm growth. Firms with good growth opportunities need to raise external funds to expand (Lemma et al., 2013), and such firms have incentives to improve earnings quality to benefit from a lower cost of capital (Gaio, 2010) and to present a good picture of their future potential. In the same vein, Shen and Chih (2007) remarked that growth firms, which need external financing, may find it optimal to improve their earnings quality through EM, though they may find it harder to fool the market by manipulating earnings when they come under scrutiny. Sales growth is calculated as the change in sales between the previous year and the current year, whereas book-to-market value is the ratio of book value to market value of equity.

(Piotroski & Roulstone, 2005) also stated that insider trades are positively associated with B/MRatio.

**Table 2: Variables definition**

<b>Variable</b>	<b>Definition</b>	<b>Measure</b>
<b><i>Dependent variables</i></b>		
AEM mjm	Discretionary accruals using Jones modified model (1995)	Absolute value of residuals estimated using Jones modified model
AEMkotha	Discretionary accruals using Kothari et al. (2005)	Absolute value of residuals estimated using Kothari et al.(2005)
REMDIS	The abnormal discretionary expense	Absolute value of residuals from Gunny (2010) model
REMPROD	The abnormal production cost	Absolute value of residuals from Gunny (2010) model
REMCFO	The abnormal cash flow from operations	Absolute value of residuals from Gunny (2010) model
<b><i>Independent variables</i></b>		
dFOB	Percentage women on boards	Number of women board members to the number of all board members <sup>24</sup>
Sown	The percentage of shareholding owned by State	Number of shares owned by State divided by total shares
Fown	The percentage of shareholding owned by foreign investors	Number of shares by foreign investors divided by total shares
<b><i>Mediator variable</i></b>		
IIT	Insider trading	the firm's total shares sold and purchased by the firm's executives, directors and boards members divided by the number of shares outstanding at the end of fiscal year t
<b><i>Control variables</i></b>		
CEO_D	CEO duality	Dummy variable coded 1 if CEO is chairman of the board, otherwise 0
AUDIT	Audit by big four auditor	Dummy variable that equals 1 if the firm is audited by a Big4, otherwise 0.
B/MRatio	book to market value	Ratio of book value to market value of equity.
Firmsize	Firm size	Natural logarithm of the total assets
Finlever	Financial leverage	Total liabilities divided by total assets
Dbdipen	Board independence	The proportion of non-executive members in board of directors (independent directors/total directors)
SalesG	Sale growth	Change in sales from year t-1 to year t
ROA	Return on assets	Net income in year t divided by total assets in year end t-1

<sup>24</sup> Other variables for gender diversity have been taken into account and will be discussed in the presentation of the results.

In this paper, we have three independent variables (women on boards, State ownership, foreign ownership). One important thing is that the control variables are lagged one year relative to the dependent variable, except for dummy variables that are less affected by time series, such as CEO\_D. This lag is employed to show the effect of changes on the governance structure on earnings management and insider trading.

#### 4.4.2 Research model

In order to measure to what extent insider trading mediates the effect of women on boards, State ownership and foreign ownership on earnings management, the paper employs mediation analysis. As can be seen on Figure 1, insider trading and earnings management are consequent variables whereas independent variables (women on boards, State ownership, foreign ownership) are antecedent variables. Independent variables causally impact earnings management and insider trading. There are two distinct pathways by which women on boards, State ownership and foreign ownership influence earnings management. One pathway is a direct effect, the independent variables impacting earnings management without passing through insider trading. The other pathway goes from the independent variables to EM through insider trading. In other words, EM is then impacted by independent variables, which influence insider trading, that, in turn, influences EM. To check hypotheses about mediation, the paper applies (Hayes, 2017) written in Stata.

The equations to test the impact of women on boards, State ownership and foreign ownership on earnings management, with a direct effect and an indirect effect (through insider trading) are as follows:

$$IIT = \alpha + \beta_1 dFOB + \beta_2 Sown + \beta_3 Fown + \beta_4 CEO\_D + \beta_5 lagAUDIT + \beta_6 lagBMRatio + \beta_7 lagfirm\ size + \beta_8 lagFin\ lever + \beta_9 lagdbdipen + \beta_{10} lagSaleG + \beta_{11} lagROA + \epsilon_M$$

$$AEM/REM = \alpha + \delta IIT + \lambda_1 dFOB + \lambda_2 Sown + \lambda_3 Fown + \lambda_4 CEO\_D + \lambda_5 lagAUDIT + \lambda_6 lagBMRatio + \lambda_7 lagfirm\ size + \lambda_8 lagFin\ lever + \lambda_9 lagdbdipen + \lambda_{10} lagSaleG + \lambda_{11} lagROA + \epsilon_M$$

## 4.5 Empirical results

### 4.5.1 Descriptive statistics

**Table 3a: Descriptive statistics for full sample**

Variable	Obs	Mean	Std.Dev.	Min	Max
AEMmjm	5,059	.111	.121	0	.92
AEMkotha	5,059	.107	.117	0	.827
REMCFO	5,059	.116	.12	0	.723
REMPROD	5,064	.134	.132	0	1.983
REMDIS	4,553	.067	.064	0	.416
IIT	2,081	.069	.147	0	2.788
Sown	4,821	.242	.243	0	.967
Fown	4,821	.092	.13	0	.65
dFOB	4,597	.194	.164	0	.8
CEODUAL	4,641	.324	.468	0	1
AUDIT	4,079	.205	.404	0	1
BMRatio	3,659	-16.003	9.924	-43.113	7.185
firmsize	4,493	41.467	8.983	21.69	52.999
Finlever	4,493	.499	.222	.002	.971
dbdipen	4,016	.683	.264	0	1
SaleG	3,861	.281	4.423	-1	244.456
ROA	4,493	.058	.083	-.996	.784

**Table 3b-Correlation matrix among variables**

	AEM mjm	AEM kotha	IIT	Sown	Fown	dFOB	CEO_D	AUDIT	BMRatio	firmsize	Finlever	dbdipen	SaleG	ROA
AEMmjm	1													
AEMkotha	0.966 <sup>***</sup>	1												
IIT	0.028	0.034	1											
Sown	-0.095 <sup>***</sup>	-0.107 <sup>***</sup>	-0.139 <sup>***</sup>	1										
Fown	-0.063 <sup>**</sup>	-0.066 <sup>**</sup>	-0.154 <sup>***</sup>	-0.133 <sup>***</sup>	1									
dFOB	0.035	0.044	0.093 <sup>***</sup>	-0.082 <sup>*</sup>	0.037	1								
CEO_D	-0.014	-0.0083	-0.019	-0.164 <sup>***</sup>	-0.036	0.08 <sup>*</sup>	1							
AUDIT	-0.094 <sup>***</sup>	-0.095 <sup>***</sup>	-0.102 <sup>***</sup>	0.019	0.368 <sup>***</sup>	-0.167 <sup>***</sup>	-0.121 <sup>***</sup>	1						
BMRatio	0.087 <sup>*</sup>	0.079 <sup>*</sup>	0.12 <sup>***</sup>	-0.064 <sup>**</sup>	-0.016	0.082 <sup>*</sup>	-0.017	-0.04	1					
firmsize	-0.092 <sup>*</sup>	-0.083 <sup>*</sup>	-0.112 <sup>***</sup>	0.044	0.022	-0.09 <sup>*</sup>	0.022	0.036	-0.954 <sup>***</sup>	1				
Finlever	-0.032	-0.016	-0.027	0.086 <sup>*</sup>	-0.207 <sup>***</sup>	-0.155 <sup>***</sup>	-0.026	0.028	-0.021	0.016	1			
dbdipen	-0.058 <sup>**</sup>	-0.056 <sup>**</sup>	0.072 <sup>**</sup>	-0.02	-0.009	0.172 <sup>***</sup>	0.219 <sup>***</sup>	-0.204 <sup>***</sup>	-0.028	0.022	-0.191 <sup>***</sup>	1		
SaleG	0.16 <sup>***</sup>	0.156 <sup>***</sup>	0.031	-0.036	0.002	0.05	0.03	-0.012	0.06 <sup>**</sup>	-0.058 <sup>**</sup>	-0.037	0.031	1	
ROA	-0.002	-0.03	-0.093 <sup>***</sup>	0.114 <sup>***</sup>	0.223 <sup>***</sup>	0.043	0.019	0.056 <sup>**</sup>	-0.044	0.046	-0.333 <sup>***</sup>	0.03	0.06 <sup>**</sup>	1

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

**Table 3c-Correlation matrix among variables**

	REMCFO	REMPROD	REMDIS	IIT	Sown	Fown	dFOB	CEO_D	AUDIT	BMRatio	firmsize	Finlever	dbdipen	SaleG	ROA
REMCFO	1														
REMPROD	0.224***	1													
REMDIS	-0.006	0.327***	1												
IIT	-0.001	0.081*	0.021	1											
Sown	-0.05	0.004	0.077*	-0.129***	1										
Fown	-0.057	0.098***	0.204***	-0.171***	-0.127***	1									
dFOB	0.042	0.03	0.05	0.104***	-0.065**	0.02	1								
CEO_D	0.024	0.035	-0.065**	-0.014	-0.164***	-0.041	0.09*	1							
AUDIT	-0.08*	0.056	0.083*	-0.114***	-0.001	0.398***	-0.173***	-0.106***	1						
BMRatio	0.055	0.003	-0.018	0.101***	-0.045	-0.032	0.085*	-0.005	-0.0314	1					
firmsize	-0.055	-0.006	0.008	-0.105***	0.045	0.031	-0.097***	0.006	0.0344	-0.988***	1				
Finlever	-0.021	-0.041	-0.181***	-0.03	0.076*	-0.191***	-0.151***	-0.025	-0.004	-0.003	0.002	1			
dbdipen	-0.034	0.038	0.046	0.092*	-0.022	0.014	0.196***	0.227***	-0.198***	-0.013	0.014	-0.190***	1		
SaleG	0.116***	0.263***	0.028	0.033	-0.037	0.002	0.052	0.031	-0.0116	0.063**	-0.06**	-0.039	0.033	1	
ROA	0.069**	0.151***	0.199***	-0.082*	0.118***	0.200***	0.022	0.011	0.057	-0.041	0.046	-0.329***	0.048	0.062**	1

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

The sample consists of an unbalanced panel of stocks listed in the HSX or the HNX over the period 2008-2017. The financial data are from Stoxplus. The descriptive statistics of all variables are reported in table 3a. The percentage of shares trade by insiders in this sample had an average of 6.9%. The average percentage shares owned by State was 24.2%, whereas the average percentage shares owned by foreign investors was only 9.2% in the Vietnamese context. The average ratio of female boards members was 19.4%.

The AEM measured by modified Jones model and Kothari model has a mean value of nearly 0.11, whereas REMPROD, REMCFO and REMDIS are 0.134, 0.116 and 0.067, respectively.

The mediating role of insider trading in the relation between corporate governance and earnings management required that both corporate governance and insider trading were related to earnings management, and that corporate governance and insider trading were interrelated. In order to control this, we performed correlations between corporate governance, IIT, EM and control variables are reported in Table 3b,c.

The correlation coefficients between State ownership, foreign ownership, AEM<sub>mjm</sub> and AEM<sub>kotha</sub> are all significantly negative (at the level of 1% for Sown, 5% only for Fown). They support the hypothesis that firms with higher State and foreign ownership curb AEM. Concerning State ownership, the coefficient with REMDIS is significantly positive (10%), the other are insignificant. It means that firms with more State ownership are more likely to engage in EM through REMDIS. In terms of foreign ownership, the correlation and coefficients with REMPROD and REMDIS are highly (1%) significantly positive: more foreign ownership is associated with more EM when it is measured by REMPROD and REMDIS. For its part, the percentage of women on boards (dFOB) is positively related with the five measures of EM, but none of those correlations proves to be significant (event at the 10% level).

In terms of correlation between EM and insider trading (IIT), the only significant correlation is between IIT and REMPROD and is positive (10%). It means that lower insider trading is associated with lower REMPROD.

There are statistically significant correlations between the dependent variables of EM and several control variables: AEM is significantly, negatively correlated with big4, firm size, and board dependence, whereas it is significant positively correlated with BM ratio and sale growth. In terms of REM, only ROA has positive, significant relation for all three measures.

REMCFO, REMPROD and REMDIS are strongly significantly positively correlated with sale growth. And REMCFO is also negatively correlated to CEO\_D, Big4 and REMDIS to financial leverage.

There is no excessively high problem of multicollinearity between the independent variables because most of the correlation coefficients magnitudes are below 0.8 (Gujarati, 2009).

#### **4.5.2 Regression results**

The mediation analysis with insider trading as a mediator variable has been done with five different measures of EM (two for AEM, three for REM) and for three features of corporate governance : gender diversity of the boards, State ownership and foreign ownership.

Concerning the association between Insider Trading and earnings management, our results show a significant association, which is positive as expected, only if EM is measured through REMDIS. All the other ones are non significant.

Concerning the association between the three corporate governance dimensions and earnings management, our results show that dFOB has no influence on EM, whatever the measure used. But State ownership and foreign ownership are both significantly associated with most of our EM measures. They are highly negatively associated with our two measures of AEM. They play in a contrasting way for our three measures of REM: both Sown and Fown are negatively associated with REMCFO and highly (both at 1%) positively associated with REMDIS, only Fown been also positively associated with REMPROD.

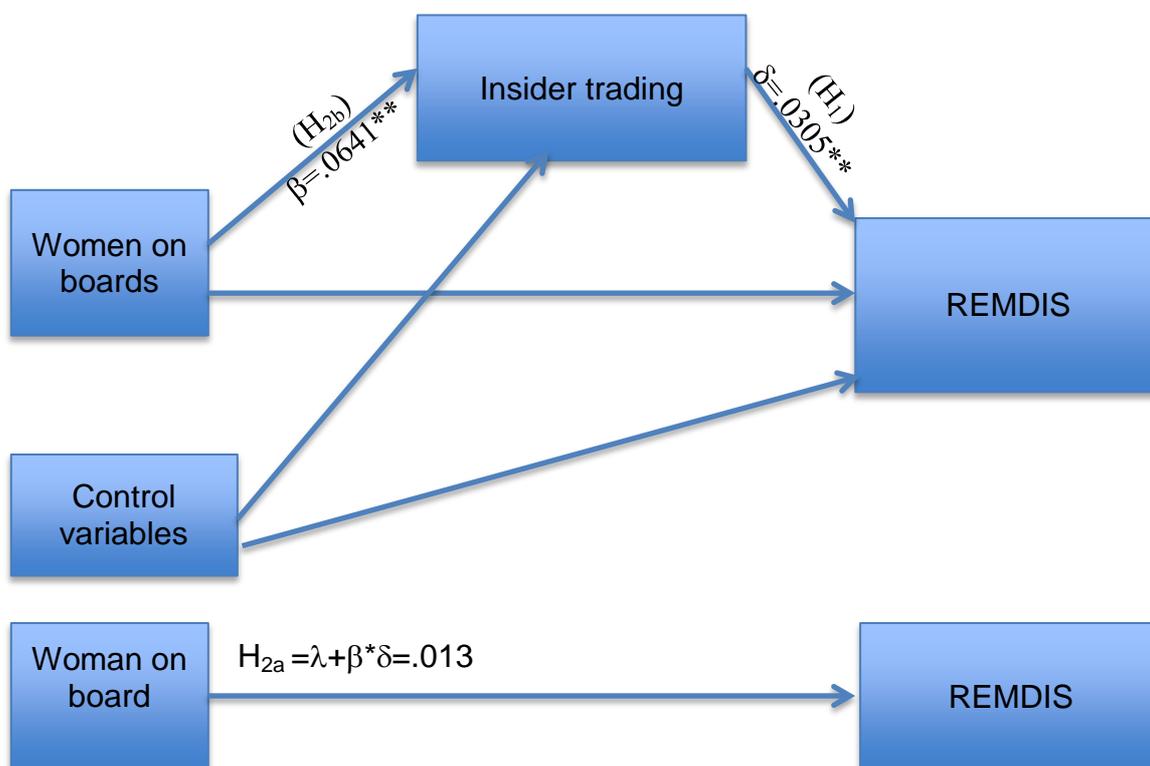
The results of regressions show that Insider Trading is significantly associated with our three corporate governance dimensions: it is positively associated with gender diversity (5% significant association with dFOB), and highly negatively associated with our both ownership dimensions (State Ownership and foreign ownership).

Finally, our results show that the mediating effect of Insider Trading on this relation is significant only when earnings management is measured by REMDIS : for the four other measures, and though a significant effect of IT on corporate governance dimensions and the relative association between those corporate governance dimensions on EM, this potential indirect effect is not significant.

As this mediating effect is the focus of this paper and since the only significant results are shown when computing discretionary expenses (REMDIS) as a measure of EM, only the corresponding results are presented in the main text (showing in Tables 4, 5 and 6 the direct,

indirect and total path between our three features of corporate governance REMDIS). The results with the four other EM measures are presented in Appendix (and their associations with DFOB in Tables 7 to 10, with Sown in Tables 11 to 14, with Fown in Tables 15 to 18).

#### 4.5.2.1 Women on boards, insider trading and earnings management



**Figure 2: The framework of women on boards and REMDIS, IT as a mediator.**

**Table 4: Direct effects, indirect effects and total effect of women on boards (dFOB) and abnormal discretionary expenses (REMDIS) through insider trading**

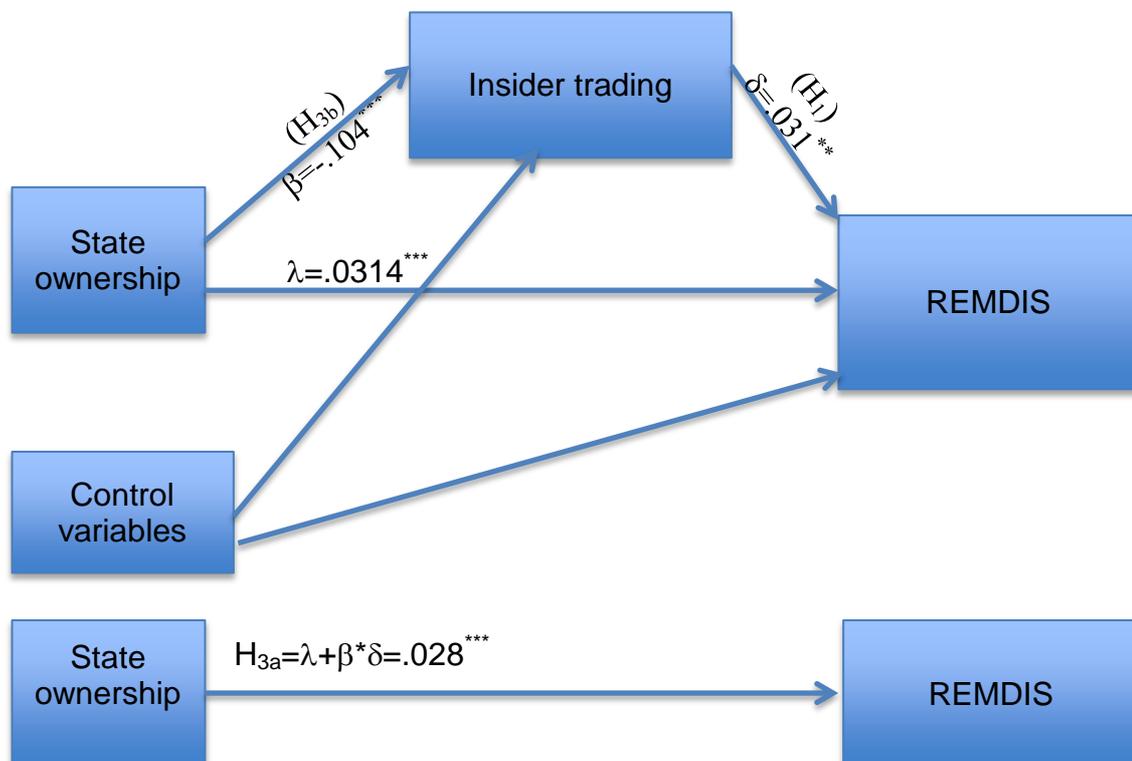
Effects	Path	$\beta$	Std Error	Z value	P value	Normal-based	
						95% conf. intervals	
Direct effect	<i>dFOB</i> ->REMDIS	.0111	.0127	.87	.382	-.0138	.036
Indirect effect	<b>dFOB</b> -> <b>IIT</b>	<b>.0641 **</b>	<b>.028</b>	<b>2.25</b>	<b>.024</b>	<b>.0083</b>	<b>.12</b>
	<b>IIT</b> -> <b>REMDIS</b>	<b>.0305**</b>	<b>.0132</b>	<b>2.32</b>	<b>.02</b>	<b>.0047</b>	<b>.056</b>
	<i>Indirect via IIT</i>	.00196	.00127	1.54	.123	-.0005	.004
Total effect	<i>dFOB</i> ->REMDIS	.013	.0129	1.01	.312	-.0123	.0384

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 4 describes the indirect, direct and total effects of the relationship between women on boards and EM through REMDIS with IIT as a possible mediator. The result shows that the total effect of women on boards on REMDIS is positive but insignificant. Both direct and indirect effect through IIT are insignificant. Hypotheses H<sub>2a</sub> “Earnings management is negatively associated with board gender diversity” and H<sub>2b</sub> “Insider trading is negatively associated with board gender diversity” are not confirmed. While hypothesis H<sub>1</sub> “insider trading is positively associated with earnings management” is confirmed in terms of REMDIS, H<sub>2c</sub> “insider trading is a mediator in the association between board gender diversity and earnings management” is rejected.

To check the impact of the presence of women as member of the boards or executives, different other measures of gender diversity have been used: women on boards measured by Shannon index, women on board of directors (number of women in the board of directors divided by number of directors in the board), women on board of executives (number of women in the board of executives), chairwoman and female CEO. We obtained no significantly different results with those measures.

#### 4.5.2.2 State ownership, insider trading and earnings management



**Figure 3: The framework of State ownership and REMDIS, IT as a mediator.**

**Table 5: Direct effects, indirect effects and total effects of State ownership and abnormal discretionary expenses (REMDIS) through insider trading**

Effects	Path	$\beta$	Std Error	Z value	P value	Normal-based	
						95% intervals	conf.
Direct effect	Sown->REMDIS	.0314***	.0098	3.22	.001	.0123	.051
Indirect effect	<i>Sown-&gt;IIT</i>	<i>-.104***</i>	<i>.019</i>	<i>-5.42</i>	<i>.000</i>	<i>-.141</i>	<i>-.066</i>
	<i>IIT-&gt;REMDIS</i>	<i>.031**</i>	<i>.0132</i>	<i>2.32</i>	<i>.02</i>	<i>.0047</i>	<i>.056</i>
	Indirect via IIT	-.0032**	.00146	-2.17	.03	-.006	-.00031
Total effect	Sown->REMDIS	.028***	.0096	2.93	.003	.009	.047

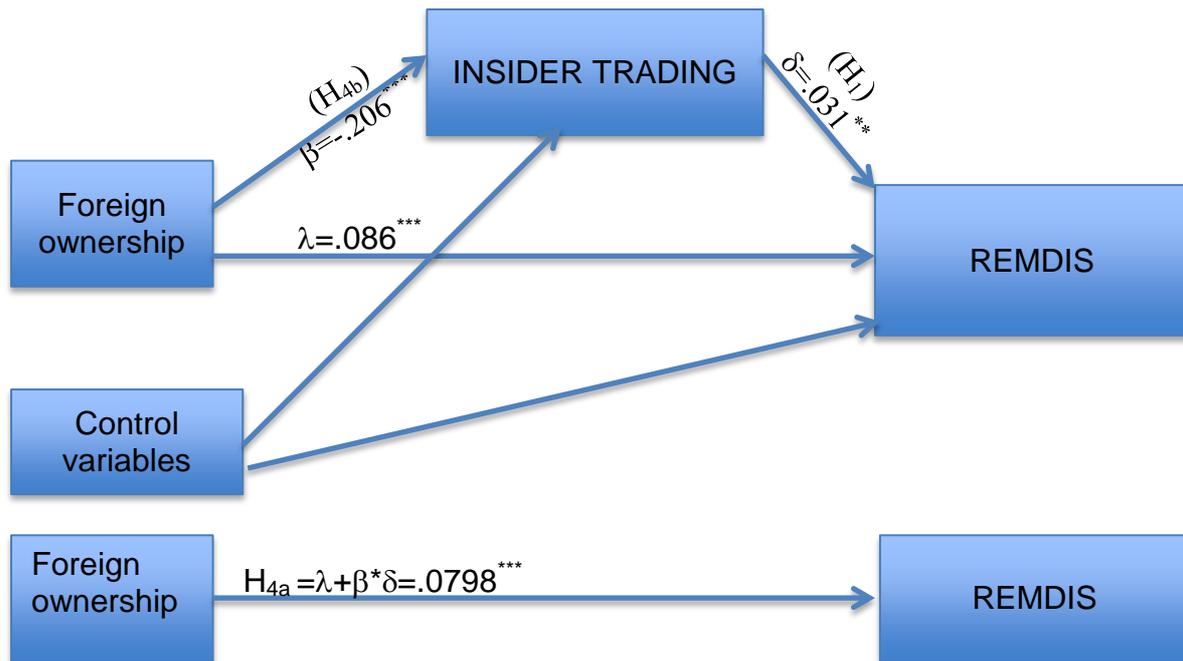
\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 5 gives the indirect, direct and total effects of the relationship between State ownership and REMDIS through insider trading as a mediator. The results show that there is a positive and significant total effect between State ownership and REMDIS. It means more State ownership increases earnings management. Therefore, hypothesis H<sub>3a</sub> “*Earnings management is negatively associated with State ownership*” is not confirmed. The indirect effect through Insider Trading is negative and significant when REM is measured by the abnormal discretionary expenses. Therefore, hypothesis H<sub>3b</sub> “*Insider trading is negatively associated with State ownership*” and H<sub>3c</sub> “*insider trading is a mediator in the association between State ownership and EM*” are validated. More State ownership is associated with less insider trading and less insider trading is associated with a smaller REMDIS, that is less REM. This negative, indirect effect through the mediation of Insider Trading doesn’t compensate for the highly positive, direct effect of Sown on REMDIS. But this mediation analysis helps to understand the underlying mechanism: a decrease in the magnitude of the relation between State ownership and REMDIS (.0314 in direct effect compared with .028 in total) is obtained via the reduction of insider trading.

#### 4.5.2.3 Foreign ownership, insider trading and earnings management

The regression analysis is summarized in Table 6. It shows the indirect, direct and total effects of the relationship between foreign ownership and REMDIS through insider trading as a mediator. The conclusions are similar to the State ownership. Insider trading appears to be a mediator between foreign ownership and REMDIS. The indirect effect is

negative and significant. In this case, more foreign ownership is associated with less insider trading ( $\beta$  is significantly negative), which in turn makes lower REM (the coefficient between IIT and REMDIS is also significantly positive). With REMDIS, all hypotheses are confirmed, except  $H_{4a}$  (“Earnings management is negatively associated with foreign ownership”). It means  $H_{4b}$  “Insider trading is negatively associated with foreign ownership” and  $H_{4c}$  “Insider trading is a mediator in the association between foreign ownership and EM” are validated.



**Figure 4: The framework of foreign ownership and REMDIS, IT as a mediator.**

**Table 6- Direct effects, indirect effects and total effects of Foreign ownership and abnormal discretionary expenses (REMDIS) through insider trading**

Effects	Path	$\beta$	Std Error	Z value	P value	Normal-based	
						95% conf Intervals	
Direct effect	<b>Fown-&gt;REMDIS</b>	<b>.086***</b>	<b>.0195</b>	<b>4.42</b>	<b>.000</b>	<b>.048</b>	<b>.124</b>
Indirect effect	<i>Fown-&gt;Insider trading</i>	<i>-.206***</i>	<i>.029</i>	<i>-7.08</i>	<i>.000</i>	<i>-.262</i>	<i>-.149</i>
	<i>Insider trading-&gt;REMDIS</i>	<i>.031**</i>	<i>.013</i>	<i>2.32</i>	<i>.020</i>	<i>.0047</i>	<i>.056</i>
	<b>Indirect via IIT</b>	<b>-.006**</b>	<b>.0027</b>	<b>-2.3</b>	<b>.022</b>	<b>-.0116</b>	<b>-.0009</b>
Total effect	<b>Fown-&gt;REMDIS</b>	<b>.0798***</b>	<b>.019</b>	<b>4.16</b>	<b>.000</b>	<b>.0422</b>	<b>.117</b>

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

## 4.6 Conclusion

The main purpose of this study is to provide new insights into how gender diversity, State and foreign ownership influence earnings management by investigating the mediating role of insider trading. We perform regressions based on mediation models, the mediation variable being insider trading. The tests have been done with two measures for accrual earnings management (AEM) and three measures for real earnings management (REM). The main results show a significant mediator effect of insider trading only when earnings management is measured through abnormal discretionary expenses (REMDIS); for all our four other measures of EM, there is no significant indirect effect.

If focusing on this unique mediating effect with REMDIS as proxy of earnings management, our results show that corporate governance is associated with EM only for our two measures based on ownership structure (State ownership and foreign ownership): gender diversity of the boards show no influence on EM, neither directly or indirectly through IT mediation effects, although female on boards significantly increases insider trading, which in turn shows to significantly raise REMDIS.

Concerning the two features of corporate governance that show to influence EM – State ownership and foreign ownership- the total effect is not the one we expected: they have a positive impact on REMDIS. However, for both of them, there is a decrease in magnitude of total effect compared with direct effect, that can be explained by the mediation analysis: more State and foreign ownership reduces insider trading, which in turn, raises earnings management. This indirect negative action on EM is not enough to curb EM, but this result validates the role of insider trading as a mediator between corporate ownership and real activities manipulations through abnormal expenses.

The negative influence of State or foreign ownership on insider trading can be explained. Namely, the main aim of the Vietnamese government is the maximization of public welfare. Therefore, the government cannot defer general information for all people who are interested. Thus, the information published leads to reduce agency costs (Hope et al., 2009) make lower information asymmetry in SOE in Vietnam. As a result, an increase in information transparency preventing insiders' opportunistic behaviour leads to a decrease in insider trading (Chowdhury et al., 2018). Similarly, firms with more foreign ownership experience less trades of insiders because: (i) foreign investors enhance the oversight function of internal governance mechanisms leading to better monitoring (ii) they improve corporate

governance leading to prevent managers from taking advantage of corporate information asymmetry to serve their own interests. As a result, foreign investors are associated with a firm with low information asymmetry (L. Jiang & Kim, 2004). Therefore, high quality of accounting data leading to stronger public information also lowers information asymmetry and lowers insiders' opportunistic behavior meaning lower insider trading (Chowdhury et al., 2018). As a result, in the indirect path, with lower insider trading, managers in firms with more State and foreign ownership tend to less manipulate earnings by increasing R&D expenses, advertising expenses or selling, general and administrative expenses (the State and foreign ownership have a negative impact on REMDIS via insider trading). But it remains that firms with more State and foreign ownership still engage in more earnings management through REMDIS in total.

Different reason may explain why firms with more state and foreign ownership increase abnormal discretionary expenses (not a negative relation as expected). In fact, the main aim of the Vietnamese government is political purposes. Therefore, firms report lower earnings quality in order to hide the expropriation of corporate resources, especially research and development expenses. In addition, there are many family owned firms in Vietnam, 31.1% of the firms (Kien & Duc),2015). There are often combined ownership in firms where the State may not be the largest shareholder of the firms, for example if the State retains a percentage of shares and family or founder's private firms also maintain their control. In such situations where a firm is held by several parties with their own interests, potential contrasting interests or conflicting views may lead to data manipulation and earnings management (D. Choi et al., 2020; F. Guo & Ma, 2015).

Similarly, foreign investors may have a lower control on managerial behavior because of geographical, language and culture diversity (B. B. Choi et al., 2013; Hoang et al., 2019). Moreover, in the case of Vietnam, the 49% maximum foreign ownership do not enhance their power and access onto the firm's operational information, which may be associated with information asymmetry between domestic and foreign investors, leading to an increase in managerial autonomy and opportunities for earnings management (S. H. Kim et al., 2020).

This article has some important implications. First, it extends the literature about the relations between corporate governance, insider trading and earnings management, applying a mediation analysis. More precisely, it underlines the mediating role of insider trading, even if it is only with one of our measures of earnings management. Second, the empirical study on Vietnamese data can help policymakers in emerging countries in their decisions about State,

foreign ownership and investor protection regulation. Third, it also helps investors to better understand financial report clearly for firms having high percentage of State and/or foreign ownership.

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## APPENDIX

**Table 7: Direct effects, indirect effects and total effects of woman on board (dFOB) and accrual based earnings management using modified Jones model through insider trading**

	Path	$\beta$	Std Error	Z value	P value	Normal-based	
						95% conf. intervals	
Direct effect	dFOB->AEMmjm	.008	.0197	.42	.677	-.03	.047
Indirect effect	<b>dFOB-&gt;IIT</b>	<b>.0588**</b>	<b>.0273</b>	<b>2.15</b>	<b>.031</b>	<b>.0053</b>	<b>.1124</b>
	IIT->AEMmjm	-.009	.0228	-.40	.689	-.0537	.035
	Indirect via IIT	-.0005	.0015	-0.35	0.728	-.0036	.0025
Total effect	dFOB->AEMmjm	.0077	.0198	.39	.697	-.031	.046

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 8: Direct effects, indirect effects and total effects of woman on board (dFOB) and accrual based earnings management using Kothari model through insider trading**

	Path	$\beta$	Std Error	Z value	P value	Normal-based	
						95% conf. intervals	
Direct effect	dFOB->AEMkotha	.0159	.02	.79	.428	-.024	.055
Indirect effect	dFOB->IIT	.0588**	.0267	2.21	.027	.0066	.111
	IIT->AEMkotha	-.0057	.022	-.26	.796	-.049	.037
	Indirect via IIT	-.0003	.0015	-.22	.825	-.0033	.0026
Total effect	dFOB->AEMkotha	.0156	.02	.77	.441	-.024	.055

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 9: Direct effects, indirect effects and total effects of woman on board (dFOB) and abnormal cash flow through insider trading**

	Path	$\beta$	Std Error	Z value	P value	Normal-based	
						95% conf. intervals	
Direct effect	dFOB->REMCFO	.0237	.02	1.18	.238	-.0157	.0631
Indirect effect	dFOB->IIT	.0588**	.0268	2.19	.028	.0062	.1114
	IIT->REMCFO	-.0066	.0296	-.22	.823	-.065	.051
	Indirect via IIT	-.0004	.00196	-.20	.842	-.004	.0034
Total effect	dFOB->REMCFO	.023	.02	1.15	.252	-.0165	.063

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 10: Direct effects, indirect effects and total effects of woman on board (dFOB) and abnormal over production through insider trading**

	Path	$\beta$	Std Error	Z value	P value	Normal-based	
						95% conf. intervals	
Direct effect	dFOB->REMPROD	.0085	.025	.34	.734	-.041	.058
Indirect effect	dFOB->IIT	.0596**	.026	2.29	.022	.0085	.111
	IIT->REMPROD	.097	.71	1.37	.172	-.042	.235
	Indirect via IIT	.0058	.006	.94	.348	-.0063	.0178
Total effect	dFOB->REMPROD	.014	.0268	.53	.595	-.038	.067

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 11: Direct effects, indirect effects and total effects of state ownership (Sown) and accrual based earnings management using modified Jones model through insider trading**

	Path	$\beta$	Std Error	Z value	P value	Normal-based	
						95% conf. intervals	
Direct effect	Sown->AEMmjm	-.053**	.016	-3.3	.001	-.085	-.022
Indirect effect	Sown->IIT	-.103***	.018	-5.74	.000	-.138	-.068
	IIT->AEMmjm	-.009	.023	-.4	.689	-.054	.035
	Indirect via IIT	.00094	.0024	.4	.691	-.0037	.0056
Total effect	Sown->AEMmjm	-.052**	.0157	-3.33	.001	-.083	-.0215

\* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

**Table 12: Direct effects, indirect effects and total effects of state ownership (Sown) and accrual based earnings management using Kothari model through insider trading**

	Path	$\beta$	Std Error	Z value	P value	Normal-based	
						95% conf. intervals	
<b>Direct effect</b>	<b>Sown-&gt;AEMkotha</b>	<b>-.056***</b>	.016	-3.56	.000	-.088	-.025
Indirect effect	<b>Sown-&gt;IIT</b>	<b>-.103***</b>	.018	-5.74	.000	-.138	-.068
	<i>IIT-&gt;AEMkotha</i>	<i>-.0057</i>	.022	-2.26	.796	-.049	.037
	Indirect via IIT	.0006	.0022	.26	.794	-.0038	.005
<b>Total effect</b>	<b>Sown-&gt;AEMkotha</b>	<b>-.0559***</b>	.015	-3.63	.000	-.086	-.0257

\* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

**Table 13: Direct effects, indirect effects and total effects of state ownership (Sown) and abnormal overproduction cost through insider trading**

	Path	$\beta$	Std Error	Z value	P value	Normal-based	
						95% intervals	conf.
Direct effect	Sown->REMPROD	.0088	.0175	.5	.616	-.0255	.043
Indirect effect	Sown->IIT	-.103***	.018	-5.64	.000	-.139	-.067
	IIT->REMPROD	.097	.71	1.37	.172	-.042	.235
	Indirect via IIT	-.01	.007	-1.35	.179	-.0245	.0046
Total effect	Sown->REMPROD	-.0012	.017	-.07	.944	-.035	.033

\* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

**Table 14: Direct effects, indirect effects and total effects of state ownership (Sown) and abnormal cash flow through insider trading**

	Path	$\beta$	Std Error	Z value	P value	Normal-based	
						95% conf. intervals	
Direct effect	Sown->REMCFO	-.0327**	.016	-2.02	.044	-.065	-.001
Indirect effect	Sown->IIT	-.103***	.018	-5.85	.000	-.138	-.069
	IIT->REMCFO	-.0066	.0296	-.22	.823	-.065	.051
	Indirect via IIT	.00068	.0031	.22	.824	-.005	.0067
Total effect	Sown->REMCFO	-.032**	.0156	-2.05	.04	-.063	-.0015

\* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

**Table 15: Direct effects, indirect effects and total effects of Foreign ownership (Fown) and accrual based earnings management using modified Jones model through insider trading**

	Path	$\beta$	Std Error	Z value	P value	Normal-based	
						95% conf. Intervals	
Direct effect	Fown->AEMmjm	-.047**	.022	-2.08	.038	-.092	-.0027
Indirect effect	Fown->IIT	-.181***	.031	-5.93	.000	-.241	-.121
	IIT->AEMmjm	-.009	.023	-.4	.689	-.0537	.035
	Indirect via IIT	.0017	.004	.41	.681	-.006	-.0095
Total effect	Fown->AEMmjm	-.046**	.022	-2.04	.041	-.09	-.0018

\* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

**Table 16: Direct effects, indirect effects and total effects of Foreign ownership (Fown) and accrual based earnings management using Kothari model through insider trading**

	Path	$\beta$	Std Error	Z value	P value	Normal-based	
						95% conf. intervals	
Direct effect	Fown->AEMkotha	-.044*	.0229	-1.91	.057	-.0887	.0012
Indirect effect	Fown->IIT	-.181***	.029	-6.17	.000	-.239	-.124
	IIT->AEMkotha	-.0057	.022	-.26	.796	-.049	.037
	Indirect via IIT	.001	.004	.26	.797	-.0068	.0088
Total effect	Fown->AEMkotha	-.043*	.022	-1.91	.056	-.086	.0011

\* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

**Table 17: Direct effects, indirect effects and total effects of foreign ownership (Fown) and abnormal cash flow through insider trading**

	Path	$\beta$	Std Error	Z value	P value	Normal-based	
						95% intervals	conf.
Direct effect	Fown->REMCFO	-.042*	.024	-1.71	.088	-.089	.0062
Indirect effect	Fown->IIT	-.181***	.0298	-6.07	.000	-.24	-.123
	IIT->REMCFO	-.0066	.0296	-.22	.823	-.065	.051
	Indirect via IIT	.0012	.0056	.22	.829	-.0097	.012
Total effect	Fown->REMCFO	-.04*	.0237	-1.71	.088	-.087	.006

\* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

**Table 18: Direct effects, indirect effects and total effects of Foreign ownership (Fown) and abnormal over production through insider trading**

	Path	$\beta$	Std Error	Z value	P value	Normal-based	
						95% intervals	conf.
<b>Direct effect</b>	<b>Fown-&gt;REMPROD</b>	<b>.089**</b>	<b>.031</b>	<b>2.91</b>	<b>.004</b>	<b>.029</b>	<b>.15</b>
Indirect effect	<i>Fown-&gt;IIT</i>	<i>-.181***</i>	<i>.031</i>	<i>-5.93</i>	<i>.000</i>	<i>-.241</i>	<i>-.121</i>
	<i>IIT-&gt;REMPROD</i>	<i>.097</i>	<i>.71</i>	<i>1.37</i>	<i>.172</i>	<i>-.042</i>	<i>.235</i>
	Indirect via IIT	-.0175	.0123	-1.43	.154	-.042	.0066
<b>Total effect</b>	<b>Fown-&gt;REMPROD</b>	<b>.072**</b>	<b>.0315</b>	<b>2.28</b>	<b>.023</b>	<b>.01</b>	<b>.134</b>

\* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

	Path	$\beta$	Std Error	Z value	P value	Normal-based	
						95% conf. intervals	
<b>Direct effect</b>	<b>Fown-&gt;REMPROD</b>	<b>.089**</b>	<b>.031</b>	<b>.91</b>	<b>.004</b>	<b>.029</b>	<b>.15</b>
Indirect effect	<i>Fown-&gt;IIT</i>	<i>-.181***</i>	<i>.031</i>	<i>-5.93</i>	<i>.000</i>	<i>-.241</i>	<i>-.121</i>
	<i>IIT-&gt;REMPROD</i>	<i>.097</i>	<i>.71</i>	<i>1.37</i>	<i>.172</i>	<i>-.042</i>	<i>.235</i>
	Indirect via IIT	-0.0175	.0123	-1.43	.154	-.042	.0066
<b>Total effect</b>	<b>Fown-&gt;REMPROD</b>	<b>.072**</b>	<b>.0315</b>	<b>2.28</b>	<b>.023</b>	<b>.01</b>	<b>.134</b>

# Chapter 5. Linking corporate governance and stock price informativeness in Vietnam: the mediating effect of earnings management<sup>25</sup>

## Abstract

Vietnam is an interesting experimental area about corporate governance, especially regarding board gender diversity, state ownership and foreign ownership. This article tests the link between these three characteristics and Stock Price Informativeness (SPI), using both Accrual earnings management and Real earnings management measures on a sample of quoted Vietnamese firms between 2008 and 2017. We find that women on board, state ownership and foreign ownership have all a positive impact on SPI, though it was not the expected result concerning state ownership. Previous studies have shown a link between earnings management (EM) and SPI on one hand, corporate governance and EM on the other hand. EM is then a candidate as a mediator between corporate governance and SPI. In our results, the mediating role of EM in this relationship is mixed: it is highly positive and significant only when EM is measured by REM (abnormal discretionary expenses) and not by AEM. This channel through REM shows an indirect positive impact of women on board, state and foreign ownership on SPI through the combination of a positive impact of women on board, state and foreign ownership on REM and a positive impact of REM on SPI. The discussion of those results may help regulators in this transitional economy.

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<sup>25</sup> This paper was presented at the CIG 2020

## 5.1 Introduction

Previous studies stated that stock price is changing when new information is published (Fama, 1965; Fama & Blume, 1966). The response of stock price is due to both macro-economic information (market and industry related) as the announcement of monetary policy, interest rate.... and firm-specific information as firm's performance, corporate governance. While all stocks in the market are impacted by macro-economic information, one firm's stock is affected by its own specific information (price non-synchronicity). The stock price informativeness (SPI) is a measure of the efficiency of the resource allocation: the more capital in financial market is allocated efficiently, the more SPI is improved (Wurgler, 2000). In fact, stock price informativeness is the inverse measure of stock price synchronicity, which is "the extent to which market and industry returns explain variation in firm-level stock return" (Piotroski & Roulstone, 2004). In other words, stock price informativeness refers as the extent to which firm specific information is stored into stock price. It has been largely studied in previous literature (Ben-Nasr & Cosset, 2014; De Cesari & Huang-Meier, 2015; Ferreira, Ferreira, & Raposo, 2011; Ferdinand A Gul et al., 2011; He et al., 2013; Wurgler, 2000).

Different ways of estimating stock price informativeness have been proposed: (i) the idiosyncratic volatility of the firm's stock returns, (ii) the fraction of this idiosyncratic volatility in the total firm's risk, (iii) the future earnings response coefficient measuring how current stock prices predict future earnings by regressing the stock returns on past, present and future earnings.

Stock-price informativeness is not of the same level in developed and emerging countries. The quality and quantity of information differs across markets or firms, and thus the movement of stock price (Fernandes & Ferreira, 2008; Fernandes & Ferreira, 2009; L. Jiang, Kim, & Pang, 2014; Jin & Myers, 2006; Morck, Yeung, & Yu, 2000). Stock prices impound firm specific information differently across countries because of differences in investor rights protection, the openness of capital markets, and information environment opaqueness (e.g.,(Jin & Myers, 2006; K. Li, Morck, Yang, & Yeung, 2004; Morck et al., 2000). Namely, Morck et al. (2000) show that stock prices are more informative in countries with relatively high GDP and developed financial systems because of stronger property rights protection. Jin and Myers (2006) focus on the opaqueness in an international sample of 40 stock markets. They find that more opaqueness is associated with less firm specific risk for

investors, an indicator of a lower stock price informativeness. Higher information transparency leads to lower earnings management which will lead to more stock price informativeness. (Fernandes & Ferreira, 2008) using data from 40 countries from 1980 to 2003, state that emerging countries have lower stock price informativeness than developed countries, SPI being larger especially for international cross-listing firms and firms in countries with the strongest investor protection. (K. Li et al., 2004) is the first study to find the relation between stock price informativeness measured by idiosyncratic stock return variation and openness of the market. By compared two opposite capital market openness, named lower capital market openness and higher capital market openness, they found that firm-specific information is impounded more fully into stock prices in emerging markets with higher capital market openness than other ones. Furthermore, the relation between stock price synchronicity and capital market openness is negative and is magnified by country-level institutions. They also document evidence that firm-specific stock return variation is validly related to the interaction regarding capital market openness and a good government index. (Chan & Hameed, 2006) show that in emerging markets, the lack of publicly available firm-specific information and less stringent disclosure lead stock prices to be less informative. Using a sample of Chinese firms from 1996 to 2003, (Ferdinand A. Gul et al., 2010) examine the effects of firm level corporate governance on stock price informativeness. They first state that stock price informativeness decreases, but at an increasing rate, with the shareholding by the largest shareholder. Moreover, the informativeness is higher when the largest shareholder is not government-related. It means that government-related and large shareholders have little incentive to disclose value-relevant, firm-specific information to outsider shareholders.

With different studies showing SPI is more difficult to reach in emerging countries, it appears fundamental to find the mechanisms that could enhance SPI in these countries. Vietnam is chosen as an emblematic example of these countries because (i) Even if Vietnamese listed firms have been transferred from State ownership to private ownership step by step, the government still has a significant ownership and remains a strategic partner. (i) The accounting information lacks transparency and is considered of low quality. Moreover, (ii) Vietnam has low investor protection and weak corporate governance. Thus, managers may manipulate financial information easily and informed traders have lower information cost and can thus take-advanced information to serve their interest (J. Francis, LaFond, Olsson, & Schipper, 2005). Related to women on corporate boards in Vietnam, the general context is an increasing pressure on gender diversity of boards in developed nations because of growing

regulations. Moreover, women on boards in Vietnam still meet many obstacles. In addition, several studies have examined the relationships between women on boards and earnings management, stock price informativeness, but they have been focused on one-tier board systems like those in the UK and South Korea (Arun, Almahrog, & Aribi, 2015; H. A. Kim et al., 2017). So, the monitoring role of board gender diversity in a dual board system such as in Vietnam is less known. Furthermore, a lack of research revealed earnings management as a mediator between ownership structure, board gender diversity and SPI.

Our research question deals with the link between corporate governance and stock price informativeness in the specific context of Vietnam. Given the Vietnamese specificities we've just evoked, corporate governance is viewed through two particular dimensions of corporate ownership (State and Foreign ownership) and on a feature of board composition (gender diversity). But, given the link between corporate governance and earnings management, a more global view of the relation between those three dimensions maybe contemplated with earnings management acting as a mediator between corporate governance and SPI.

The paper is organized as follows: the first section leans on the literature to develop the hypotheses about the links between corporate governance, earnings management and SPI. Section 5.2 describes the data, the variables and the empirical model. The empirical results in the special context of Vietnam are presented in section 5.3.

## **5.2 Linkage between stock price informativeness, corporate governance and earnings management: literature review and hypotheses development**

### **5.2.1 Linkage between earnings management and stock price informativeness**

Even if it is mobilized only in the second part of our study, and to contemplate the mediating effect of EM, we first evoke the founding linkage between EM and SPI to allow us then a thorough presentation of our main hypotheses setting.

Previous research links EM to SPI. Some scholars have applied the stock price synchronicity to measure firm level stock price informativeness (Durnev et al., 2004; Piotroski & Roulstone, 2004). Their results show that the higher the stock price synchronicity, the lower the firm specificities are reflected in the stock price. It means that stock price synchronicity is an inverse measure of stock price informativeness (Morck et al., 2000). Earnings management is related to accounting information of firms. Furthermore, earnings

figures which are public information will affect the private information environment and will impact the price of stocks by incorporating accounting information into this price. Many researches have studied the relationship between earnings management and stock price informativeness at country level and firm level. In terms of country level, by using 40 stock markets from 1990 to 2001, (Jin & Myers, 2006) focus on the quality of accounting information to suggest that firms with lower earnings management have a better stock price informativeness. (Cahan, Emanuel, & Sun, 2009), who used data across 13 countries with 4,238 firms, state that the stock price captures useful accounting information. It means that the quality of stock price depends on the quality of earnings.

At firm level, the information asymmetry between public and private information affects the SPI, which measures the incorporation of information into stock price and reflects investors' trading on private information. The literature includes two opposite views regarding the link between EM and SPI. First, some arguments are in favor of a positive link between EM and SPI. When the performance falls outside the range, a firm is likely to manipulate financial statements and to defer their disclosure. For example, firms expose a temporal increase income (earnings surprise) leading to an increase in trading volume and return volatility, especially around earning announcements. As a result, informed traders are able to shift their portfolio weights based on their advantages on private information, whereas uninformed traders lose. Informed traders will have a lower cost to gain private information than uninformed traders. Moreover, a lower cost of private information results in more informed trading leading to more SPI (Durnev et al., 2004; Rajgopal & Venkatachalam, 2011). Thus, firms with high EM lead to get high SPI (Rajgopal & Venkatachalam, 2011).

Conversely, if firm discloses information into public, informed traders could not take advantage of information to serve their interest. But, when accounting data has a good quality, it encourages informed traders with superior information analysis ability to process publicly available information into value relevant private information (Morck et al., 2000). A high quality of public information lowers the cost of private information which leads to more informed trading and a higher informative price, (Durnev et al., 2004). All things considered firms with less EM are likely to have a better SPI.

*Hypothesis 1 (H<sub>1</sub>) -Stock price informativeness is negatively associated with earnings management.*

## **5.2.2 Corporate governance and stock price informativeness**

The three features of corporate governance that we focus on, and which are specific in Vietnam, may have an incidence on SPI. These features are: the place of women in firms' governance, state ownership and foreign ownership.

The quality of corporate governance could improve the informational and functional efficiency of capital market, especially in emerging markets where country level investor protection is poor (Ferdinand A. Gul et al., 2010). Indeed, they are likely to impact voluntary disclosure and corporate transparency. One of the attributes that make high quality earnings, transparency, reliability, and accountability of reporting to investors is good corporate governance. It limits the opportunistic behaviors of managers, gives a stronger investor protection and a higher monitoring of management in the financial reporting process.

### *5.2.2.1 Board gender diversity and SPI*

Board gender diversity helps to improve corporate governance by stronger monitoring. Increased public disclosure protects uninformed investors and is likely to increase confidence and investment of uniformed traders. Increased uninformed investors' ownership also increases the marginal benefit of collecting and deploying private firm-specific information for informed investors. Thus, gender diversity could affect SPI through two improvements in board governance: (i) this openness at the board level encourages greater public disclosure by managers by mitigating their taking advantage from their governance information for their own interest. (ii) it increases the oversight over the managers, which makes financial reports more transparent. A richer information environment encourages investors to collect more firm-specific private information by reducing the cost of their capital.

Only one study focuses on gender diverse boards and SPI: (Ferdinand A Gul et al., 2011) show that stock prices of firms with gender-diverse boards reflect more firm-specific information after controlling for corporate governance, earnings quality, institutional ownership and acquisition activity. They also find that gender diversity improves SPI through increased public disclosure in large firms and by encouraging private information collection in small firms.

Those elements support the argument that board gender diversity improves SPI:

*H<sub>2a</sub> - Stock price informativeness is positively associated with board gender diversity*

#### 5.2.2.2 *State ownership and SPI*

Ownership structure and SPI have recently drawn the concern of previous studies. However there still remains a controversial issue among studies. On the one hand, some scholar mentioned that state ownership is negatively associated with stock price synchronicity which leads to more SPI (Huu Nguyen, Minh Thi Vu, & Truc Thi Doan, 2020). Unlike other typical shareholders, the main aims of state ownership are political objectives rather than maximizing their wealth. Thus, managers in SOE have incentives to tunnel corporate resources and impede the flow of firm's information to outsiders, which lead to poor financial disclosure and less transparent environment. Furthermore, state ownership is generally referred to as "block-holders" in invested firms (K. Liu, 2018). Block-holders have advanced information over uninformed investors. Thus, they tend to have access to more precise firm specific information at a lower cost, which leads to increase the probability of informed trading and decrease the firm's stock return synchronicity (Brockman & Yan, 2009; Durnev et al., 2004; Piotroski & Roulstone, 2004).

Another strand of literature examines the impact of state ownership (Ben-Nasr & Cosset, 2014; Firth, Fung, & Rui, 2007; Hou, Kuo, & Lee, 2012). On a theoretical point of view, with government as the largest shareholder, the firm has less motivation to disclose value-relevant, firm-specific information to outside shareholders. Firms with high state ownership get financial support from the Government, implying that state-owned firms rely less for funding on the stock market and also have a lower SPI (Ferdinand A. Gul et al., 2010). Since the collection of private firm-specific information is costly in a less transparent environment, state ownership may discourage informed trading, reducing the incorporation of firm-specific information in the stock price (Grossman & Stiglitz, 1980) and hence leading to less informative stock prices.

However, the measure of the impact of state ownership on SPI is inconclusive. Using a sample of privatized firms from 41 countries between 1980 and 2012, Ben-Nasr and Cosset (2014) find evidence that a higher state ownership is associated with a lower SPI measured by firm-level stock price variation. Furthermore, they suggest that the relation between state ownership and SPI depends on political institutions. In particular, the adverse effects of state ownership on SPI are more pronounced in countries with lower political rights (i.e., lower political constraints on the government). But by using data in a Chinese context, (Hasan, Song, & Wachtel, 2014) find that firms with higher government ownership, lower foreign ownership and greater political connections exhibit a better SPI. It remains difficult to

disentangle the relative effects of those different parameters and so the conclusions remain unconvincing.

Following (Grossman & Stiglitz, 1980) theoretical arguments and Ben-Nasr and Cosset (2014), we anticipate that state ownership has a negative impact on SPI:

*H<sub>3a</sub> - Stock price informativeness is negatively associated with state ownership*

### 5.2.2.3 Foreign ownership and SPI

Authors emphasize that foreign investors are likely to improve the stock price efficiency in the local market in a number of aspects (He et al., 2013; He & Shen, 2014; Vo, 2017). First, foreign investors are supposed to have deeper knowledge, investment experience and skills to collect and analyze firms' and information. So they can directly facilitate the incorporation of value-relevant information into stock prices via their informed trading. Furthermore, foreign investors, mostly institutional investors, are likely to be knowledgeable participants in arbitrage who reduce potential mispricing, making the share prices to more closely track the fundamental value. Second, foreign investors could help improve the price efficiency indirectly via enhanced corporate governance. Foreign investors, especially those from countries with strong shareholder protection, could promote the corporate governance practices in the invested firms (Aggarwal et al., 2011). Finally, they are qualified and independent investors which helps mitigate the use by insiders of firm specific information to serve their interest and leads to more efficient stock prices (Aggarwal et al., 2011; Gilson & Milhaupt, 2005; W. Huang & Zhu, 2015; Morck et al., 2000; Paik & Koh, 2014). Foreign shareholders are effective in deterring managerial opportunism (R. Chung et al., 2004; J. Guo et al., 2015; W. Huang & Zhu, 2015).

Indeed, previous studies stress that higher foreign ownership is related to better SPI. (C. Y. Chung, Kim, & Ryu, 2017; Ferdinand A. Gul et al., 2010; Vo, 2017) examine the impact of foreign investors on SPI using various methods and in different contexts, i.e, Chinese, Korea and Vietnam. As a result, they find that foreign ownership improves information environment. The evidence of (Bae, Ozoguz, Tan, & Wirjanto, 2012) or Chung et al. (2017) implies that foreign investors help incorporate the global information into stock prices and thus improve SPI in local markets. As an exception, Hasan et al. (2014) find that Chinese companies with higher government ownership, lower foreign ownership and greater political connections exhibit more SPI. (R. D. Huang & Shiu, 2009) provide evidence that foreign investors enjoy a long-run information advantage over domestic investors.

Thus, the paper predicts that foreign ownership is positively associated with SPI:

*H<sub>4a</sub> - Stock price informativeness is positively associated with foreign ownership*

### **5.2.3 The mediating role of earnings management between corporate governance and SPI**

The theoretical arguments and empirical studies described in sub sections 1.1. and 1.2 lead to consider the link between EM and SPI and the impact of special features of corporate governance on SPI. But numerous studies show as well that board gender diversity; state ownership and foreign ownership are related to EM. Put together, these results encourage studying earnings management as a mediator in the relationship between the three governance features relevant in Vietnam and SPI.

#### *5.2.3.1 Board gender diversity and earnings management*

One of the governance issues is the change in female positions in firms all over the world caused by changes in other director characteristics and firm circumstances (Ferreira, 2015). Board gender diversity, is said to lead to more ethics, less risk-taking, better monitoring and thus to improve the quality of financial reports through mitigating earnings management (Adams & Ferreira, 2009; James P Byrnes et al., 1999; Faccio et al., 2016). As a result, gender-diverse boards could lead to more earnings management detection and add value for firms.

Previous studies highlight that female appointed on the boards make the effectiveness of corporate governance improved (Adams, 2016; Adams & Ferreira, 2009; J. Huang & Kisgen, 2013; Y. Liu et al., 2014; Sila et al., 2016).

Numerous researchers studied the relation between board gender diversity and earnings management (Arun, Almahrog, & Aribi, 2015; Gull et al., 2018; S. Yu et al., 2010). Information is more published and transparent (Adams & Ferreira, 2009). (Srinidhi et al., 2011) provided evidence that, as a tangible consequence of women on board, earnings quality would be improved through a higher level of monitoring function of the board.

Thus, we suggest that:

*H<sub>2b</sub> - Earnings management is negatively associated with board gender diversity*

If board gender diversity is associated to earnings management and on the other hand earnings management is associated to stock price informativeness (H1), hence:

*H<sub>2c</sub> - Earnings management is a mediator in the association between board gender*

## *diversity and SPI*

### *5.2.3.2 State ownership and earnings management*

Since the main aim of state ownership is political rather than the maximization of shareholder wealth, investor protection and corporate governance may be weaker. To hide this expropriation, governments may lead manager in state-owned firms to manipulate selectively disclosed accounting information, which results in a less informative environment.

Namely there are some elements in favor of a positive effect of state ownership on earnings management. In developed economies, earnings management may be used to enhance firm value for a variety of reasons and due do different executives' incentives (Beneish, 2001) such as: financial analysts' expectations, debt covenants, management compensation, and other institutional or regulatory factors (Daniel A Cohen et al., 2008b; Healy & Wahlen, 1999). Managers of state-owned entities - SOEs - may engage in earnings management for different reasons. Ben-Nasr et al. (2015) found that state ownership engages in discretionary abnormal accruals by using 350 privatized firms from 45 countries. They show that SOEs are likely to report lower earnings quality in order to hide the expropriation of corporate resources for political purposes. In addition, they have a lower level of governance and monitoring leading to increased management autonomy, which gives them the opportunity to engage in earnings management (D. Choi et al., 2020). Furthermore, the combined-ownership firms, where the state retains a percentage of shares and family or founders also maintain their controlling, may have contrasting interests or conflicting views leading to inspire data manipulations and earnings management (D. Choi et al., 2020; F. Guo & Ma, 2015). State ownership is positively associated with earnings management in some cases. A firm can be held by several of parties as state capital investment corporation, SOEs affiliated with the central government or SOEs affiliated with local government, each parties has their own interest and noneconomic concerns. Thus, state owned firms may engage in management (F. Guo & Ma, 2015).

However, in the opposite view, state owned firms is less likely to engage in earnings management for some reasons. First, conflicts between managers and shareholders within agency problems (Fama & Jensen, 1983b) should not take place in SOEs because their main aims are generally to act to the best interest of the State rather than to maximize the wealth of their shareholders. Second, agency theory also underlines how the use of debt financing affects managerial behaviors (Jensen, 1986) because of external monitoring of banks and debt

covenants. But as far as they are concerned, SOEs are always provided with additional funds or guaranteed by State support (Bhattacharya et al., 2003; Ding et al., 2007; McNichols & Stubben, 2018; L. Wang & Yung, 2011), which relieves their financial pressure. Third, another common agency problem is related to managers' compensation, which can sometimes lead them to opportunistic actions. In the case of SOEs, this is not a critical issue since various social and political goals limit compensation incentives (C. A. Cheng et al., 2015; Fan et al., 2007). Moreover, the main aim of state-owned enterprise is maximization of public welfare. Therefore, the government tries to enhance general transparency information for all people, who are interested, leading to reduce agency costs (Hope et al., 2009). In other words, there should be less information asymmetry in SOEs in Vietnam and less incentive to manipulate financial statements.

*H<sub>3b</sub> - Earnings management is negatively associated with state ownership*

And hence, by combining H<sub>3b</sub> with H<sub>1</sub>, we get H<sub>3c</sub>:

*H<sub>3c</sub> - Earnings management is a mediator in the association between state ownership and SPI*

### *5.2.3.3 Foreign ownership and earnings management*

Foreign ownership may affect earnings management directly or indirectly in some ways. (S. H. Kim et al., 2020) mention that managers in firms with more foreign investors are more likely to manage earnings due to information asymmetry between domestic and foreign investors. It means that foreign investors may find it difficult to access to the firm's operational information leading to information gap between managers and domestic shareholders. This could encourage insiders to manage earnings opportunistically. Moreover, with higher foreign ownership, managers may be more likely to manage earnings to meet market expectations and satisfy their foreign investors who, in turn, focus on current profits by boosting stock prices (Paik & Koh, 2014).

Conversely, foreign investors may provide effective monitoring to enhance the valuation of discretionary accruals (R. Chung et al., 2004; H. J. Kim & Yoon, 2008b; Mazumder, 2016). (J. Guo et al., 2015; Hsu, 2015; Shayan-Nia et al., 2017) also state that foreign owned firms - especially firms with a high and stable foreign proportion in the capital structure - engage less in real earnings management. Specifically, they appear to manage upwards earnings management related to discretionary expenditure (Shayan-Nia et al., 2017). And according to J. Guo et al. (2015), Japanese firms with foreign ownership curb earnings

manipulation related to operating activities. Moreover, foreign investors who come from countries with strong shareholder protection, may promote the price efficiency indirectly via improved corporate governance in the invested firms (Aggarwal et al., 2011). And they may have more sophisticated management skills and be capable of mitigating agency problem and promoting better governance and information (Shleifer & Vishny, 1997).

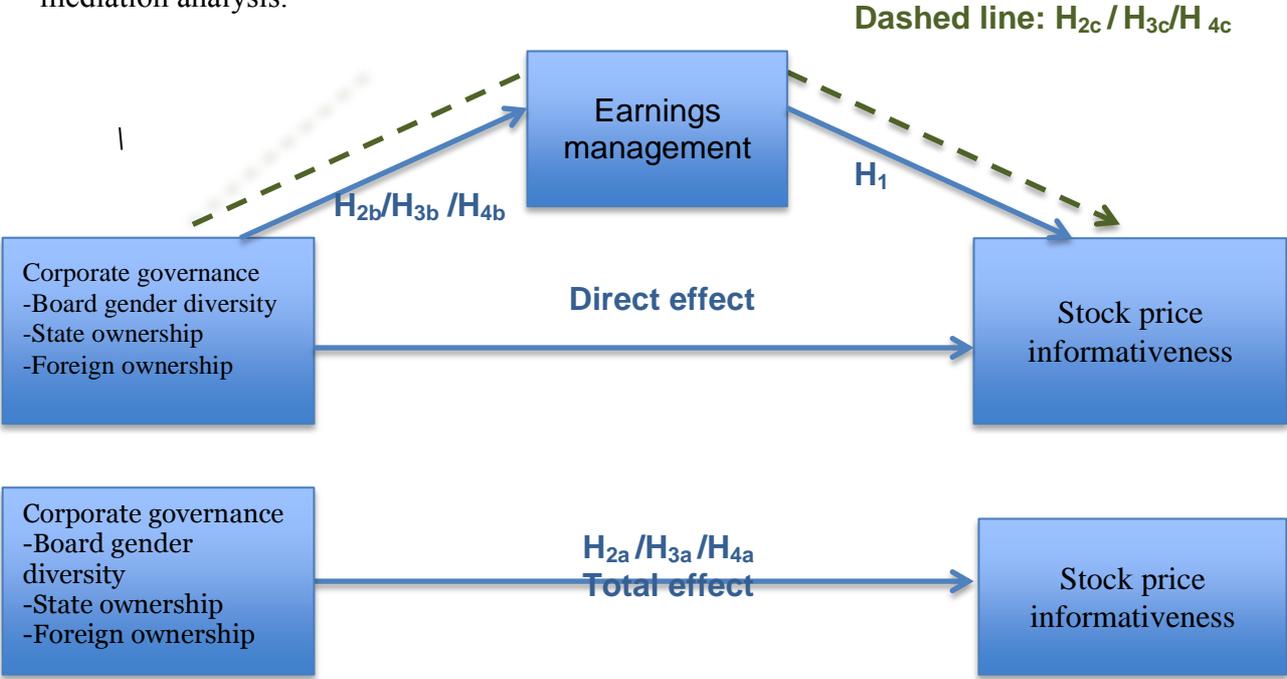
In summary, we consider like Morck et al. (2000) that by enhanced monitoring in corporate governance, foreign shareholders restrain earnings management and mitigate insiders and controlling shareholders from expropriating other shareholders. Thus, the presence of foreign shareholders encourages sophisticated investors to engage in information discovery and informed trading, which results in more efficient stock prices. Foreign investors may help improve internal or external governance mechanisms that drive firm managers to disclose high quality information (Armstrong, Balakrishnan, & Cohen, 2012).

*H<sub>4b</sub> - Earnings management is negatively associated with foreign ownership*

*And hence, by combining H<sub>4b</sub> with H<sub>1</sub>, we get H<sub>4c</sub>*

*H<sub>4c</sub> - Earnings management is a mediator in the association between foreign ownership and SPI*

Figure 1 and Table 1 give a synthesis of the hypotheses and show the framework of the mediation analysis.



**Figure 1: The framework of the mediation analysis.**

**Table 1: Synthesis of the hypotheses**

<b>Effect of EM on SPI</b> H <sub>1</sub> - Stock price informativeness is negatively associated with earnings management.
<b>Effect of CG on SPI</b> H2a - Stock price informativeness is positively associated with board gender diversity H3a - Stock price informativeness is negatively associated with state ownership H4a - Stock price informativeness is positively associated with foreign ownership
<b>Effect of CG on EM</b> H2b - Earnings management is negatively associated with board gender diversity H3b - Earnings management is negatively associated with state ownership H4b - Earnings management is negatively associated with foreign ownership
<b>Mediator effect of EM on SPI</b> H2c - Earnings management is a mediator in the association between board gender diversity and SPI H3c - Earnings management is a mediator in the association between state ownership and SPI H4c - Earnings management is a mediator in the association between foreign ownership and SPI

### **5.3 Variable measurement and research design**

In this section, we present the collected data, the dependent variables and control variables as well as the research model.

#### **5.3.1 Data and sample selection**

The sampling frame in this study is listed firms in Vietnam. The sample consists of all the Vietnamese firms listed on both the Ho Chi Minh Stock Exchange (HSX) and the Hanoi Stock Exchange (HNX) and other financial industries from 2008 to 2017. Banks and financial institutions were excluded because their financial statements are prepared in a different regulatory environment, and the information reported on those financial statements also follows a different format. The financial data were collected from StoxPlus company (stoxplus.com), which is the main company provider of data in Vietnam. The corporate governance data were collected by hand on the financial reports of the firms. HSX began

operations in 2000 and HNX in 2005 starting with the negotiation method. Until the end of the year 2005, HNX applied continuous order matching method in parallel with the negotiation method. However, the number of listed firms in 2006 and 2007 is too small to test hypotheses correctly. Thus, 2008 is set as the beginning year of the study.

Industry classifications in Vietnam are based on the industry classifications benchmark (ICB), excluding bank firms. Only industries with more than 15 industry-years REM measures are kept.

### **5.3.2 Measure of stock price informativeness**

(Roll, 1988) uses the coefficient of determination ( $R^2$ ) of two empirical versions of risk-returns models, the single factor model and a multiple factor model based on APT. By running single factor and multiple factor regression models,  $R^2$  values provide an estimation of the variation in the returns on a stock that cannot be explained by market and industry returns. If the  $R^2$  statistics is low, it indicates a large amount of firm-specific information is incorporated into stock prices. In this case, stock price synchronicity (Ferreira et al., 2011; Ferdinand A Gul et al., 2011) is low and SPI is high. The usual models about stock price changes attribute them to (1) unpredictable movements in extensive economic factors, (2) unpredictable changes in the firm's market environment and (3) unpredictable events specific to the firm itself. By observing and measuring these influences ex post, one could presumably 'explain' stock price movements with a good degree of accuracy.

In our study, the stock price informativeness measure is derived from the  $R^2$  of the market model applied to weekly returns. A weekly return of each firm is defined as the compounded return over five consecutive trading days within each week. The paper uses weekly returns to prevent the problem of thinly traded stock (An & Zhang, 2013). The number of weekly return observations of each stock is maximum 52 observations for each year. Firms with less than 15 observations are removed to avoid firms that went public, were delisted, or experienced trading halts. Since the  $R^2$  is highly skewed and bounded dependent variable between zero and one, we apply a logistic transformation to obtain a near normally distributed variable (Brockman & Yan, 2009). The stock price informativeness (SPI) is defined as the following:

$$SPI = \log((1-R^2) / R^2) \quad (1)$$

SPI can be positive or negative depending on whether  $R^2$  is higher than 0.5 or not.

### 5.3.3 Measuring mediator variable and control variables

#### 5.3.3.1 Earnings management as a mediator variable

Accrual based earnings management (AEM) and real activities manipulation (REM) are applied to measure earnings management. Basically, both AEM and REM may be used by firms to reach financial targets or to avoid earnings decreases /losses. However, the use of AEM may be limited since they are restricted by the auditors' and regulators' scrutiny in accordance with regulations. As a result, although it is more costly than AEM (Daniel A Cohen et al., 2008b), REM can be chosen by managers trying to make earnings to meet firm's targets, because (i) it is not limited by regulations compared to accruals based earning management, (ii) it is harder for an outsider to observe (Schipper, 1989), (iii) it is not judged to be violations of securities law. The study of (Zang, 2012) suggests that AEM and REM can substitute each other based on their relative costs, suggesting that if REM is less expensive than AEM, more REM will be applied, and vice versa. Especially, some previous studies state that State Owned Enterprises are less engaged in AEM because they prefer to use REM (Aharony et al., 2000; Jian & Wong, 2010). That is a reason why we use both AEM and REM in this study. More precisely and following precedent studies, we use their absolute value. Indeed, their absolute values allow to capture the level of earnings management, whether upward or downward: for all of them, thus, the greater the measure and the greater is the earning management<sup>26</sup>.

#### *Accrual based earnings management (AEM):*

AEM refers to the considerable discretion that managers have to manage reported net income through discretionary accruals. Discretionary accruals are the accruals over which managers can exercise some control. Based on existing literature, this research uses the magnitude of discretionary (abnormal) accruals to measure earnings management (Daniel A Cohen et al., 2008b; Dechow et al., 1995; Jones, 1991). The main arguments have been put forward for this measure to apply in the Vietnamese context. The system of accounting of Vietnamese listed firms has been traditionally tax oriented. Thus, Vietnamese authorities have fixed almost all accounting choices that may affect accounting results, such as the depreciation method for fixed assets or the life span used to calculate this depreciation in each specific industry. This has long made it difficult for Vietnamese firms to adjust their earnings via non-cash accruals. But this has changed over the last decade because Vietnamese listed firms have

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<sup>26</sup> In terms of nominal values, a smaller REMDIS or REMCFO indicates a higher upward REM. For all others, it is a higher measure that indicates a higher REM.

been required since the beginning of 2006 to make provisions for various potential losses (No. 15/2006/QD-BTC). This has brought the Vietnamese accounting language closer to international standards, while also offering Vietnamese firms the opportunity to manage their earnings via more discretionary accruals. Therefore, for the 2008–2017 period, using discretionary accruals for EM is relevant because this conservatism principle is applied in Vietnam.

To measure AEM, this study develops two models. First, this is consistent with previous studies according to which the modified Jones model provides the most powerful test in detecting earnings management and it is suitable in emerging markets and Vietnam particularly (B. Lin, Lu, & Zhang, 2012b; Q. Liu & Lu, 2007; Phuong, 2017). Second, the paper employs the performance adjusted model of Kothari (Frankel et al., 2002; Kothari et al., 2005). Because the modified Jones model is a simple model of accruals using change in revenues and fixed assets, it cannot be fully descriptive. So, different authors suggest to control for various factors to improve the model (McNichols & Stubben, 2018). Namely, (Kothari et al., 2005) add ROA to mitigate the problematic heteroscedasticity and mis-specified issues that exist in other aggregate accruals models.

So, the AEM is measured as discretionary accrual using a cross sectional version of the modified Jones model as follows. First, total accruals of a firm are divided into a discretionary part and a non-discretionary part and are defined as the difference between net income before extraordinary item (NI) and cash flow from operating activities (OCF)

$$TA_{i,t} = \text{Net income}_{i,t} - \text{OCF}_{i,t}$$

The next step is to determine the coefficients that are used to estimate the firm-specific normal accruals. This results in the following modified Jones model as equation 1 below :

$$\frac{TA_{i,t}}{\text{Assets}_{i,t-1}} = \alpha \left( \frac{1}{\text{Assets}_{i,t-1}} \right) + \beta_1 \left( \frac{\Delta \text{Sales}_{i,t}}{\text{Assets}_{i,t-1}} \right) + \beta_2 \left( \frac{\text{PPE}_{i,t}}{\text{Assets}_{i,t-1}} \right) + \varepsilon_{i,t} \quad (1)$$

The coefficients that are estimated with Equation (1) are used to determine the normal accruals (NA). The following model is used:

$$NA_{i,t} = \alpha \left( \frac{1}{\text{Assets}_{i,t-1}} \right) + \beta_1 \left( \frac{\Delta \text{Sales}_{i,t} - \Delta AR_{i,t}}{\text{Assets}_{i,t-1}} \right) + \beta_2 \left( \frac{\text{PPE}_{i,t}}{\text{Assets}_{i,t-1}} \right) \quad (2)$$

\Where:

- $TA_{i,t}$  is total accruals for firm  $i$  at time  $t$
- $NA_{i,t}$  is normal accruals for firm  $i$  at time  $t$
- $\Delta AR_{it}$  is the change in accounts receivable from the preceding year,
- $Assets_{i,t-1}$  is total assets for year  $t-1$  and firm  $i$ ,
- $\Delta Sale_{it}$  is the change in sales for firm  $i$  from year  $t-1$  to year  $t$
- $PPE_{it}$  is the gross value of property, plant and equipment in year  $t$ .
- $\epsilon_{i,t}$ : residual of firm  $i$  at time  $t$ .

While computing the normal accruals, reported revenues of the sample firms are adjusted from the change in accounts receivable to capture any potential accounting discretion arising from credit sales, which relates to non-discretionary accruals (Daniel A Cohen et al., 2008b).

Following prior literature (Dechow et al., 1995), discretionary accruals are estimated as the absolute value of the difference between total accruals and normal accruals:

$$|DA_{i,t}| = \left| \left( \frac{TA_{i,t}}{Assets_{i,t-1}} \right) - NA_{i,t} \right| \quad (3)$$

All variables are scaled by prior year total assets to control for heteroscedasticity.

Kothari model is based on the modified Jones model plus  $ROA_{t-1}$ , which is a return on assets at the end of the year  $t-1$ .

### ***Real activities manipulation (REM)***

Different models may be applied to measure REM. Previous studies on Chinese firms state that REM measured by Roychowdhury (2006) may not be effective in an emerging context (C. A. Cheng et al., 2015). Thus, our study rather uses the model that is developed by (Katherine A Gunny, 2010), because the estimation incorporates market valuation (Greiner et al., 2017). By including market value, the resulting REM in Gunny model excludes information that has already been incorporated by the market. We use three different individual measures for REM<sup>27</sup>.

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<sup>27</sup> According to (Katherine A. Gunny, 2010), the timing of the sale of fixed assets to report gains is also one of types of REM since it is used as a way to manage earnings by the difference between net book value and the current market value. However, our study does not take into account the timing of the sale of fixed assets for some reasons: previous studies show that REM is used in Vietnam through lenient credit terms, discount policies rather than using the timing sale of fixed assets in order to improve revenue and decrease cost (Loan & Thao)  
(ii) Due to data availability, the paper does not study the timing sale of fixed assets so far.

. Abnormal level of reduction of discretionary expenses (REMDIS)

The first type of real earnings management methods is the reduction of discretionary expenses (DIS) such as advertising expenses, research and development expenses (R&D) and selling, general and administrative expenses (SG&A) as the most preferred method for overstating earnings.

The formula of DIS below consists of advertising expenses and both R&D and SG&A, if SG&A is available; the formula still exists when advertising expenses and R&D are missing, set 0. Because some firms may be engaged in innovative activities without reporting R&D expenses (Koh & Reeb, 2015) or missing data, these situations will not be captured in tests.

$$\frac{DIS_{i,t}}{A_{i,t-1}} = \alpha + \beta_1 \left(\frac{1}{A_{i,t-1}}\right) + \beta_2 MV_{it} + \beta_3 \text{Tobin}Q_{it} + \beta_4 \left(\frac{\text{Inter}F_t}{A_{i,t-1}}\right) + \beta_5 \left(\frac{\Delta S_{i,t}}{A_{i,t-1}}\right) + \beta_6 \left(\frac{\Delta S_{i,t}}{A_{i,t-1}} * DD\right) + \varepsilon_{it} \text{ (I)}$$

where:

- discretionary expenses (DIS) is the sum of advertising expenses (AD); R&D expenses; and selling, general, and administrative expenses (SG&A).

- natural log of market value (MV) proxies for firm size;

- Tobin's Q measures the marginal benefit to cost for each unit of new investment;

- internal funds (InterF) controls for the funds available for investment that are generated from the firm;

- and change in sales ( $\Delta S_t/A_{t-1}$ ) controls for the impact of trends in sales on discretionary expenses.

Considering the "sticky" cost behaviour, Katherine A. Gunny (2010) interacted change in sales ( $\Delta S_t$ ) with an indicator variable (DD) that is equal to one when total sales decrease from the prior year (between t-1 and t), and zero if not. As a result, the impact of positive  $\Delta S_t$  on normal levels of discretionary expenses is not constrained by this model to be the same as that of negative  $\Delta S_t$ .

The abnormal discretionary expense (REMDIS) is the absolute value of the residuals of the model (I).

. Abnormal level of production costs (REMPROD)

The second measure detects abnormal production cost (PROD). Managers of manufacturing firms can manage earnings upward by producing more goods than necessary. With higher levels of production, firms can spread fixed overhead costs over a larger number

of units, thereby lowering fixed costs per unit. Thus, overproduction results in a lower cost of goods sold (COGS) and better operating margins.

$$\frac{PRODi,t}{Ai,t-1} = \alpha + \beta_1 \left(\frac{1}{Ai,t-1}\right) + \beta_2 MV_{it} + \beta_3 TobinQ_{it} + \beta_4 \left(\frac{Si,t}{Ai,t-1}\right) + \beta_5 \left(\frac{\Delta Si,t}{Ai,t-1}\right) + \beta_6 \left(\frac{\Delta Si,t-1}{Ai,t-1}\right) + \varepsilon_{it} \quad (II)$$

where:

- PROD is the sum of cost of goods sold (COGS) and change in inventory,
- $(\Delta Si,t/Ai,t-1)$  is the change in sales, and
- $(\Delta Si,t-1/Ai,t-1)$  is lagged change in sales.

The abnormal production cost (REMPROD) is the absolute value of the residuals of the model (II).

. Abnormal level of cash-flows from operations (REMCFO)

The third measure detects manipulation of sales through lenient credit terms. This model identifies the offering of lenient credit with negative abnormal cash flows from operations (CFO).

$$\frac{CFOi,t}{Ai,t-1} = \alpha + \beta_1 \left(\frac{1}{Ai,t-1}\right) + \beta_2 MV_{it} + \beta_3 TobinQ_{it} + \beta_4 \left(\frac{Si,t}{Ai,t-1}\right) + \beta_5 \left(\frac{\Delta Si,t}{Ai,t-1}\right) + \varepsilon_{it} \quad (III)$$

Where: CFO is net cash flow from the operations of firm i for year t.

The abnormal cash-flow (REMCFO) is the absolute value of the residual of the model (III).

In our study, we use the absolute values of the residual to analyze the magnitude of accrual based earnings management (AEM) and real activities manipulation (REM). The reasons to explain why we use the absolute values for some following reasons: (i) using both signed or unsigned earnings management, whether income upward or downward result in concealing true firm performance (J.-B. Kim & Sohn, 2013). (ii) AEM, REM can be performed to temporarily in an unexpected direction if manager s' intention is intend to smooth earnings along different periods (Badertscher et al., 2009; B. Francis et al., 2016; H. Jiang et al., 2018). For example, managers can increase production level by increasing ending inventory level or offering deep discounts leading to a higher current demand from customers to temporality decrease earnings. Or they may also invest more in R&D, or advertising, leading to exhibit unusually lower discretionary expenditures. These activities are income decreasing in the current year but income increasing in the future when the benefits from those increased investment are realized. (iii) In particular, real activities

manipulation may also automatically reverse in future from an economic perspective. Firms can make up by spending more on R&D for one period. However, managers cannot remain for a long period, they have to cut down in another period. Similarly, firms' overproduction in one period will become equal by a decrease in production in another period, because in a long term the total production quantity is balanced out to the total number of units that are actually sold (L. Li, 2012). (iv) (J.-B. Kim & Sohn, 2013) also show that the main thrust of results do not change whether the absolute value of AEM and REM are used. The larger absolute values of residuals show the greater of earnings management.

#### *5.3.3.2 Control variables measurement*

All the variables used in the empirical tests are presented in Table 2. The control variables are the traditional ones in this kind of study. Some references are indicated directly in the table.

**Table 2: Variables definition**

Variable	Definition	Measure
<b><i>Dependent variable</i></b>		
SPI	Stock price informativeness	Logistic transformation of the ratio of $(1 - R^2)/R^2$
<b><i>Independent variables</i></b>		
dFOB	Percentage women on boards	Number of women board members to the number of all board members <sup>28</sup>
Fown	The percentage of shareholding owned by foreign investors	Number of shares hold by Foreign investors divided by total number of shares
Sown	The percentage of shareholding owned by State	The number of shares hold by State divided by the total number of shares
<b><i>Mediator variables</i></b>		
AEM mjm	Discretionary accruals using Jones modified model (1995)	Absolute value of residuals estimated using Jones modified model
AEMkotha	Discretionary accruals using Kothari et al. (2005)	Absolute value of residuals estimated using Kothari et al.(2005)
REMDIS	The abnormal discretionary expense	Absolute value of residuals from Gunny (2010) model
REMPROD	The abnormal production cost	Absolute value of residuals from Gunny (2010) model
REMCFO	The abnormal cash flow from operations	Absolute value of residuals from Gunny (2010) model
<b><i>Control variables</i></b>		
CEO_D	CEO duality	Dummy variable coded 1 if CEO is chairman of the board, otherwise 0
Audit	Audit by big four auditor	Dummy variable that equals 1 if the firm is audited by a Big4, otherwise 0. (Ferdinand A. Gul et al., 2010) finds that stock price informativeness increases with audit quality.
B/M Ratio	book to market value	Ratio of book value to market value of equity. The previous studies suggest that firms with high growth potential tend to have more firm-specific information incorporated into their stock prices (De Cesari & Huang-Meier, 2015; Ferdinand A. Gul et

<sup>28</sup> Other variables for gender diversity have been taken into account and will be discussed in the presentation of the results.

<b>Variable</b>	<b>Definition</b>	<b>Measure</b>
		al., 2010; Ferdinand A Gul et al., 2011).
Firmsize	Firm size	Natural logarithm of the total assets The large firms act as a leading indicator of economy-wide and industry-level trends. Thus the movements of these firms are likely to be similar to market movements. As a result, stock price synchronicity is high indicating less SPI (Ferdinand A. Gul et al., 2010; Ferdinand A Gul et al., 2011; Piotroski & Roulstone, 2004). However, (Chan & Hameed, 2006) do not find any evidence between firm size and stock price synchronicity
Finlever	Financial leverage	Total liabilities divided by total assets Leverage is negatively related with firm specific stock return variation, which is as a proxy for stock price informativeness. Thus, lower financial leverage tends to be associated with more SPI (Durnev et al., 2004).
Dbdipen	Board independence	The proportion of non-executive members in board of directors (independent directors/total directors) Previous studies find that more informative stocks are associated with lower board independence (Boubaker, Mansali, & Rjiba, 2014; Ferreira et al., 2011).
SalesG	Sale growth	Change in sales from year t-1 to year t
ROA	Return on assets	Net income in year t divided by total assets in year end t-1 A higher ROA leads to a higher SPI (Ferdinand A. Gul et al., 2010; Ferdinand A Gul et al., 2011).

In this paper we have three independent variables (women on boards, state ownership, foreign ownership). One important thing is that the control variables are lagged one year relative to the dependent variable, except for dummy variables that are less affected by time series, such as CEO\_D. This lag is employed to show the effect of changes on the governance structure on EM and SPI.

### 5.3.4 Research model

In order to answer the question to what extent earnings management mediates the effect of woman on board, state ownership and foreign ownership on stock price informativeness, the paper employs mediation analysis. As can be seen on figure 1, earnings management and stock price informativeness are consequent variables whereas independent variables (woman on board, state ownership, foreign ownership) are antecedent variables. Independent variables causally impact stock price informativeness and earnings management. There are two distinct pathways by which woman on board, state ownership and foreign ownership influence stock price informativeness. One pathway is a direct effect, the independent variables impacting SPI without passing through earnings management. The other pathway goes from the independent variables to SPI through EM. In other words, SPI is impacted by independent variables, which influence earnings management that in turn influences SPI. To check hypotheses about mediation, the paper applies (Hayes, 2017) written in Stata.

In this paper, we have three independent variables (women on board, state ownership, foreign ownership).

The equations to test the impact of Woman on board, state ownership and foreign ownership on stock price informativeness with a direct effect and an indirect effect (through earnings management) are as follows:

$$\begin{aligned}
 AEM/REM_{i,t} = & \alpha_0 + \beta_1 dFOB_{i,t} + \beta_2 Sown_{i,t} + \beta_3 Fown_{i,t} + \beta_4 AUDIT_{i,t-1} + \beta_5 BMRatio_{i,t-1} \\
 & + \beta_6 firmsize_{i,t-1} + \beta_7 Finlever_{i,t-1} + \beta_8 dbdipen_{i,t-1} + \beta_9 SaleG_{i,t-1} + \beta_{10} ROA_{i,t-1} + \beta_{11} CEO\_D_{i,t} + \epsilon_{i,t}
 \end{aligned}
 \tag{1}$$

$$\begin{aligned}
 SPI_{i,t} = & \alpha_0 + \lambda_1 dFOB_{i,t} + \lambda_2 Sown_{i,t} + \lambda_3 Fown_{i,t} + \delta AEM/REM_{i,t} + \lambda_4 BMRatio_{i,t-1} + \lambda_5 firmsize_{i,t-1} \\
 & + \lambda_6 Finlever_{i,t-1} + \lambda_{7,t-1} + \epsilon_{i,t}
 \end{aligned}
 \tag{2}$$

**Table 3a: Descriptive Statistics for the full sample**

Variable	Obs	Mean	Std.Dev.	Min	Max
STOCK PRICE INFORMATIVENESS	5,104	1.048	2.521	-4.591	17.558
AEMmjm	5,059	.111	.121	0	.92
AEMkotha	5,059	.107	.117	0	.827
REMPROD	5,064	.134	.132	0	1.983
REMCFO	5,059	.116	.12	0	.723
REMDIS	4,553	.067	.064	0	.416
dFOB	4,597	.019	.164	0	0.8
Sown	4,821	.242	.243	0	.967
Fown	4,821	.092	.13	0	.65
CEO_D	4,641	.324	.468	0	1
AUDIT	4,079	.205	.404	0	1
BMRatio	3,659	-16.003	9.924	-43.113	7.185
firmsize	4,493	41.467	8.983	21.69	52.999
Finlever	4,493	.499	.222	.002	.971
dbdipen	4,016	.682	.264	0	1
SaleG	3,861	.281	4.423	-1	244.46
ROA	4,493	.058	.083	-.996	.784

**Table 3b: Correlation matrix among variables**

	SPI	AEM mjm	AEM kotha	dFOB	Sown	Fown	CEO _D	AUDIT	BMRatio	firmsize	Finlever	dbdipen	SaleG	ROA
SPI	1													
AEMmjm	0.024	1												
AEMkotha	0.021	0.962***	1											
dFOB	0.076***	0.042**	0.046**	1										
Sown	0.031	-0.103***	-0.112***	-0.15***	1									
Fown	0.06*	-0.051*	-0.061*	0.052*	-0.152***	1								
CEO_D	-0.046**	0.034	0.04**	0.103***	-0.214***	-0.006	1							
AUDIT	0.023	-0.093***	-0.097***	-0.152***	0.015	0.312***	-0.112***	1						
BMRatio	0.233***	0.05*	0.048**	0.079***	-0.082***	-0.055*	-0.064***	-0.039**	1					
firmsize	-0.244***	-0.052*	-0.044**	-0.09***	0.065***	0.04**	0.064***	0.039**	-0.932***	1				
Finlever	-0.067***	-0.026	-0.010	-0.158***	0.071***	-0.242***	-0.031	0.037	-0.0006	0.016	1			
dbdipen	0.016	0.002	-0.0046	0.163***	-0.069***	-0.009	0.185***	-0.178***	-0.007	-0.002	-0.224***	1		
SaleG	-0.012	0.102***	0.102***	0.027	-0.04**	-0.003	0.016	0.005	0.032	-0.03	-0.02	0.004	1	
ROA	0.05*	-0.014	-0.029	0.024	0.119***	0.235***	-0.008	0.018	-0.083***	0.062*	-0.389***	0.06*	0.034	1

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

**Table 3c: Correlation matrix among variables**

	SPI	REM PROD	REM CFO	REMDIS	dFOB	Sown	Fown	CEO _D	AUDIT	BMRatio	firmsize	Finlever	dbdipen	SaleG	ROA
SPI	1														
REMPROD	0.037	1													
REMCFO	0.044**	0.228***	1												
REMDIS	0.128***	0.309***	0.02	1											
dFOB	0.069***	0.058*	0.03	0.064*	1										
Sown	0.042**	-0.015	-0.036	0.064*	-0.132***	1									
Fown	0.047**	0.106***	-0.021	0.188***	0.04**	-0.138***	1								
CEO_D	-0.04**	0.013	0.039	-0.047**	0.102***	-0.227***	-0.005	1							
AUDIT	0.03	0.026	-0.078***	0.038	-0.149***	0.0018	0.325***	-0.099***	1						
BMRatio	0.223***	-0.016	0.023	0.0002	0.088***	-0.06*	-0.041**	-0.052*	-0.024	1					
firmsize	-0.23***	0.012	-0.024	-0.006	-0.099***	0.062*	0.041	0.052*	0.033	-0.988***	1				
Finlever	-0.064*	-0.082***	-0.067***	-0.173***	-0.157***	0.059*	-0.22***	-0.021	0.017	-0.018	0.018	1			
dbdipen	0.024	0.053*	-0.005	0.06*	0.186***	-0.076***	0.019	0.207***	-0.159***	-0.008	0.003	-0.229***	1		
SaleG	-0.013	0.177***	0.074***	0.017	0.027	-0.041**	-0.003	0.016	0.005	0.034	-0.032	-0.022	0.005	1	
ROA	0.042**	0.194***	0.139***	0.193***	-0.006	0.135***	0.20***	-0.027	0.01	-0.056*	0.057*	-0.384***	0.082***	0.035	1

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

## 5.4 Empirical results

### 5.4.1 Descriptive Statistics

The sample consists of an unbalanced panel over the period 2008-2017, of stocks listed in the HSX or the HNX. The financial data are from Stoxplus. Table 1a reports descriptive statistics to give a broad picture regarding stock price informativeness. The mean value of stock price informativeness is around 1 and standard deviation of 2.521. The average value is close to the finding of (He et al., 2013) with an average of 1.5 in emerging market. The AEM measured by modified Jones model and Kothari model has a mean value of nearly 0.11, whereas REMPROD, REMCFO and REMDIS is 0.134, 0.116 and 0.067, respectively.

Tables 1b and 1c present the correlation matrix among variables. The correlation coefficients between SPI and AEMmjm, AEMkotha are all positive. SPI is positively correlated with foreign ownership, state ownership and percentage woman on boards.

While SPI is significantly positively correlated with REMCFO and REMDIS, it has an insignificant association with REMPROD. It means that stock price informativeness is higher when managers manipulate in REMCFO and REMDIS.

There are statistically significant correlations between the dependent variable (SPI) and control variables. SPI is also significantly positively correlated with Book/Market Ratio, ROA and negatively correlated with firm size and firm leverage.

There is no excessively high problem of multicollinearity between the independent variables because most of the correlation coefficients magnitudes are below 0.8 (Gujarati, 2009).

### 5.4.2 Regression results

*5.4.2.1 The relationship between women on board, ownership structure and stock price informativeness (direct relation without earnings management as a mediator).*

**Table 3.2.1- The relationship between women on board, state and foreign ownership and SPI**

SPI	Coef.	Std. Err.	Z	P> z	95% Conf. Interval	
dFOB	<b>.70**</b>	<b>.303</b>	<b>2.32</b>	<b>.020</b>	<b>.109</b>	<b>1.295</b>
Sown	<b>.725***</b>	<b>.21</b>	<b>3.46</b>	<b>.001</b>	<b>.314</b>	<b>1.136</b>
Fown	<b>1.013***</b>	<b>.387</b>	<b>2.61</b>	<b>.009</b>	<b>.254</b>	<b>1.772</b>
ROA	.683	.667	1.02	.306	-.624	1.99
BMRatio	-.041	.032	-1.27	.203	-.103	.022
firmsize	-.1	.032	-3.12	.002	-.162	-.037
Finlever	-.426	.247	-1.72	.085	-.911	.058
_cons	4.652	.863	5.39	.000	2.96	6.344

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

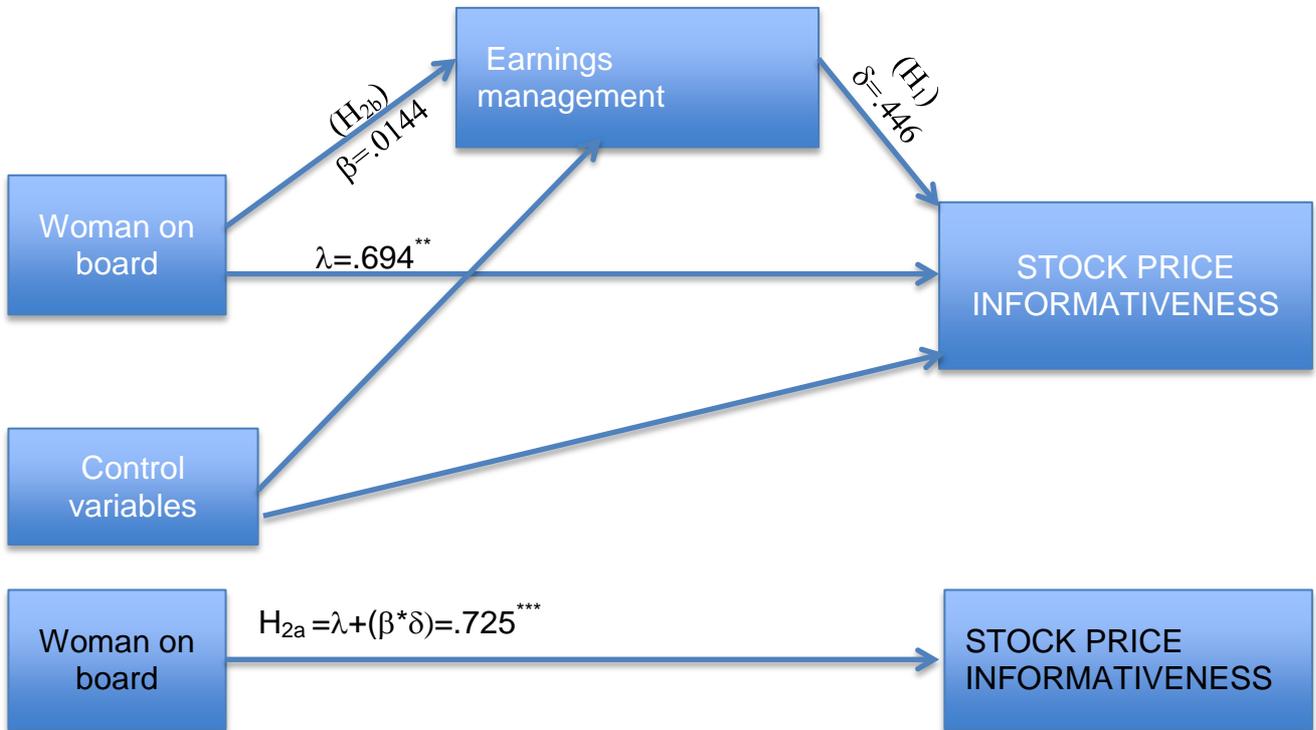
Table 3.2.1 shows the relationship between women on board, state and foreign ownership and SPI without earnings management as a mediator. The coefficient of percentage women on board, state and foreign ownership are positive and significant. The results suggest that more women on board, higher state and foreign ownership give stronger SPI. Overall, the results support hypotheses H<sub>2a</sub> and H<sub>4a</sub>, but not H<sub>3a</sub>. It means higher state ownership makes higher SPI, which is contrary to our expectations. This result may reflect the nature of business in a country like Vietnam. Namely, the state ownership is most often a “blockholder” (K. Liu, 2018) which holds around 24% of the stocks in the Vietnamese context. And block-holders have an advanced information over uninformed, they tend to have access to more precise firm specific information at a lower cost, which leads to increase the probability of informed trading and decrease the firm’s stock return synchronicity, causing more informative pricing (Brockman & Yan, 2009; Durnev et al., 2004; Piotroski & Roulstone, 2004).

*5.4.2.2 The relationship between women on board, ownership structure and stock price informativeness with earnings management as a mediator.*

The mediation analysis with earnings management as a mediator variable has been done five times with five different measures: two for AEM, three for individual REM. Globally, the most convincing results are with the Kothari model when we work with AEM and with the discretionary expenses (REMDIS) when we work with REM. The results are presented in the

main text for these two measures, while the results with the four other measures are in Appendix.

5.4.2.2.1 *Women on Board, earnings management and stock price informativeness*



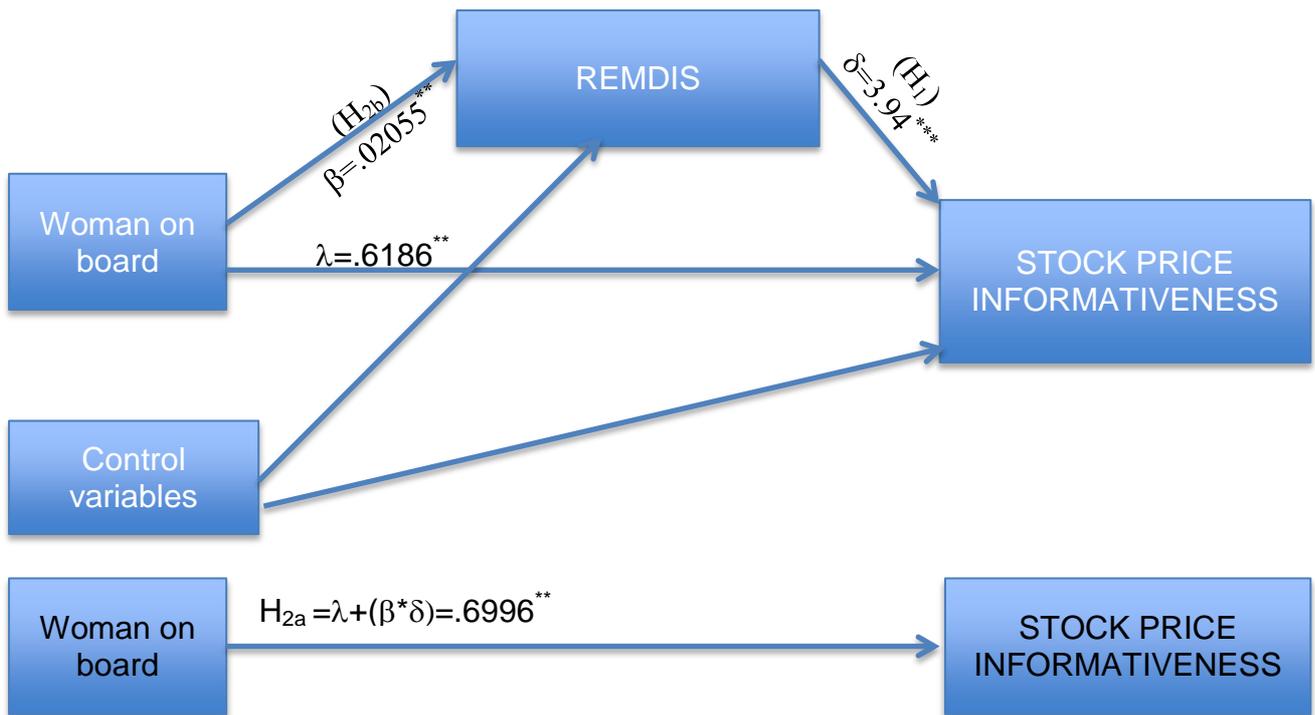
**Figure 2: The framework of women on Board and stock price informativeness, AEM as a mediator.**

Table 4 describes the indirect, direct and total effects of the relationship between woman on board and stock price informativeness with earnings management as a possible mediator.

**Table 4: Direct effects, indirect effects and total effect of *Women on boards (dFOB)* and stock price informativeness through accrual based earnings management (Kothari model)**

Effects	Path	$\beta$	Std Error	Z value	95% conf. interval	
<b>Direct effect</b>	<i>dFOB -&gt;SPI</i>	.694**	.303	2.29	.022	.101
<b>Indirect effect</b>	<i>dFOB &gt;AEMkotha</i>	.0144	.013	1.13	.258	-.0106
	<i>AEMkotha-&gt;SPI</i>	.446	.483	.92	.355	-.499
	Indirect via AEMkotha	.0064	.0117	.55	.583	-.0165
<b>Total effect</b>	<i>dFOB -&gt;SPI</i>	.725***	.21	3.46	.001	.314

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$



**Figure 3: The framework of women on Board and stock price informativeness, REMDIS as a mediator.**

**Table 5: Direct effects, indirect effects and total effect of Women on boards (*dFOB*) and stock price informativeness through abnormal discretionary expense (REMDIS)**

Effects	Path	$\beta$	Std Error	Z value	P value	95% intervals	conf.
Direct effect	<i>dFOB</i> ->SPI	.6186 **	.301	2.05	.04	.028	1.21
Indirect effect	<i>dFOB</i> ->REMDIS	.02055 **	.0084	2.44	.015	.004	.037
	REMDIS->SPI	3.94***	.73	5.4	.000	2.512	5.374
	<i>Indirect via REMDIS</i>	.081**	.0364	2.22	.026	.0096	.152
Total effect	<i>dFOB</i> ->SPI	.6996**	.303	2.31	.021	.106	1.293

Table 4 shows the total effect of Woman on Board on SPI is positive and significant. It is mainly a direct effect, the indirect effect through AEM being insignificant. Hypothesis H2b “Earnings management is negatively associated with board gender diversity is not validated. Hypothesis 1 “Stock price informativeness is negatively associated with earnings management” and hypothesis 2c “Earnings management is a mediator in the association between board gender diversity and SPI” are not validated in terms of accrual based earnings

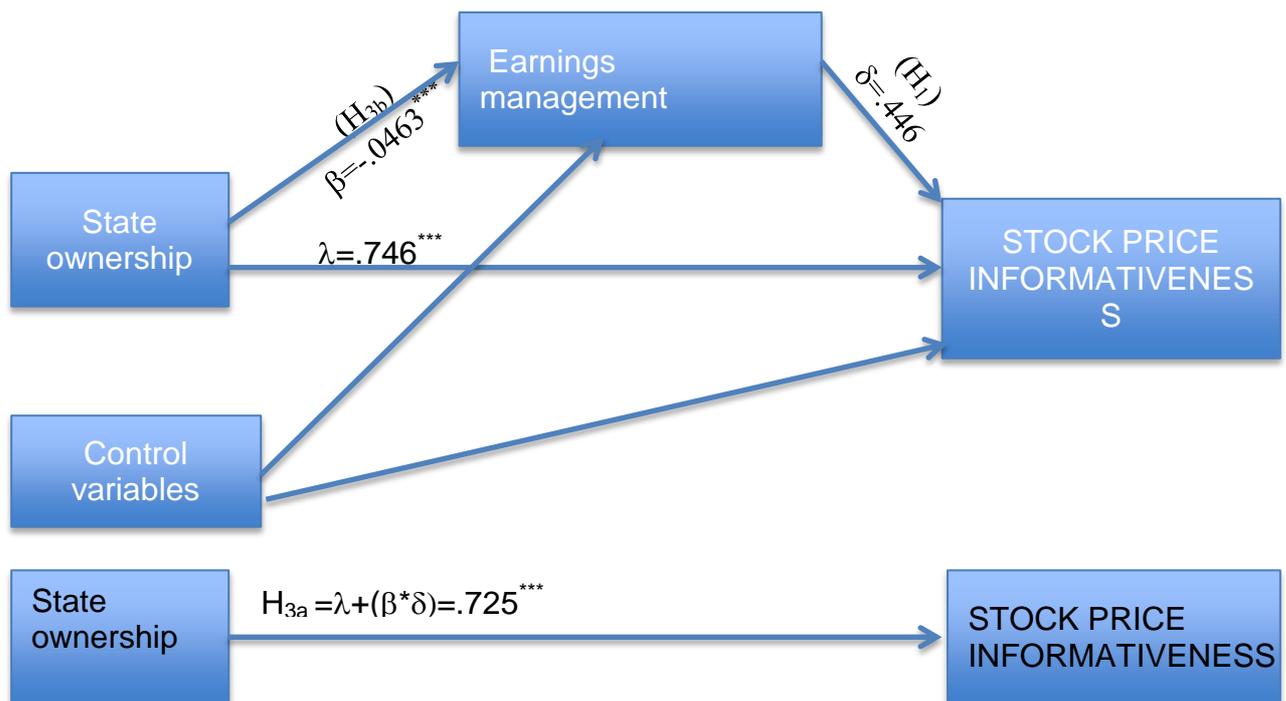
management.

The table 5 gives the indirect effect, direct and total effect of the relationship between woman on board and stock price informativeness with REMDIS as a possible mediator. The total effect and indirect effect are strongly positive. The difference with AEM is that when REM is measured by REMDIS (abnormal discretionary expenses), the indirect effect is significant, validating hypothesis H2c of a mediator effect of REMDIS between female on board and SPI. But we observe that more female on board meaning more discretionary expenses, thus, more earnings management, we find counter intuitive results for H2b. So, we observe that women on board increase earnings management and that earnings management increases SPI, which is contrary to our expectations (H1 rejected)

To check the impact of the presence of women as member of the boards or executives, different measures have been used: women on boards (tables 4 and 5), women on board measured by Shannon index, women on board of directors (number of women in the board of directors divided by the number of directors in the board), women on board of executives (number of women in the board of executives and number of women on board of executive divided by the number of executives in the board), chairwoman and female CEO. The results when the measure is the fraction of women in only one board are similar to the results presented with the fraction of women in all the boards except there is no mediation through REMDIS with women on board of directors. The variables chairwoman and Female CEO have no significant effect on SPI. The positive impact of women on SPI is thus linked to their participation to the firm's boards.

#### *5.4.2.2.2 State ownership, earnings management and stock price informativeness*

Table 6 shows the results of the influence of state ownership on stock price informativeness through AEM. The total effect of state ownership on SPI is positive and significant, contrary to our expectations (H3a is rejected). In the indirect path, the effect of state ownership on SPI through AEM is estimated as the product of the effect of state ownership on AEM ( $\beta$ ) with the effect of AEM impact on SPI ( $\delta$ ). The coefficient between state ownership and AEM is significant and negative (H3b is validated) but the coefficient between AEM and SPI is not significant (H1 not validated) and as a result, the relation between state ownership and SPI through AEM is insignificant. It means that the hypothesis H3c is not confirmed in terms of AEM (measured by modified Kothari model, but as well by Jones model as reported in Appendix). The main effect between state ownership and SPI is thus the direct effect with  $\lambda$  significantly positive.



**Figure 4: The framework of State ownership and stock price informativeness, AEM as a mediator.**

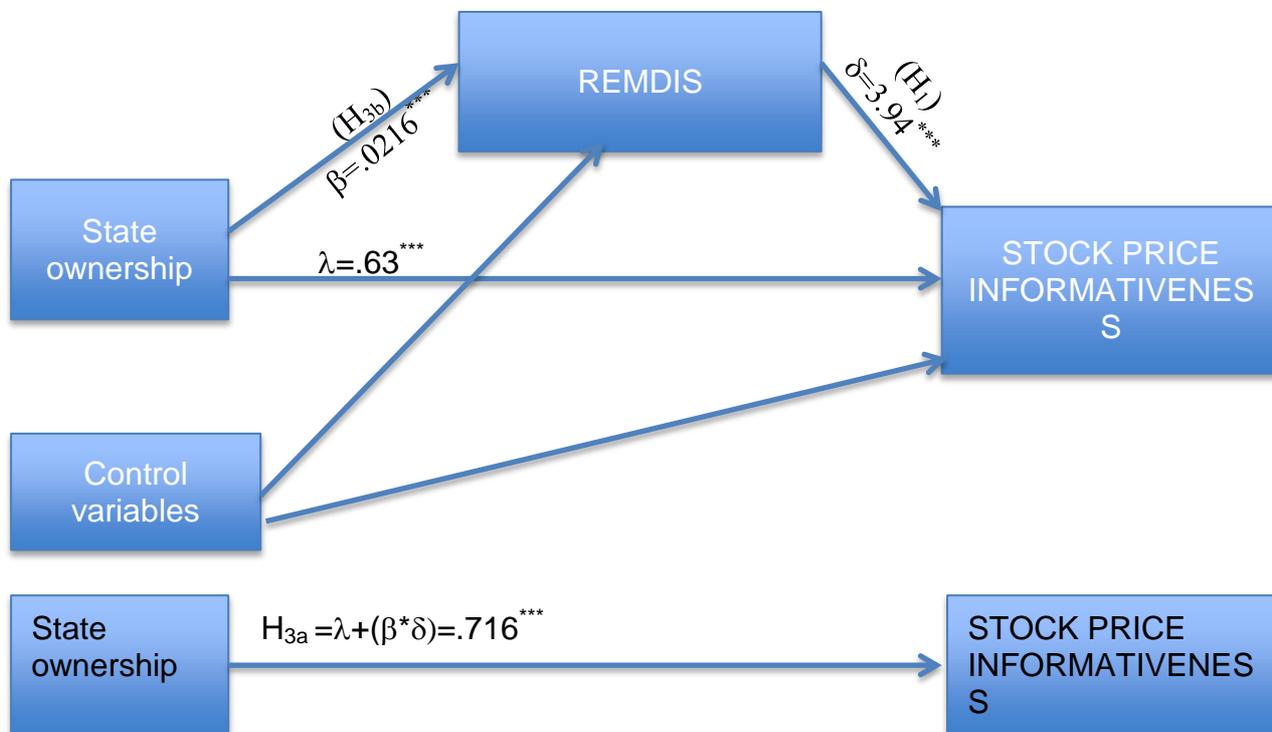
**Table 6: Direct effect, indirect effect and total effect of State ownership and stock price informativeness through accrual based earnings management (Kothari model)**

Effects	Path	$\beta$	Std Error	Z value	P value	95% conf. intervals	
Direct effect	Sown->SPI	.746***	.211	3.53	.000	.332	1.159
Indirect effect	<i>Sown-&gt;AEMkotha</i>	<i>-.0463***</i>	<i>.0089</i>	<i>-5.22</i>	<i>.000</i>	<i>-.064</i>	<i>-.0289</i>
	<i>AEMkotha-&gt;SPI</i>	<i>.446</i>	<i>.483</i>	<i>.92</i>	<i>.355</i>	<i>-.499</i>	<i>1.392</i>
	Indirect via AEMkotha	-.021	.0226	-.91	.363	-.065	.0238
Total effect	Sown->SPI	.725***	.21	3.46	.001	.314	1.136

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 7 gives the indirect, direct and total effects of the relationship between state ownership and stock price informativeness through REMDIS as a mediator. The results show that all the results are very significant with this measure. There is a positive and significant total effect between state ownership and SPI (H3a validated). The difference with AEM is that the indirect effect is positive and significant with REMDIS: H3c is validated : the state ownership increases earning management through increase in the abnormal discretionary

expenses (contrary to H3b) and more earnings management is associated with a higher SPI (which is contrary to H1). The combination of these two relationships leads to a significant positive impact of state ownership on SPI through this mediation, which strengthens the already positive, significant, direct effect we noticed.



**Figure 5: The framework of State ownership and stock price informativeness, REMDIS as a mediator.**

**Table 7- Direct effects, indirect effects and total effects of state ownership and stock price informativeness through abnormal discretionary expense.**

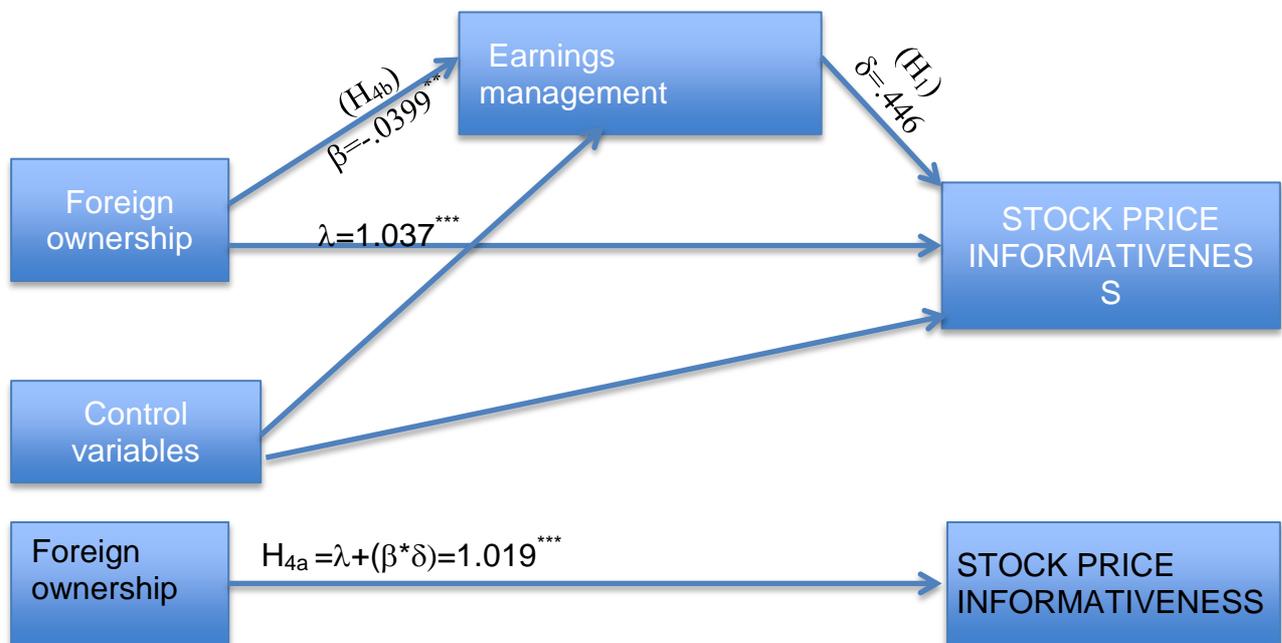
Effects	Path	$\beta$	Std Error	Z value	P value	95% conf. intervals	
Direct effect	Sown->SPI	.63***	.209	3.01	.003	.220	1.041
Indirect effect	<i>Sown-&gt;REMDIS</i>	.0216***	.0059	3.69	.000	.01	.033
	<i>REMDISP-&gt;SPI</i>	3.94***	.73	5.4	.000	2.512	5.374
	Indirect via REMDIS	.085***	.028	3.04	.002	.0304	.14
Total effect	Sown->SPI	.716***	.21	3.41	.001	.304	1.127

$p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

5.4.2.2.3 Foreign ownership, earnings management and stock price informativeness

Table 8 shows the result of the influence of foreign ownership on stock price informativeness through accrual based earnings management. The positive and significant total effect confirms that more foreign ownership is leading to better SPI (H4a is validated).

The indirect effect is the product of the effect of the foreign ownership on AEM ( $\beta$ ) with the coefficient of the manipulation earnings impact on SPI ( $\delta$ ). Both coefficients used to estimate the indirect effect are insignificant when AEM is measured both by modified Jones model (Appendix) or kothari model (here tabulated). Therefore, the hypotheses H4b and H4c are not validated. The mediating effect is not found. The total effect includes mainly the direct effect that is positive and significant.



**Figure 6: The framework of Foreign ownership and stock price informativeness, AEM as a mediator.**

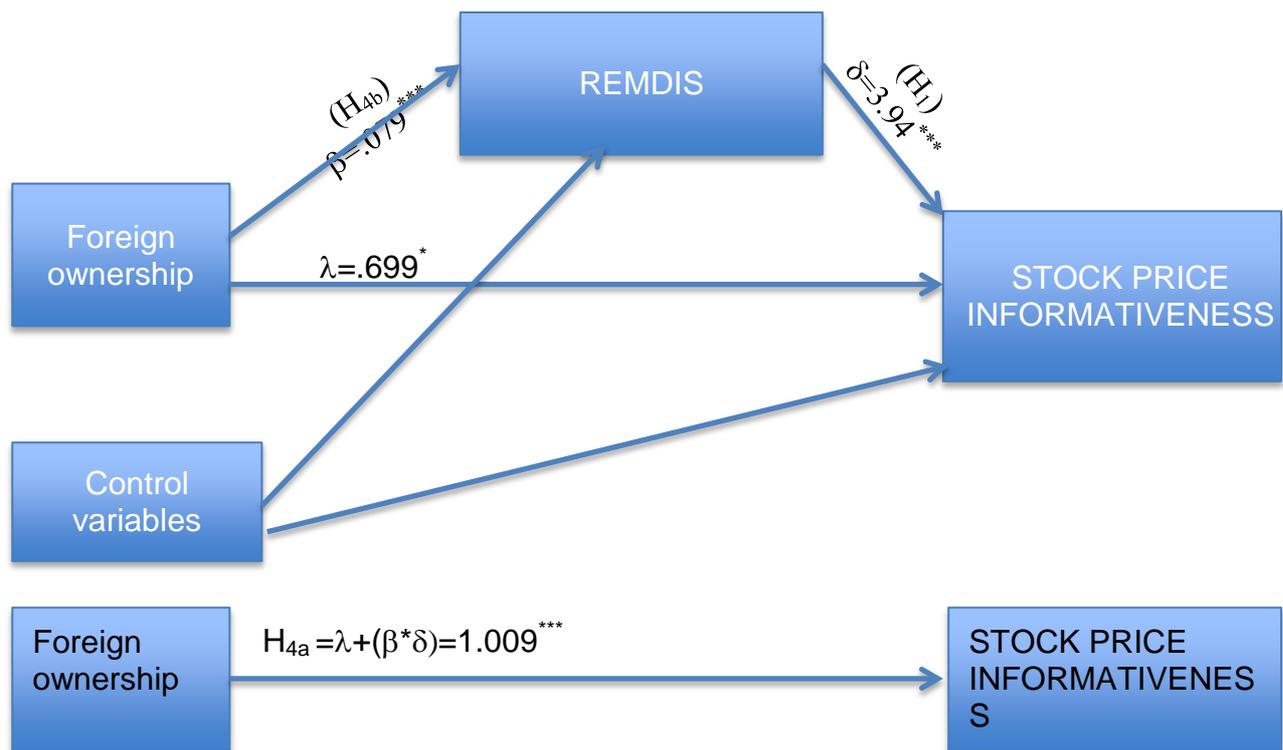
**Table 8- Direct effects, indirect effects and total effects of Foreign ownership and stock price informativeness through accrual based earnings management**

**(Kothari model)**

Effects	Path	$\beta$	Std Error	Z value	P value	95% conf. interval	
Direct effect	Fown->SPI	1.037***	.389	2.67	.008	.275	1.798
Indirect effect	<i>Fown-&gt;AEMkotha</i>	<i>-.0399**</i>	<i>.017</i>	<i>-2.34</i>	<i>.019</i>	<i>-.073</i>	<i>-.0065</i>
	<i>AEMkotha-&gt;SPI</i>	<i>.446</i>	<i>.483</i>	<i>.92</i>	<i>.355</i>	<i>-.499</i>	<i>1.392</i>
	Indirect via AEMkotha	-.0178	.0207	-.86	.39	-.058	.0227
Total effect	Fown->SPI	1.019***	.388	2.63	.009	.259	1.779

$p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

When earnings management is measured by REMDIS, the regression analysis is summarized in Table 9 (and tables 17, 18 in the appendix). It shows the indirect, direct and total effects of the relationship between foreign ownership and stock price informativeness through REMDIS (or REMCFO, REMPROD in appendix) as a mediator. With REMDIS, the conclusions are different from the previous ones with AEM. What is striking with REMDIS is the fact that, in this case, the direct effect of FO on SPI is just slightly significant (at the 10% level only), but the total positive, much significant effect is essentially captured through the mediating effect of REMDIS: REMDIS appears thus to be a decisive mediator between foreign ownership and SPI. The indirect effect is positive and significant. In this case, more foreign ownership is associated with high discretionary expenses ( $\beta$  is significantly positive), which in turn make better SPI (the coefficient is also significantly positive). With REMDIS,  $H_{4c}$  is validated but with a pathway that was not expected ( $H_{4b}$  is not validated).



**Figure 7: The framework of Foreign ownership and stock price informativeness, REMDIS as a mediator.**

**Table 9- Direct effects, indirect effects and total effects of Foreign ownership and stock price informativeness through abnormal discretionary expenses (REMDIS).**

Effects	Path	$\beta$	Std Error	Z value	P value	95% conf Intervals	
Direct effect	Fown->SPI	.699*	.39	1.79	.073	-.065	1.46
Indirect effect	<i>Fown-&gt;REMDIS</i>	<i>.079***</i>	<i>.0113</i>	<i>6.97</i>	<i>.000</i>	<i>.0564</i>	<i>.1006</i>
	<i>REMDIS-&gt;SPI</i>	<i>3.94***</i>	<i>.73</i>	<i>5.4</i>	<i>.000</i>	<i>2.512</i>	<i>5.374</i>
	Indirect via REMDIS	.31***	.0725	4.27	.000	.168	.452
Total effect	Fown->SPI	1.009***	.388	2.6	.009	.248	1.769

## 5.5 Conclusion

The main purpose of this study is to provide new insights into how gender diversity, state and foreign ownership directly and indirectly influence the stock price informativeness.

We perform regressions based on mediation models, the mediation variable being earnings management. The tests have been done with two measures for accrual earnings management (AEM) and three measures for real earnings management (REM). The main results are presented with the measure of Kothari for AEM and with the abnormal discretionary expenses (REMDIS) for REM.

We always show a significant, positive global relationship between our three corporate governance variables and SPI, whatever the measure we use (AEM and REM). It is the most important of our results and confirms two of our hypotheses relative to the positive influence of gender diversity and foreign ownership on SPI (H2a and H4a) but rejects H3a: an important state ownership doesn't impair the level of SPI, contrary to our expectations. Concerning the mediating role of earnings management in this relation (hypotheses H2c, H3c and H4c), our study shows mixed results: it is never validated through AEM but systematically through REMDIS. In the case of foreign ownership, this mediating effect of REM even shows to be more decisive to capture this relation than the direct effect. When getting closer into the indirect effect, we note that, contrary to our expectations, the relationship between EM and SPI is either not significant or positive (H1 rejected). Furthermore, the link between corporate governance and EM show mixed results: only State ownership has an influence on AEM, in the negative sense that we anticipated, but our three corporate governance variables have a positive association with REMDIS. So we cannot validate H3b, and can partially reject H2b and H4b. The counter-intuitive result concerning the association between State ownership and SPI (H3a) may be partially explained by this later mediation analysis : the indirect positive impact of state ownership on SPI comes from the combination of a positive impact of state ownership on earnings management and a positive impact of earnings management on SPI.

Concerning the role of earnings management as a mediator, we find that all of three variables - women on board, state ownership and foreign ownership - indirectly increase SPI through increasing abnormal discretionary expenses (REMDIS, and not AEM), which in turn increase SPI.

Concerning gender diversity engaging REMDIS, women entrepreneurs may lack knowledge and market information, trade promotion, resources, and opportunities to network for business development<sup>29</sup>. In addition, diversified groups exhibit increased conflicts, low cohesion (Milliken & Martins, 1996) and decreased performance (Adams & Ferreira, 2009). Under

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<sup>29</sup> [http://www.mekongbiz.org/wp-content/uploads/2017/04/WBAs-Position-Paper\\_English.pdf](http://www.mekongbiz.org/wp-content/uploads/2017/04/WBAs-Position-Paper_English.pdf)

pressure of firm's growth, managers may engage in EM (REMDIS) to achieve the firm's goals.

Related to the positive association between state ownership and REMDIS, it can be explained by the fact that the Vietnamese government is driven by political purposes rather than for maximizing their wealth. Thus, managers in SOE have more incentives to tunnel corporate resources and impede the flow of firm's information to outsiders through REMDIS, which lead to poor financial disclosure and less transparent environment. In addition, family owned firms are present quite high in Vietnam context with 31.1% (Kien & Duc), 2015). The combined ownership in firms, where the state retains a percentage of shares and family owned firm maintain their controlling, may have contrasting interests or conflicting views leading to motivate data manipulation and earnings management (D. Choi et al., 2020; F. Guo & Ma, 2015).

Similarly, firms with more foreign ownership may experience higher REMDIS because foreign investors have a lower level of controlling managerial behavior. This could be due to the differences in geography, language and culture (Choi, Lee, & Park, 2013; T. C. Hoang, Abeysekera, & Ma, 2019); moreover, in the Vietnamese context, the 49% maximum of foreign ownership may limit their power and access to the firm's operational information, and hence their monitoring of the firms. This may be associated with information asymmetry between domestic and foreign investors, leading to increase in managerial autonomy and EM (S. H. Kim et al., 2020).

A previous study on Vietnamese listed firms shows that managers are likely to engage in earnings management to attain positive growth in earnings, to avoid reporting negative earnings to not will be delisted (Tran & Duong, 2020). Managers tend to make a temporal increase income or earnings surprises. Thus managers tend to reduce costs (as cutting down advertising expenses, R&D expenses, and selling, general and administrative expenses) that are more difficult for investors to understand and detect, and more complicated for boards, auditors, regulators and outside stakeholders to monitor. This can explain why REMDIS is the most sensitive measure in our study, the easiest real earnings management to be used.

Concerning the unexpected positive relationship between EM and SPI, In addition, when the performance falls outside the range, a firm is likely to manipulate financial statements. Managers are likely to defer their disclosure related to REMDIS because (i) easy to manipulate and to avoid auditors' eyes. As a result, informed traders are able to shift their portfolio weights based on their advantages on private information, whereas uninformed traders lose. Informed traders will have a lower cost to gain private information than uninformed traders. Moreover, a lower cost of private information results in more informed

trading leading to more SPI (Durnev et al., 2004). Thus, firms with high EM lead to get high SPI (Rajgopal & Venkatachalam, 2011).

This article extends the literature about the relations between corporate governance, earnings management and SPI, applying a mediation analysis. The empirical study on Vietnamese data can help policymakers in emerging countries in their decisions about state ownership and investor protection regulation.

## 5.6 References

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## Appendix

### Results with different measures for AEM and REM

**Table 10: Direct effects, indirect effects and total effect of *Women on boards (dFOB)* and stock price informativeness through accrual based earnings management (modified Jones model)**

Effects	Path	$\beta$	Std Error	Z value	P value	95% conf. interval	
Direct effect	<i>dFOB -&gt;SPI</i>	<b>.696**</b>	<b>.303</b>	<b>2.29</b>	<b>.021</b>	<b>.103</b>	<b>1.29</b>
Indirect effect	<i>dFOB -&gt;AEMmjm</i>	.0106	.013	.81	.418	-.0146	.0358
	<i>AEMmjm-&gt;SPI</i>	.436	.47	.93	.354	-.4854	1.36
	Indirect via AEMmjm	.0046	.008	.61	.542	-.01	.019
Total effect	<i>dFOB -&gt;SPI</i>	<b>.7007**</b>	<b>.303</b>	<b>2.32</b>	<b>.021</b>	<b>.1077</b>	<b>1.294</b>

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 11: Direct effects, indirect effects and total effect of *Women on boards (dFOB)* and stock price informativeness through abnormal cash flow.**

Effects	Path	$\beta$	Std Error	Z value	P value	95% conf. interval	
Direct effect	<i>dFOB -&gt;SPI</i>	<b>.693**</b>	<b>.302</b>	<b>2.29</b>	<b>.022</b>	<b>.1001</b>	<b>1.29</b>
Indirect effect	<i>dFOB -&gt;REMCFO</i>	.008	.0131	0.61	.541	-.018	.034
	<i>REMCFO-&gt;SPI</i>	.745	.472	1.58	.114	-.179	1.67
	Indirect via REMCFO	.00595	.01	.57	.569	-.0145	.0264
Total effect	<i>dFOB -&gt;SPI</i>	<b>.699**</b>	<b>.303</b>	<b>2.31</b>	<b>.021</b>	<b>.1058</b>	<b>1.292</b>

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 12: Direct effects, indirect effects and total effect of *Women on boards (dFOB)* and stock price informativeness through abnormal overproduction cost.**

Effects	Path	$\beta$	Std Error	Z value	P value	95% interval	conf.
<b>Direct effect</b>	<b><i>dFOB</i> -&gt;<i>SPI</i></b>	<b>.683**</b>	<b>.303</b>	<b>2.26</b>	<b>.024</b>	<b>.09</b>	<b>1.28</b>
Indirect effect	<b><i>dFOB</i> -&gt;<i>REMPROD</i></b>	<b>.0404**</b>	<b>.0167</b>	<b>2.42</b>	<b>.016</b>	<b>.0076</b>	<b>.073</b>
	<i>REMPROD</i> -> <i>SPI</i>	.427	.365	1.17	.241	-.288	1.14
	Indirect via <i>REMPROD</i>	.0172	.0164	1.05	.292	-.0148	.049
<b>Total effect</b>	<b><i>dFOB</i> -&gt;<i>SPI</i></b>	<b>.700**</b>	<b>.303</b>	<b>2.31</b>	<b>.021</b>	<b>.107</b>	<b>1.29</b>

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 13: Direct effects, indirect effects and total effect of *State Ownership (Sown)* and stock price informativeness through accrual based earnings management (modified Jones model)**

Effects	Path	$\beta$	Std	Z value	P value	95% interval	conf.
<b>Direct effect</b>	<b><i>Sown</i>-&gt;<i>SPI</i></b>	<b>.743***</b>	<b>.211</b>	<b>3.53</b>	<b>.000</b>	<b>.33</b>	<b>1.15</b>
Indirect effect	<b><i>Sown</i>-&gt;<i>AEMmjm</i></b>	<b>-.042***</b>	<b>.0091</b>	<b>-4.6</b>	<b>.000</b>	<b>-.06</b>	<b>.024</b>
	<i>AEMmjm</i> -> <i>SPI</i>	.436	.47	0.93	.354	-.4854	1.36
	Indirect via <i>AEMmjm</i>	-.0183	.0201	-0.91	.363	-.0577	.0211
<b>Total effect</b>	<b><i>Sown</i>-&gt;<i>SPI</i></b>	<b>.725***</b>	<b>.21</b>	<b>3.46</b>	<b>.001</b>	<b>.314</b>	<b>1.136</b>

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 14: Direct effect, indirect effect and total effect of State ownership and stock price informativeness through abnormal cash flow**

Effects	Path	$\beta$	Std Error	Z value	P value	95% conf.intervals	
<b>Direct effect</b>	<b>Sown-&gt;SPI</b>	<b>.744***</b>	<b>.21</b>	<b>3.54</b>	<b>.000</b>	<b>.332</b>	<b>1.155</b>
Indirect effect	<i>Sown-&gt;REMCFO</i>	<i>-.0219**</i>	<i>.0091</i>	<i>-2.4</i>	<i>.016</i>	<i>-.0397</i>	<i>-.004</i>
	<i>REMCFO-&gt;SPI</i>	<i>.745</i>	<i>.472</i>	<i>1.58</i>	<i>.114</i>	<i>-.179</i>	<i>1.67</i>
	Indirect via REMCFO	-.0163	.0123	-1.32	.187	-.041	.0079
<b>Total effect</b>	<b>Sown-&gt;SPI</b>	<b>.728***</b>	<b>.21</b>	<b>3.47</b>	<b>.001</b>	<b>.316</b>	<b>1.14</b>

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 15-Direct effects, indirect effects and total effects of state ownership and stock price informativeness through abnormal overproduction cost**

Effects	Path	$\beta$	Std Error	Z value	P value	95% conf. intervals	
<b>Direct effect</b>	<b>Sown-&gt;SPI</b>	<b>.73***</b>	<b>.21</b>	<b>3.48</b>	<b>.000</b>	<b>.319</b>	<b>1.14</b>
Indirect effect	<i>Sown-&gt;REMPROD</i>	<i>-.0095</i>	<i>.0116</i>	<i>-.82</i>	<i>.412</i>	<i>-.0324</i>	<i>.0133</i>
	<i>REMPROD-&gt;SPI</i>	<i>.427</i>	<i>.365</i>	<i>1.17</i>	<i>.241</i>	<i>-.288</i>	<i>1.14</i>
	Indirect via REMPROD	-.0041	.006	-.67	.502	-.016	.008
<b>Total effect</b>	<b>Sown-&gt;SPI</b>	<b>.726***</b>	<b>.21</b>	<b>3.46</b>	<b>.001</b>	<b>.315</b>	<b>1.14</b>

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 16: Direct effects, indirect effects and total effect of *Foreign Ownership* and stock price informativeness through accrual based earnings management (modified Jones model)**

Effects	Path	$\beta$	Std Error	Z value	P value	95% conf. intervals	
<b>Direct effect</b>	<b>Fown-&gt;SPI</b>	<b>1.03***</b>	<b>.388</b>	<b>2.66</b>	<b>.008</b>	<b>.273</b>	<b>1.796</b>
Indirect effect	<i>Fown-&gt;AEMmjm</i>	<i>-.037**</i>	<i>.017</i>	<i>-2.1</i>	<i>.036</i>	<i>-.071</i>	<i>-.0025</i>
	<i>AEMmjm-&gt;SPI</i>	<i>.436</i>	<i>.47</i>	<i>0.93</i>	<i>.354</i>	<i>-.4854</i>	<i>1.36</i>
	Indirect via AEMmjm	-.016	.019	-0.85	.396	-.053	.021
<b>Total effect</b>	<b>Fown-&gt;SPI</b>	<b>1.035***</b>	<b>.388</b>	<b>2.66</b>	<b>.008</b>	<b>.2734</b>	<b>1.8</b>

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 17- Direct effects, indirect effects and total effects of Foreign ownership and stock price informativeness through abnormal cash flow.**

Effects	Path	$\beta$	Std Error	Z value	P value	95% conf. intervals	
<b>Direct effect</b>	<b>Fown-&gt;SPI</b>	<b>1.048***</b>	<b>.388</b>	<b>2.7</b>	<b>.007</b>	<b>.287</b>	<b>1.81</b>
Indirect effect	<i>Fown-&gt;REMCFO</i>	<i>-.03*</i>	<i>.0175</i>	<i>-1.72</i>	<i>.085</i>	<i>-.0643</i>	<i>.0042</i>
	<i>REMCFO-&gt;SPI</i>	<i>.745</i>	<i>.472</i>	<i>1.58</i>	<i>.114</i>	<i>-.179</i>	<i>1.67</i>
	Indirect via REMCFO	-.0224	.0192	-1.16	.244	-.06	.0153
<b>Total effect</b>	<b>Fown-&gt;SPI</b>	<b>1.026***</b>	<b>.388</b>	<b>2.64</b>	<b>.008</b>	<b>.266</b>	<b>1.79</b>

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 18- Direct effects, indirect effects and total effects of Foreign ownership and stock price informativeness through abnormal overproduction cost.**

Effects	Path	$\beta$	Std Error	Z value	P value	95% conf. intervals	
Direct effect	<b>Fown-&gt;SPI</b>	<b>.983**</b>	<b>.388</b>	<b>2.53</b>	<b>.011</b>	<b>.222</b>	<b>1.74</b>
Indirect effect	<b>Fown-&gt;REMPROD</b>	<b>.0636***</b>	<b>.0223</b>	<b>2.85</b>	<b>.004</b>	<b>.020</b>	<b>.107</b>
	<i>REMPROD-&gt;SPI</i>	<i>.427</i>	<i>.365</i>	<i>1.17</i>	<i>.241</i>	<i>-.288</i>	<i>1.14</i>
	Indirect via REMPROD	<i>.027</i>	<i>.025</i>	<i>1.08</i>	<i>.279</i>	<i>-.022</i>	<i>.076</i>
Total effect	<b>Fown-&gt;SPI</b>	<b>1.01***</b>	<b>.388</b>	<b>2.6</b>	<b>.009</b>	<b>.25</b>	<b>1.769</b>

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

# Chapter 6. General conclusion

## 6.1 Summary of results

This thesis was written during a time of active regulatory reforms in Vietnam, aiming at fostering better financial reporting, improving the information environment, and better protecting and attracting foreign investors after the decline of State-owned enterprises among listed firms. Here are examples of these reforms: (i) the transformation of enterprises from 100% State capital into joint stock companies (Decree No 59/2011/NĐ-CP), (ii) the National Gender Equality Strategy for 2011–2020 (Decision No.2351/QĐ-TTg), (iii) the roadmap for the development and improvement of the legal framework of financial reporting standards in Vietnam, which were replaced by the IFRS accounting standards (Decision 48/QĐ-TTg dated 18/03/2013, vision 2030), (iv) guidelines on the corporate governance of public companies (decree No.71/2017/NĐ-CP).

Based on Vietnamese listed firms from 2008 to 2017, this dissertation deals with some of those lines of examination, namely (i) the relationship between ownership structure (particularly its two dimensions that seem specific to Vietnam : the weight of State and of foreign investors in the equity of firms) and the quality of accounting information (through earnings management – EM); (ii) the association between board gender diversity and EM; (iii) the mediation effect of insider trading (IT) on the relation between corporate governance and EM; (iv) the direct and indirect effects of corporate governance on stock price informativeness (SPI) through EM. For all of those questions, we measure EM through both accruals based earnings management (AEM) through Modified Jones and Kothari models; and real earnings manipulations (REM) through the three different measures used in the literature: abnormal cash-flow from operations (REMCFO), overproduction (REMPROD) and discretionary expenses (REMDIS).

**First** we consider how State and foreign ownership affect AEM and REM. We first reveal a negative association between State ownership and both our two measures of AEM and one measure of REM, REMCFO (and, in certain way, REMPROD but only with one specification of the regression model). Next, we also find that foreign owned firms are less engaged in AEM measured through Kothari model, whereas more foreign investors engage more REM regarding abnormal production cost (REMPROD) and abnormal discretionary expenses (REMDIS).

This study extends the existing literature in several ways. First, from an academic point of view, this study expands the knowledge on the effect of ownership diversity on EM. Furthermore, in a context where the government is reducing the percentage of capital owned by the State in listed firms to attract more foreign investors, it is worth measuring the impact of those two ownership structures on the quality of accounting numbers. As such, our empirical analysis indicate that more State or foreign ownership have a significant and net positive influence to curb AEM practices; in terms of REM, we find less REMCFO when State owns a greater part of the capital, and more REMPROD and REMDIS when foreign investors become more influent. So, to some extent, we observe a change in the type of EM from AEM to REM as State and foreign investors are more present in equity capital. With the expectation of a future evolution to a decrease in State and an increase in foreign- ownership among Vietnamese listed firms, this paper provides arguments in such emerging countries to consider how this tendency may influence financial reporting transparency.

Along with the evolution of the ownership structure of the listed firms in Vietnam, another significant evolution in the corporate governance in this country is the growing concern about gender diversity. Thus, we **secondly** investigate its effects on EM. The results show that the presence of chairwomen reduces AEM measured by the Kothari model, whereas more women on board of executives (measured both by their number and by the Shannon index) leads to more AEM measured by the Kothari model. Moreover, when using the Shannon index, we find that, moreover, more women lead to more REMPROD. So, our results indicate that the appointment of more women on the boards is inefficient in the Vietnamese context to improve the quality of financial statements. Our study offers some contributions: (i) it extends the existing knowledge of the link between gender diversity and EM in a specific, and not explored area of investigation; and (ii) the findings are important for policymakers to introduce mandatory quotas for women on boards and enforce legislation and guidance for financial reporting in the context of Vietnam.

**In a third** study, we continue the investigation by exploring the relationship between corporate governance (through the same ownership structure and board gender diversity dimensions) and EM through insider trading (IT) as a mediator. The main aim of this additional study is to help understand the relationship between our three specific features of corporate governance and EM. We find that the total effect of State or foreign ownership on EM and the mediating role of IT are highly significant only when EM is measured by REMDIS, on only for State or foreign ownership, gender diversity bearing no influence. In

that case, the direct and total influence of State or foreign ownership on REMDIS is positive. However, our mediation analysis shows that the magnitude of total effect is lower than the one of the direct effect alone: thus, more State or foreign ownership reduces IT, causing, in turn, a decrease of REM (positive relation between IT and REMDIS). This means that firms with more State or foreign ownership indirectly decrease EM through less IT. It remains that firms with more State or foreign ownership engage in more EM in total (REMDIS), but the mediation analysis may help investors in their investment decision and policymakers to promulgate policies by understanding the mechanism: a decrease in the impact of State or foreign ownership on REMDIS is obtained via the reduction of IT.

**Fourth**, the last paper aims to provide an empirical investigation on the link between corporate governance and SPI through a mediator, namely EM, in the specific context of Vietnam. Given the link between corporate governance and EM, a more global view of the relation between those two dimensions is also contemplated, with EM acting as a mediator between corporate governance and SPI. The main findings of this study are that women on boards State and foreign ownership all increase SPI; this was not the expected outcome for State ownership. Analysing this total effect through the mediating role of EM in this relationship is mixed: it is highly positive and significant only when EM is measured by REM (abnormal discretionary expenses) and not by AEM. This channel through REM shows an indirect positive impact of women on boards, State and foreign ownership on SPI through the combination of a positive impact of women on boards, State and foreign ownership on REM and a positive impact of REM on SPI. The study makes the following contributions. First, it contributes to the mediating effects approach among corporate governance, EM, and SPI. Next, it also contributes to the governance literature. Third, Vietnamese data can help policymakers in emerging countries in their decisions.

## **6.2 Limitation and future studies**

### **6.2.1 Limitations**

Regarding board gender diversity and EM, some previous studies have followed the agency hypothesis, by which only fiduciary diversity, which is focused on monitoring, is enough to control management and provide motives to defend shareholders' interest (Arun, Almahrog, & Aribi, 2015; Fama & Jensen, 1983b; S. Yu et al., 2010). However, (Ben-Amar et al., 2013; Labelle, Makni Gargouri, et al., 2010) state that gender diversity is presented as

both fiduciary and advisory in nature. Thus, considering both fiduciary (statutory) and advisory (demographic) diversity brings attributes of female board members. While fiduciary diversity, which focuses on effective monitoring of management, is a measure of heterogeneity in the process of board composition, advisory diversity (e.g., education, skills, and experience) brings better decision making by nurturing candidness and analytical decision making among board members (Erhardt, Werbel, & Shrader, 2003; Gull et al., 2018). In this thesis, due to data unavailability, we could not consider both statutory and demographic attributes of women on boards, though we know that statutory diversity alone is not enough to analyse decision making among board members.

In terms of mediator analysis, bootstrapping has been employed to evaluate the significance of indirect effects in a multiple-mediator model to overcome the difficulty in assessing standard errors for the indirect effects (Shrout & Bolger, 2002). Bootstrapping is a non-parametric method based on resampling with replacement, which is done many times.

In our thesis, we only focused on IT and EM as two mediators. However, in reality, more than two mediators could affect the association between corporate governance and SPI.

In our thesis, we far apply unsigned measures of AEM and REM. However, our results could be enriched by considering the signed measures of AEM and REM.

### **6.2.2 Future studies**

Because of those study limitations, we mention that scholars, first, should pay attention to board demographic and gender diversity. Within demographic diversity, the tenure of female members seems to be more important than age and education. Tenure consist of experience and qualification. Tenure of women is shorter than men. Women are affianced if they perform well, and otherwise they are replaced if they do poorly. Once they achieve more task knowledge and experience, they could get greater position tenure. Thus, they try to add more firm value in order to achieve greater tenure. Thus, further study could consider how tenure of women affect earnings management.

Second, we suggest that future studies consider stock liquidity, dividend policy and EM, which may become mediators between ownership structure, board gender diversity and SPI, since stock liquidity, dividend policy and EM are the causal mechanism by which affect SPI. One further study could investigate the mediation role of EM between stock liquidity and SPI. A second mediation model could study how EM mediates the relation between dividend

policy and SPI. Finally, both mediation models could be combined and show the relative impact of ownership structure and board gender diversity on all variables in the two mediation models. These mentions come from the results of previous empirical studies that have only reported the single association, e.g stock liquidity and EM (Arar, Al-Sheikh, & Hardan, 2018; K. Huang, Lao, & McPhee, 2017), stock liquidity and SPI (Chan, Hameed, & Kang, 2013), dividend policy and EM (He, Ng, Zaiats, & Zhang, 2017; N. Liu & Espahbodi, 2014) and dividend policy and SPI (Farooq & ElBannan, 2019). Thus, the mediation analysis could allow the researchers to look specifically at how ownership structure, board gender diversity, stock liquidity, dividend policy and EM effect to whether the mediators affect SPI. Furthermore, scholars could study multiple mediators (e.g., IT and EM) simultaneously in one model. The multiple-mediation model could include a three-path mediating effect through IT (mediator 1), EM (mediator 2), and both IT and EM, which allows one mediator (i.e., IT) to causally affect the other mediator (i.e., EM).

We strongly suggest further studies employing the bootstrapping approach to assess the significance of indirect effect.

In this study, we use unsigned measures of EM that do not show which direction managers are using in EM, upwards or downward. Thus, we suggest further studies using the signed measures of AEM and REM to complete the analysis.

## Résumé de la thèse en Français

### **Relation entre gouvernance d'entreprise, gestion des résultats et informativité des prix : Etudes empiriques dans le contexte vietnamien**

#### **I. Introduction**

La gouvernance d'entreprise dans les organisations du monde entier a fait l'objet de nombreuses études. Il convient de considérer que les scandales d'entreprises comme Enron aux États-Unis et Marconi au Royaume-Uni ont fourni d'importantes leçons aux régulateurs internationaux. À cet égard, les décideurs politiques ont reconnu les risques à long terme liés à la faiblesse des systèmes de gouvernance d'entreprise, tels que la diminution de la compétitivité au niveau des entreprises et des pays. Le développement de la législation sur la gouvernance des entreprises peut renforcer l'attractivité au niveau national ainsi que le développement des marchés et la croissance économique. Il semble en effet que la transparence et l'efficacité du cadre juridique d'un pays peuvent affecter le financement et les investissements externes de ses entreprises, ce qui peut à son tour affecter la croissance économique de la nation.

Ces dernières années, la gouvernance d'entreprise, la gestion des résultats et l'informativité du prix des actions ont suscité l'intérêt des chercheurs, des régulateurs et des décideurs politiques du monde entier (Ben-Nasr & Cosset, 2014 ; Ferreira, Ferreira, & Raposo, 2011 ; Gul, Srinidhi, & Ng, 2011 ; He & Shen, 2014 ; Hou, Kuo, & Lee, 2012).

La "gestion des résultats" (Earnings Management, EM) est définie comme l'ajustement - à la hausse ou à la baisse - des rapports financiers des dirigeants dans certaines circonstances ; l'informativité du prix de l'action" (Stock Price Informativeness, SPI) est appréhendée par la manière dont les informations spécifiques à l'entreprise sont intégrées dans le cours de l'action. Les deux concepts peuvent être liés, puisque les managers peuvent manipuler les résultats afin de maximiser leurs propres intérêts, ce qui conduit à influencer l'information donnée par le prix de l'action. La mesure de SPI reflète l'efficacité de l'allocation des ressources : plus l'allocation des capitaux sur le marché financier est efficace, plus la mesure de SPI est élevée (Wurgler, 2000). La réaction du cours des actions est due à la fois aux informations macro-économiques (liées au marché et à l'industrie) comme l'annonce de la politique monétaire, le taux d'intérêt... et aux informations spécifiques à l'entreprise comme la performance de l'entreprise, la gouvernance d'entreprise. Alors que toutes les actions sur le marché sont influencées par les informations macro-économiques, l'action d'une entreprise est

influencée par les informations qui lui sont spécifiques (non synchronicité des prix). Comprendre les facteurs qui influencent l'informativité des prix peut aider à allouer les ressources plus efficacement. Et une plus grande informativité des prix se fonde sur (i) une information publiée transparente et de qualité, (ii) des mécanismes de gouvernance d'entreprise efficaces.

Parmi les pays émergents d'Asie, le Vietnam, qui constitue le contexte géographique de notre thèse, présente quelques spécificités. La gouvernance d'entreprise dans les entreprises vietnamiennes cotées en bourse n'est pas très développée (Banque mondiale, 2017). Le Vietnam présente une faible protection des investisseurs et des règles insuffisantes de diffusion de l'information et de transparence. En outre, le Vietnam ne dispose pas de marchés très puissants ni d'actionnaires actifs qui pourraient exiger des pratiques de gouvernance d'entreprise plus efficaces. En fait, le Vietnam a le plus faible score en matière de gouvernance d'entreprise (50,9 %) parmi tous les pays d'Asie, citons par exemple l'Indonésie (60 %), la Malaisie (77,3 %) et la Thaïlande (72,7 %) (McGee, 2008). En outre, le système comptable du Vietnam n'a pas encore totalement convergé vers les normes comptables internationales. De plus, la pratique comptable se concentre encore sur des décisions et des circulaires qui sont parfois en conflit avec les normes comptables vietnamiennes (VAS) et le droit comptable. En conséquence, les informations comptables manquent de transparence et peuvent être considérées comme de faible qualité. Par ailleurs, les entreprises vietnamiennes cotées en bourse et qui déclarent des pertes pendant trois années consécutives doivent être radiées de la cote ; par conséquent, elles peuvent être tentées de recourir à la gestion des résultats pour éviter les pertes. La qualité des états financiers des entreprises vietnamiennes peut aussi être affectée par des caractéristiques spécifiques en termes de gouvernance d'entreprise: forte présence de la propriété de l'État, bien que l'influence des investisseurs étrangers soit forte et croissante, et faible représentation féminine au sein des conseils et des organes de décision, et pratiques assez développées des transactions d'initiés. Parmi les composantes de la gouvernance d'entreprise au Vietnam, les caractéristiques spécifiques que nous allons étudier sont ainsi: la diversité de genre au sein des organes de direction, la propriété publique et étrangère, ainsi que les transactions d'initiés.

Nos quatre études vont viser à les relier à la qualité de chiffres comptables (via la mesure de la gestion des résultats) et à l'informativité du prix des actions.

## **II. Cadre de la recherche**

### **1. Motivation**

Motivée par le débat actuel sur les réformes de gouvernance, cette thèse réalise une analyse à la fois théorique et empirique de l'impact de caractéristiques spécifiques de la gouvernance des entreprises sur la gestion des résultats. En outre, la thèse examine comment les structures de gouvernance et les différents types de manipulation des résultats dans les pays émergents comme le Vietnam influencent l'information donnée par les prix des actions en bourse. Enfin, nous examinons si les trois caractéristiques de la gouvernance d'entreprise que nous avons identifiées ont une incidence sur l'informativité des prix, tant directement que par le biais de variables médiatrices.

Plus précisément, les motivations de ces essais sont les suivantes.

(i) Dans les pays à marchés de capitaux développés, avec séparation de la propriété et de la gestion et avec une gouvernance forte, la gestion des résultats peut provenir du désir de soutenir le cours de l'action des entreprises pour que les managers optimisent leur rémunération. Le contexte est très différent au Vietnam, nation émergente passant d'une économie planifiée à une économie de marché avec une protection des investisseurs et une gouvernance d'entreprise faibles par rapport aux pays développés. Les entreprises vietnamiennes cotées en bourse ont une structure de propriété très concentrée. L'État, en particulier, contrôle toujours certaines grandes industries, même si la détention d'actions par des investisseurs étrangers a fortement augmenté, mais avec une part cependant plafonnée à 49% du capital total. Or, en fonction des objectifs poursuivis, il existe une différence dans la manière dont l'État et les propriétaires étrangers peuvent influencer la gestion des résultats et l'informativité du prix des actions.

(ii) Le contexte général est à une pression et une réglementation croissantes en faveur de la diversité de genre dans les organes de direction des pays développés. La littérature antérieure indique que la présence des femmes dans les conseils d'administration et dans les instances dirigeantes a un effet sur la qualité des chiffres comptables et la gestion des résultats (Gull, Nekhili, Nagati, & Chtioui, 2018 ; Lakhal, Aguir, Lakhal, & Malek, 2015).

En outre, le Vietnam est un pays très varié, notamment en ce qui concerne le système de conseil d'administration. Certains pays ont un système de conseil à un niveau (comme les États-Unis) et d'autres ont un système de conseil à deux niveaux, comme l'Allemagne. Dans un système de conseil à un seul niveau, les directeurs exécutifs et non exécutifs forment un

seul conseil, appelé conseil d'administration. Dans un système à deux niveaux, il y a un conseil de direction (tous les directeurs exécutifs) et un conseil de surveillance séparé (tous les directeurs non exécutifs). Cependant, le Vietnam est un système à double conseil d'administration, car les entreprises peuvent choisir entre deux modèles, à savoir : le modèle 1 : une assemblée générale des actionnaires (GMS), un conseil d'administration (BoD), un conseil d'administration (BoE) qui est nommé par le BoD, et un conseil de surveillance (BoS) qui est élu par la GMS et indépendant à la fois du BoD et du BoE ; ou le modèle 2 : un GMS, un CA et un CA avec les réserves suivantes applicables au CA : au moins 20 % des membres doivent être indépendants pour superviser et organiser la mise en œuvre du contrôle de la gestion et de l'exploitation de la société, ou un comité d'audit sous le conseil d'administration. Par conséquent, le rôle de surveillance des conseils d'administration est différent au Vietnam. Plusieurs études examinent les relations entre la diversité de genre au sein des différents conseils et la gestion des résultats, mais elles ne se concentrent que sur le système de conseil d'administration moniste comme celui des États-Unis (Arun, Almahrog et Aribi, 2015 ; Thankom Gopinath Arun). Dans cette étude, nous examinons la place des femmes dans les différents conseils et à d'autres fonctions de direction qui peuvent avoir une incidence sur la qualité des rapports financiers, afin de déterminer si elles peuvent améliorer l'environnement informationnel (Ferdinand A. Gul, Srinidhi et Ng, 2011).

(iii) L'informativité du prix des actions (SPI) révèle la qualité de l'environnement informationnel et l'efficacité de l'allocation du capital sur le marché. Un SPI plus élevé repose sur la publication d'informations transparentes et de qualité, ainsi que sur des mécanismes efficaces de gouvernance d'entreprise. En outre, la gouvernance d'entreprise est l'un des attributs qui font la qualité des résultats, la transparence, la fiabilité et la responsabilité des rapports aux investisseurs. Or les mécanismes de gouvernance d'entreprise peuvent limiter les comportements opportunistes des dirigeants et assurer une meilleure protection des investisseurs par un meilleur contrôle de la direction dans le processus d'information financière. Par conséquent, la qualité de la gouvernance d'entreprise peut améliorer l'efficacité informationnelle et fonctionnelle du marché des capitaux, en particulier sur les marchés émergents où la protection des investisseurs au niveau national est faible (Gul et al. 2010). Dans le contexte du Vietnam, où la protection des investisseurs et le cadre de gouvernance sont faibles et les informations comptables moins transparentes et considérées comme de moindre qualité, il est important d'étudier l'association entre la gouvernance d'entreprise, la gestion des résultats et l'informativité du prix des actions.

(iv) Des études antérieures ont examiné la relation entre la gouvernance d'entreprise, les transactions d'initiés (IT), la gestion des résultats (GR) et l'informativité du prix des actions (SPI) dans les pays développés (Ferdinand A. Gul et al., 2011 ; Yu, 2011 ; Zhou, 2010). (Chan et Hameed 2006) montrent que, dans les marchés émergents, le manque d'informations spécifiques aux entreprises et une divulgation moins rigoureuse conduisent à une moindre information sur le cours des actions. Mais les recherches sont peu nombreuses dans ces pays où l'information sur le cours des actions est moins importante, en qualité et en quantité.

(v) Les arguments théoriques et les études empiriques ont associé des caractéristiques particulières de la gouvernance d'entreprise aux transactions d'initiés (IT), EM or informativité du prix des actions (SPI). Cependant, un débat a lieu sur la question de savoir si les caractéristiques de gouvernance d'entreprise ont un impact direct sur le SPI ou si elles exercent leur effet par l'intermédiaire de l'EM comme variable de médiation. À notre connaissance, il n'existe aucune étude antérieure sur une telle médiation quant à la relation entre la gouvernance d'entreprise et le SPI.

## 2. Présentation du cadre de recherche

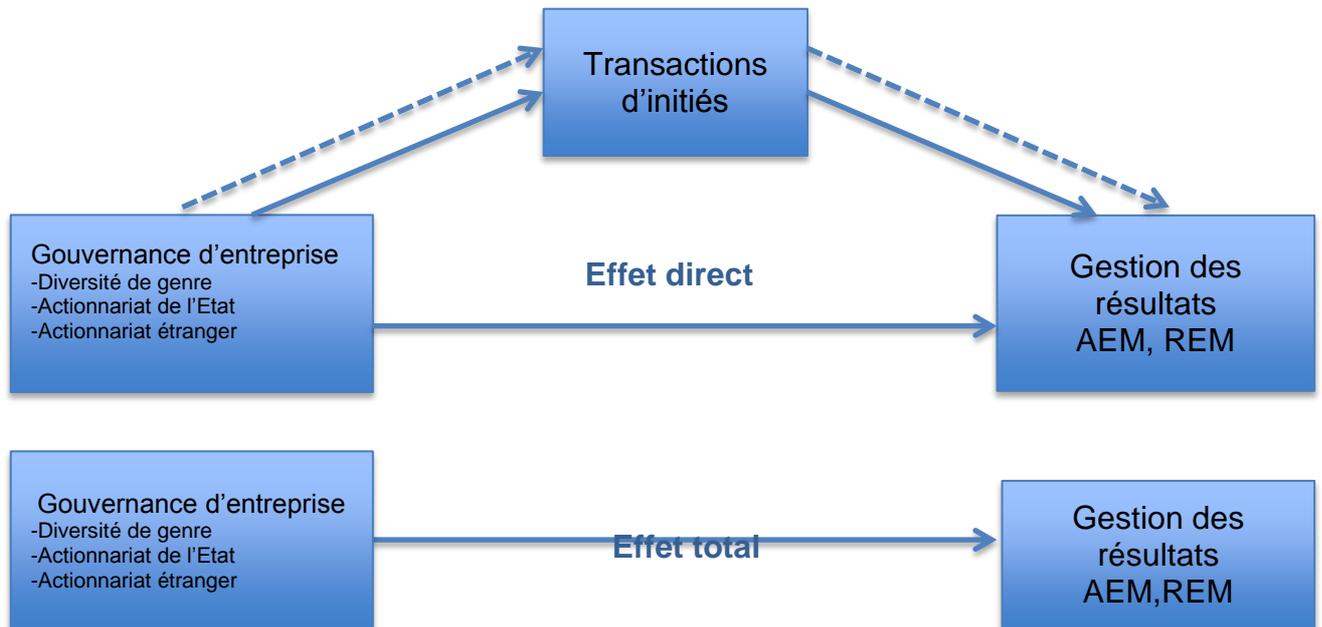
La figure 1 donne un bref aperçu de quatre façons dont nous pouvons établir un lien entre la gouvernance d'entreprise, les transactions d'initiés, la qualité des chiffres comptables et l'informativité du prix des actions. Les points clés portent sur la relation entre le gouvernement d'entreprise, la gestion des résultats et le SPI. Le premier concerne la structure de l'actionnariat associée à la gestion des résultats, tandis que le deuxième porte sur la relation entre la diversité de genre au sein des organes de direction et la gestion des résultats. Le troisième est le lien entre la gouvernance d'entreprise et la gestion des résultats par l'effet médiateur des transactions d'initiés. Le quatrième est le lien entre la gouvernance d'entreprise et l'informativité du prix des actions avec la gestion des résultats jouant le rôle de médiateur.

*Figure 1 : La visualisation du cadre de recherche*

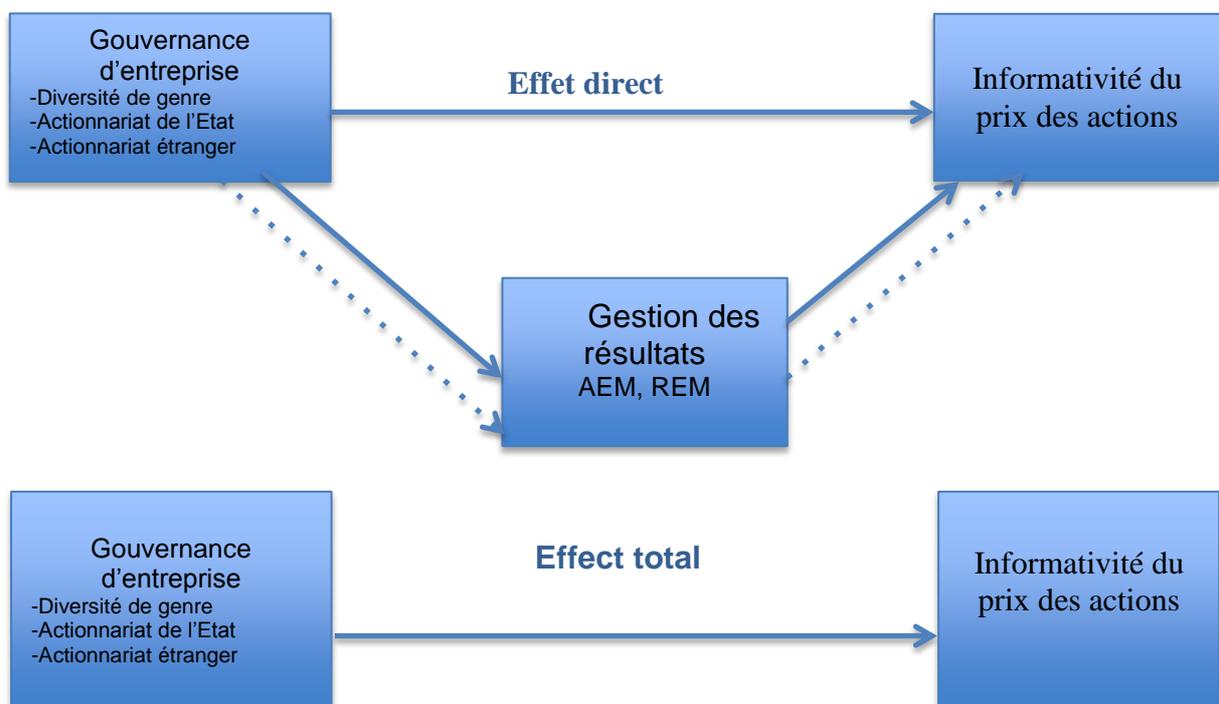
### Schéma 1 et 2 : Lien entre gouvernance d'entreprise et gestion des résultats.



**Schéma 3 : Lien entre le gouvernement d'entreprise et la gestion des résultats. L'effet médiateur des transactions d'initiés.**



**Schéma 4 : Lien entre le gouvernement d'entreprise et l'information sur les cours des actions. L'effet médiateur de la gestion des résultats**



### **III. Mise en œuvre des études**

Cette étude se concentre sur 5 779 observations d'entreprises avec cotées au Vietnam, à la fois à la bourse de Ho Chi Minh (HOSE) et à la bourse de Hanoi (HNX) entre 2008 et 2017. Les banques et les institutions financières sont exclues car leurs états financiers sont préparés dans un environnement réglementaire différent et sous un format spécifique. Les données des états financiers ont été collectées auprès de la société StoxPlus (stoxplus.com), qui est la plus grande entreprise de données financières au Vietnam, et les autres ont été collectées sur les sites web de HOSE (www.hsx.vn) et de HNX (www.hnx.vn) de 2008 à 2017 ou (concernant la composition des conseils) manuellement à partir des rapports annuels des sociétés cotées. HOSE a commencé ses opérations en 2000 et HNX en 2005. Jusqu'à la fin de l'année 2005 (2/11/2015), HNX a appliqué la méthode de cotation en continu par les ordres en parallèle avec la méthode de négociation. Cependant, le nombre d'entreprises cotées en 2006 et 2007 est trop faible pour tester correctement les hypothèses. Ainsi, 2008 est l'année de début de l'étude et nous avons collecté des données jusqu'en 2017.

Les classifications des industries au Vietnam sont basées sur les classifications sectorielles de référence (Industry Classification Benchmark, ICB), les entreprises financières étant exclues. Les mesures concernant la gestion réelle des résultats (REM) sont utilisées pour les seules entreprises ayant plus de 15 ans d'existence.

Nous utilisons simultanément deux mesures de la gestion des résultats : (i) la gestion des résultats basée sur les « *accruals discrétionnaires* » (AEM), mesurée à la fois par le modèle développé par Jones (appelé "modèle de Jones modifié" - JM) et par celui de Kothari (appelé "modèle Kothari"), et (ii) la manipulation des activités réelles (REM), qui est mesurée par le biais de coûts de production anormaux (REMPROD), de flux de trésorerie d'exploitation anormaux (REMCFO) et de dépenses discrétionnaires anormales (REMDIS) en suivant le modèle de (Gunny, 2010).

Selon (Vân, 2019), le modèle de Jones modifié et le modèle de Kothari sont appropriés dans le contexte du Vietnam. En ce qui concerne le REM, les entreprises vietnamiennes cotées en bourse ont appliqué le REM pour manipuler les résultats (Loan, N. T. P., & Thao, N. M, 2016). Les dirigeants peuvent décider d'arbitrer entre AEM et REM. C'est pourquoi nous appliquons ces deux types de mesures dans notre thèse.

### **IV. Résultats**

Dans ce qui suit, nous résumons les résultats des quatre articles empiriques.

## **1. Etude 1 : Structure de propriété et gestion des résultats - Une étude empirique dans le contexte vietnamien.**

Cette étude examine l'effet de la propriété de l'État et des investisseurs étrangers sur la gestion des résultats, estimée par les *accruals discrétionnaires* (AEM) et par la manipulation des activités réelles (REM). Les hypothèses portent sur la question de savoir si la propriété étatique ou étrangère a un impact significatif sur la gestion des résultats dans les entreprises vietnamiennes cotées en bourse.

Les principaux résultats sont donnés ci-après :

(i) Les entreprises à forte présence de l'État au capital pratiquent moins la gestion des résultats selon la méthode des *accruals*, tant dans le modèle Jones modifié que dans le modèle Kothari, et moins les manipulations réelles mesurées par les flux de trésorerie d'exploitation anormaux (REMCFO). Elles ont aussi moins tendance à s'engager dans la surproduction anormale (REMPROD), même si les résultats sont un peu plus fragiles que les précédents (résultats significatifs uniquement dans certains modèles avec décalage dans le temps).

(ii) Les entreprises à forte proportion de propriété étrangère ont tendance à moins pratiquer la gestion des résultats par les *accruals* mais les résultats ne sont significatifs qu'avec le modèle de Kothari. Et elles pratiquent davantage de manipulation par les activités réelles, ce qui s'observe à la fois en termes de surproduction (REMPROD) et de dépenses discrétionnaires (REMDIS).

## **2. Etude 2 : Diversité de genre au sein des organes de direction et gestion des résultats - Une étude empirique dans le contexte vietnamien.**

Cette étude examine l'impact de la diversité de genre dans la gouvernance de l'entreprise sur la gestion des résultats. La présence des femmes est étudiée aussi bien dans les conseils (de surveillance ou de management) qu'à la tête des entreprises. L'étude tente de trouver une preuve empirique que les femmes au sein des conseils d'administration et les femmes à la tête des entreprises ont un impact négatif sur la gestion des résultats dans les entreprises vietnamiennes cotées en bourse. En particulier, l'étude pose la question suivante : les femmes au sein des conseils d'administration et les femmes à la tête des entreprises atténuent-elles les mesures AEM ou REM ?

Les variables dépendantes relatives à la gestion des résultats sont les mêmes que dans la première étude.

Pour les variables indépendantes, l'étude mesure la participation des femmes aux conseils chaque année comme le nombre de femmes siégeant aux BoD, BoE, et BoS (Dittmar & Mahrt-Smith, 2007). Le pourcentage de femmes au sein des conseils correspond au nombre total de femmes nommées dans les BoD, BoE and BoS, divisé par le nombre total de membres des conseils. Il s'agit d'une méthode simple, mais qui ne permet pas toujours de mesurer véritablement la diversité. C'est pourquoi nous utilisons également l'indice de Shannon comme mesure complémentaire de diversité de genre. En ce qui concerne la présence de femmes à la tête des entreprises, la présence d'une femme à la présidence du conseil ou comme PDG est mesurée par une variable muette égale à 1 si la présidente/PDG est une femme et à 0 dans le cas contraire.

Les principaux résultats sont donnés ci-après :

(i) La présence des femmes dans les conseils tend à accroître la gestion des résultats. Cette tendance est significative lorsque la présence des femmes est mesurée par le nombre de femmes aux conseils et l'indice de Shannon et les *accruals* par le modèle de Kothari. Concernant les manipulations réelles, la relation est positive et significative entre l'indice de Shannon de présence des femmes et la variable de coûts de production anormaux (REMPROD).

(ii) Par contre, la présence d'une femme à la présidence du conseil d'administration fait baisser la gestion des résultats par les *accruals* (mesurés par le modèle AEM de Kothari). Ainsi, l'hypothèse selon laquelle "les femmes présidentes s'engagent moins dans la gestion des résultats" est confirmée.

(iii) Les autres relations testées ne sont pas significatives, l'impact de la diversité de genre sur la gestion des résultats n'est pas aussi importante qu'anticipée ni forcément dans le sens qui était attendu.

### **3. Etude 3 : Lier la gouvernance d'entreprise et la gestion des résultats au Vietnam : les transactions d'initiés comme médiateur.**

L'étude examine de manière plus approfondie la relation entre, d'une part, trois variables de gouvernance d'entreprise (*Corporate governance* – CG) jugées pertinentes au Vietnam - l'État, la propriété étrangère et la présence de femmes dans les conseils - et, d'autre part, la gestion des résultats (*Earnings Management* - EM). Pour cela, nous observons l'effet médiateur possible des transactions d'initiés (*Insider Trading* - IT) dans cette relation. Les transactions d'initiés peuvent être légales ou illégales ; dans ce dernier cas, il s'agit de délits

d'initiés. L'échantillon est composé des entreprises vietnamiennes cotées en bourse. Quelques hypothèses sont formulées.

**Tableau 1: Synthèse des hypothèses**

<p><b>Effet de l'insider trading (IIT) sur EM</b></p> <p>H<sub>1</sub> -IT est associé positivement à EM</p>
<p><b>Effet de la gouvernance d'entreprise (CG) sur EM</b></p> <p>H2a - EM est associé négativement à la diversité de genre</p> <p>H3a - EM est associé négativement à la propriété d'Etat</p> <p>H4a - EM est associé négativement à la propriété étrangère</p>
<p><b>Effet de la gouvernance (CG) sur IIT</b></p> <p>H2b - IT est associé négativement à la diversité de genre</p> <p>H3b - IT est associé négativement à la propriété d'Etat</p> <p>H4b - IT est associé négativement à la propriété étrangère</p>
<p><b>Effet de médiation de l'IT sur EM</b></p> <p>H2c - IT est un médiateur entre la diversité de genre et EM</p> <p>H3c - IT est un médiateur entre la propriété d'Etat et EM</p> <p>H4c - IT est un médiateur entre la propriété étrangère et EM</p>

Les variables dépendantes et indépendantes déjà utilisées dans les chapitres précédents sont mesurées de la même manière.

Concernant la variable de médiation, il existe de nombreuses méthodes pour mesurer les transactions d'initiés comme les ventes nettes (Kraft, Lee, & Lopatta, 2014) ou le ratio d'achat net (NPR) (Khan, Baker, Chaudhry, & Maheshwari, 2005). Cependant, ces mesures ne reflètent pas exactement la transaction d'initiés si les montants nets des achats et des ventes sont égaux. Ainsi, l'étude utilise le nombre d'actions négociées par les initiés pour mesurer leurs transactions, soit :

(nombre d'actions vendues + nombre d'actions achetées) / total des actions en circulation de l'entreprise.

Les résultats obtenus ne sont significatifs que lorsque la gestion des résultats est mesurée par la manipulation des dépenses discrétionnaires (REMDIS). Cette mesure permet de synthétiser les conclusions ci-après :

(i) Le volume des transactions d'initiés est positivement corrélé à la gestion des résultats (validation de H1)

(ii) La diversité de genre n'influence pas de manière significative la gestion des résultats : l'impact direct n'est pas significatif et la médiation par l'IT non plus, ce qui ne permet pas de valider H2a et H2c (même si la diversité de genre conduit à davantage d'IT, contrairement à nos attentes ; l'hypothèse H2b est également rejetée).

(iii) Les entreprises qui appartiennent davantage à l'État tendent à faire plus de gestion des résultats, au moins en ce qui concerne les dépenses discrétionnaires anormales : l'effet total est une relation positive entre la part détenue par l'Etat et REMDIS, ce qui permet de rejeter H3a. Mais si on observe cette relation par le biais de la médiation par les transactions d'initiés, on observe que cet effet indirect est négatif et significatif lorsque le REM est mesuré par les dépenses discrétionnaires anormales : la propriété de l'État diminue les transactions d'initiés et celles-ci sont positivement associées à la variable REMDIS. Par conséquent, les hypothèses H3b "Les transactions d'initiés sont négativement associées à la propriété de l'État" et H3c "Les transactions d'initiés sont un médiateur dans l'association entre la propriété de l'État et EM" sont validées.

(iv) Les entreprises à plus forte participation étrangère ont tendance à avoir plus de gestion des résultats (par manipulation des dépenses discrétionnaires), ce qui permet de rejeter H4a. Les transactions d'initiés semblent également jouer le rôle de variable médiatrice avec un effet indirect négatif et significatif. Dans ce cas, plus de propriété étrangère est associée à moins de transactions d'initiés, et celles-ci sont reliées positivement aux dépenses discrétionnaires anormales (validation des hypothèses H4b et H4c).

#### **4. Etude 4 : Lier la gouvernance d'entreprise et l'informativité du prix des actions au Vietnam : l'effet médiateur de la gestion des résultats.**

Notre recherche porte sur le lien entre la gestion des résultats et l'informativité boursière (SPI), d'une part, et entre la gouvernance d'entreprise et l'informativité des prix des actions, d'autre part, le tout dans le contexte spécifique du Vietnam. Mais, étant donné le lien entre la gouvernance d'entreprise et la gestion des résultats, une vision plus globale de la relation entre ces trois dimensions peut être envisagée, avec la gestion des résultats comme médiateur entre la gouvernance d'entreprise et le SPI. Quelques hypothèses sont données:

**Tableau 2 : Synthèse des hypothèses**

<p><b>Effet de EM sur SPI</b></p> <p>H1 -SPI est négativement associé à EM</p>
<p><b>Effet de la gouvernance sur SPI</b></p> <p>H2a - SPI est associé positivement à la diversité de genre dans les instances dirigeantes et de contrôle</p> <p>H3a - SPI est associé négativement à la propriété étatique</p> <p>H4a - SPI est associé positivement à la propriété des investisseurs étrangers</p>
<p><b>Effet de la gouvernance sur EM</b></p> <p>H2b - EM est associé négativement à la diversité de genre dans les instances dirigeantes et de contrôle</p> <p>H3b - EM est associé négativement à la propriété étatique</p> <p>H4b - EM est associé négativement à la propriété des investisseurs étrangers</p>
<p><b>Effet médiateur de EM sur SPI</b></p> <p>H2c - EM est un médiateur dans l'association entre la diversité de genre dans les instances dirigeantes et de contrôle et SPI</p> <p>H3c - EM est un médiateur dans l'association entre la propriété d'Etat et SPI</p> <p>H4c - EM est un médiateur dans l'association entre la propriété des investisseurs étrangers et SPI</p>

Pour les variables dépendantes, l'informativité du prix des actions (SPI) est définie comme suit :

$$SPI = \log \left( \frac{1-R^2}{R^2} \right) \quad (1)$$

Où R<sup>2</sup> est le coefficient de détermination de la régression du modèle de marché (rentabilité d'une entreprise donnée sur rentabilité d'un indice de marché), conformément à (Roll, 1988).

Le SPI peut être positif ou négatif selon que le R<sup>2</sup> est supérieur à 0,5 ou non.

Les autres variables sont mesurées comme dans les études précédentes.

Les principaux résultats sont obtenus, pour cette étude-ci, avec la mesure de la gestion par les *accruals* selon Kothari et, encore, celle des manipulations réelles par les dépenses discrétionnaires (REMDIS). Ils permettent de dégager les principales conclusions ci-après :

(i) Sans médiateur, le pourcentage de femmes dans les conseils, la propriété de l'Etat et la propriété étrangère ont un impact positif sur le SPI. Les hypothèses H2a et H4a sont confirmées, mais pas H3a.

(ii) Les effets indirect, direct et total de la relation entre la présence des femmes dans les conseils et l'informativité du prix des actions sont fortement positifs lorsque les dépenses discrétionnaires anormales (REMDIS) constituent la variable médiatrice. Dans ce cas, l'hypothèse H2c est validée. Nous observons que la présence des femmes dans les conseils augmente la gestion des résultats et la gestion des résultats augmente le SPI.

(iii) En ce qui concerne la propriété de l'État, il existe un effet total positif et significatif entre la propriété de l'État et le SPI. L'effet indirect est positif et significatif seulement lorsque le REM est mesuré par les dépenses discrétionnaires anormales. H3c est validée dans ce cas. La propriété de l'État augmente la gestion des résultats par le biais des dépenses discrétionnaires anormales, elles même associées à un SPI plus élevé. La combinaison de ces deux relations conduit à un impact positif de la propriété de l'État sur le SPI. Trouver un effet positif sur le SPI pourrait sembler contre-intuitif, mais l'analyse de la médiation aide à comprendre le mécanisme sous-jacent : l'effet positif est obtenu par une gestion des résultats plus importante.

(iv) En ce qui concerne la propriété étrangère, les résultats sont similaires aux précédents. Les dépenses discrétionnaires anormales sont un médiateur entre la propriété étrangère et SPI. L'effet indirect est positif et significatif. Dans ce cas, plus de propriété étrangère est associée à plus de dépenses discrétionnaires, qui à leur tour génèrent un meilleur SPI. Dans ce cas, l'hypothèse H4c est validée.

## **V. Conclusion**

Cette thèse est rédigée à une époque de réformes réglementaires actives au Vietnam, visant à favoriser une meilleure information financière, et à mieux protéger et attirer les investisseurs après le déclin de la part de l'Etat dans les sociétés cotées en bourse. Nos études fournissent des arguments dans des pays émergents comme le Vietnam pour faire évoluer la place de l'État, des investisseurs internationaux et de la diversité de genre en vue d'augmenter

la transparence de l'information financière. Le gouvernement vietnamien s'est engagé à faire plus d'efforts pour construire un cadre et publier des lois, des circulaires et des décrets améliorés. Ceux-ci doivent être mis en œuvre de manière descendante pour les réformes de la gouvernance d'entreprise (Owoeye & Pijl, 2016), à la fois pour renforcer la transparence de l'environnement informationnel et pour accroître la protection des investisseurs, ce qui conduira à développer les marchés des capitaux et la croissance économique.

## Abstract

This thesis develops four empirical studies conducted in the Vietnamese context and related to corporate governance, earnings management (EM), insider trading and stock price informativeness (SPI). We measure EM through both accruals based earnings management (AEM) - with modified Jones and Kothari models - and real earnings manipulations (REM) through abnormal cash-flow from operations (REMCFO), overproduction (REMPROD) and discretionary expenses (REMDIS). In the first chapter related to “*Ownership structure and earnings management*”, we find that State ownership mitigates both AEM and REM through REMCFO. The results also show that foreign owned firms are less engaged in AEM, whereas more foreign investors lead to more real manipulation through REMPROD and REMDIS. The second chapter focuses on *the relation between board gender diversity and earnings management*. Concerning AEM and with Kothari model, the results show that the presence of chairwomen reduces AEM but that more women on board of executives (measured both by their number and by the Shannon index) leads to more AEM. In terms of REM, more women measured by the Shannon index lead to more REMPROD. The third chapter investigates *the role of insider trading as a mediator between corporate governance and EM*. It proves this mediation effect only for State or foreign ownership and only when EM is measured by REMDIS. The last chapter contemplates *the link between those corporate governance dimensions and SPI and the mediation effect on EM*. It shows that women on boards, State and foreign ownership all increase SPI. Analysing the mediating role of EM in these relationships give mixed results. Our results have potential implications for Vietnamese policymakers to increase transparency and accountability to investors by improving corporate governance.

## Résumé

Cette thèse développe quatre études empiriques menées dans le contexte vietnamien et liées à la gouvernance d'entreprise, à la gestion des résultats (EM), au délit d'initié et à l'informativité des cours boursiers (SPI). Les EM sont mesurés à la fois par les accruals (AEM) - avec les modèles « modified Jones » et Kothari - et par les manipulations réelles (REM) par trois mesures: cash-flow opérationnel anormaux (REMCFO), surproduction (REMPROD) et dépenses discrétionnaires (REMDIS). Dans le premier chapitre relatif à «*la structure de l'actionariat et la gestion des résultats*», nous constatons que l'État actionnaire atténue AEM et REM à travers REMCFO. Les résultats montrent également que les entreprises détenues par des investisseurs étrangers font moins d'AEM mais plus de manipulations réelles (REMPROD et REMDIS). Le deuxième chapitre se concentre sur *la relation entre la diversité de genre et la gestion des résultats*. En termes d'AEM (modèle Kothari), nous montrons que la présence de femmes présidentes réduit les manipulations alors que leur nombre dans les conseils les accroît. Et la relation est positive également en termes de REM (REMPROD) avec l'indice de Shannon. Le troisième essai porte sur *le rôle du délit d'initié comme médiateur entre la gouvernance d'entreprise et la gestion des résultats*; les résultats attestent cette médiation, uniquement concernant la présence de l'État actionnaire et d'investisseurs étrangers et si les EM sont mesurés par REMDIS. Le dernier chapitre étudie *le lien entre les trois dimensions de gouvernance et la SPI, et notamment l'effet médiateur de EM*. Il montre que les trois dimensions de gouvernance améliorent la SPI mais l'analyse du rôle médiateur d'EM dans ces relations donne des résultats mitigés. Nos résultats ont des implications potentielles pour les décideurs politiques vietnamiens en montrant comment la gouvernance d'entreprise peut accroître la transparence et la responsabilité envers les investisseurs.