

Doctoral Dissertation

**BOARD INDEPENDENCE, FOREIGN OWNERSHIP,
AND STOCK RETURN VOLATILITY IN VIETNAM**

To Anh Tho

March, 2020

**Graduate School of Social Sciences
Hiroshima University**

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BOARD INDEPENDENCE, FOREIGN OWNERSHIP, AND STOCK RETURN VOLATILITY IN VIETNAM

CHAPTER 1: INTRODUCTION

1.1 The context of the study

Efficient corporate governance is considered as a significant mechanism to reduce information asymmetries, thus to prevent financial crises, especially for emerging markets. For instance, the financial crisis of 2007–2009 came from the weakness in corporate governance mechanisms in many countries (*Akbar et al, 2017*). Therefore, most emerging markets have paid more proper attention to establishing a code of corporate governance to prevent the collapse of financial markets from a lack of transparency and disclosure in companies. Particularly, building board independence and increasing foreign ownership to improve information transparency have become two major trends in modern corporate governance.

In recent years, governments have had significant interests in corporate governance and forced many firms to increase their board independence, especially for high-risk firms. In many countries, the regulations related to the separation of ownership and management are issued to prevent the collapse of financial markets from a lack of transparency and disclosure in companies. For instance, in America, the Sarbanes-Oxley act (2002) and the Dodd-Frank act (2010) forced companies to appoint more independent directors and disclose more information about compensation. The Malaysian Code on Corporate Governance formed promptly after the 1997-1998 Asian Crisis imposed the requirement on the appointment of more non-executive directors. In Vietnam, the Circular 121/2012/TT-BTC dated July 26, 2012 also provided further regulations on corporate governance applicable to public companies. The regulations connected internal control and risk management, identified board independence as an essential standard for risk management process.

However, compared with developed economies, corporate governance characteristics in Vietnamese listed companies as well as in other Southeast Asian companies may be different in terms of market characteristics, economic instability, the strength of institutions, government regulations, and so on. The dissimilarities significantly influence the risk management role of non-executive directors.

- It is noted that the board structure for Vietnamese listed companies is categorized as two tiers including a management board (*the lower tier*) which is responsible for firms' operation and a separate supervisory board (*the upper tier*) which assumes supervisory functions as to the management and operation of the company (*Belot et al., 2014*). In a two-tier board system, the supervisory board is led by a chairman while the top leader of the executive management board is a CEO. Such a dual board structure is popular in Germany and Netherland, while The United States and the United Kingdom provide examples of unitary board structure which gathers both managing board and supervisory board in one group (*Douma, 1997*). However, the co-existence of management and supervisory boards might lead to overlapping and ineffective functions in the Vietnamese corporate governance system because the responsibilities of both boards are unclear (*Bui and Nunoι, 2008*).

- Specifically, Southeast Asian firms tend to exhibit concentrated ownership, while firms in developed countries such as the US and the UK prefer dispersed ownership (*Claessens et al., 2000*). In these countries, the listed firms are usually controlled by family shareholders or state shareholders who have a strong tie with the management team, but the protection of minority stockholders' rights is weaker (*La Porta et al., 1996*). Non-executive directors are usually nominated or appointed by majority shareholders who do not want to lose control of the business. In Vietnam, state ownership has still accounted for a significant proportion in the stock market because Vietnam historically installed a centralized economy characterized by state ownership. Besides, the government uses state-owned enterprises to pursue social objectives such as optimal levels of employment or the provision of social services to the community, rather than profit maximization (*Shleifer & Vishny, 1997*). Consequently, non-executive directors in many Vietnamese listed firms is usually dominated by the state who acts a controlling shareholder, so the risk management of non-executive directors is appreciated not to be inefficient. However, the divestment of state-owned enterprises has gradually created opportunities to increase qualified non-executive directors on boards in recent years, which helps to address the conflicts between controlling and non-controlling shareholders. Notably, foreign investors tend to appoint representatives or seek experts to coordinate and monitor corporate governance. Min & Bowman (2015) also support that foreign investors place considerable merit on the appointment of independent directors in the firms listed on the Korea Exchange. Thus, *this dissertation will investigate and give more*

insights into the role of non-executive directors in controlling the fluctuation of stock returns in the Vietnamese listed firms.

This purpose will be analyzed in two different dimensions:

- First, the dissertation analyzes the influence of board independence on the fluctuation of the stock returns. The dissertation will further investigate this effect in companies with excessive investment because overinvestment by controlling shareholders has become serious in many Vietnamese firms so far.

- Second, whether stock return volatility might cause a change in board independence or not? How does the regulation might affect this relationship?

Regarding foreign ownership, the increased presence of foreign investors in many listed firms has gradually become an inevitable trend in the era of international economic integration, in which stock markets play a supporting role in promoting foreign capital investments into domestic companies (*Foong & Lim, 2016*). Foreign ownership has, in turn, contributed to the development of capital markets and has become an essential factor in diversifying ownership structure in many listed companies.

Under international economic integration, the gradual removal of the restrictions on foreign ownership has boosted foreign capital inflows into the Vietnam stock market (*My & Truong, 2011*). Notably, the Decree No. 60/2015/ND-CP permits foreign investors to own up to 100 percent of the equity (instead of 49 percent as promulgated before) in most public Vietnamese companies, except for companies in specific restricted sectors. The increased presence of foreign investors is expected to improve transparency for listed companies and hence provide stock price stabilization. However, current literature has still had conflicting findings on the association between foreign ownership and the fluctuation of stock returns. Therefore, *it drives this dissertation to investigate whether attracting more foreign ownership can be considered as a mechanism to control stock return volatility for Vietnamese listed firms.*

More notably, foreign investors in many large listed companies in the Vietnam stock market are usually large financial institutions. Their high proportions of equity can promote them to become large shareholders with the opportunities to divert firm resources for their own benefits at the expense of minority shareholders (*entrenchment effect*). To hide their self-serving behaviors, entrenched large shareholders usually withhold unfavorable information or selectively disclosing information (*McConnell & Servaes, 1990*), which can lead to more information asymmetries. Hence, *the impact of foreign*

investors on stock return volatility in such firms should be thus evaluated with more caution.

Instead of studying the effect of corporate governance characteristics on performance like many previous papers, this dissertation has some differences as follows: *First*, the study focuses on two major change trends in Vietnamese corporate governance, and more specifically, these two trends are significantly influenced by the laws of Vietnam. *Second*, the impacts of corporate governance on the fluctuations of stock returns are still of little concern from researchers in Vietnam, compared with the influence of corporate governance on firm performance. *Third*, instead of only studying the one-way influence of board independence on stock return volatility, this dissertation provides a thorough explanation about the role of board independence in stabilizing stock return volatility by studying the two-way effect between these two variables. *Finally*, the relationship between corporate governance and stock return volatility will be explained in more detail through the impacts of the moderating factors.

1.2 Background about corporate governance in Vietnam

1.2.1 Historical background of Vietnamese economic transition and stock market

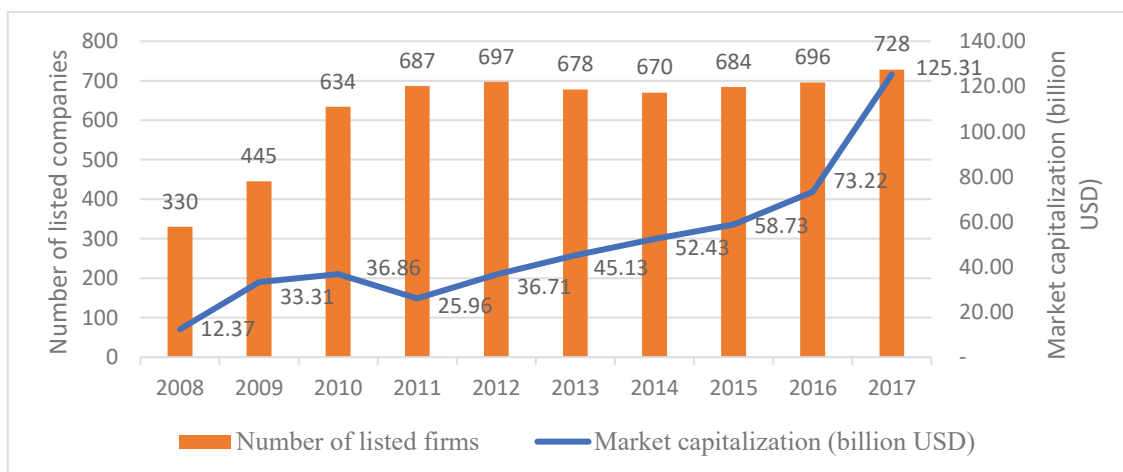
In 1986, Vietnam began to transition the country from a centralized economy to a socialist-oriented market economy. “Equitization Program” in Vietnam started in 1992 as a part of the State-owned Company Reform Program due to the poor performance of State-owned enterprises (SOEs). The weak financial performance of the SOEs was caused by many different factors such as unclear objectives, poor management, budget constraint, and so forth. Equitization was implemented by selling a part of the equity of an SOE to the public or strategic investors to increase competitiveness and utilize external resources, but the government didn’t lose its ultimate control over these companies.

In the 1990s, the Vietnam stock market had not yet been developed, so restructuring was implemented by focusing on the small-sized and medium-sized SOEs, and by integrating plural SOEs into groups. It can be said that the government was very cautious in the first steps. For example, in 1994, 18 General Corporations and 64 particular corporations were found by combining state-owned enterprises operating in industries that are considered specific strategic sectors.

Since 2000, the securities market has played an essential supporting role in the SOE equitization process because SOE equitization in Vietnam has mostly taken place through Initial Public Offering (IPO) in the stock exchanges. In 1998, stock exchanges were

decided to be established in Hanoi City and Ho Chi Minh City under Degree 75/1996/ND - CP on the organization and functioning of the Vietnam State Securities Commission and Degree 48/1998/ND – CP on the securities and Vietnam stock market. Then, Degree 48 was replaced by Degree 144/2003/ND-CP on securities and Vietnam Stock market. The Ho Chi Minh Securities Trading Center (HoSTC) was opened with only two listed companies in 2000 and then renamed as Ho Chi Minh Stock Exchange in 2007. Five years later, another stock market was established in Hanoi. All the listed companies were former state-owned companies at the end of the year 2005. In the 2000-2007 period, many legislations were issued concerning the alignment of SOE equitization with the development of Vietnam Stock exchanges. One of them was Decision No. 238/2005/QD-TT on the percentage of participation of foreign investors up to 49% in all listed securities in Viet Nam, replacing the previous Decision No. 146/2003/QD-TT which limited foreign ownership of listed Vietnamese companies up to 30% (raised from the prior limit of 20% in 2000). The divestment of state-owned companies and new regulations enhanced the increasing presence of external large investors, including foreign investors. The inflow of foreign investment became stronger when Vietnamese Securities Law was issued in June 2006 and took effect on January 1st, 2007, providing additional rules for listing stocks, transparency and the disclosure of information by public companies. Another reason is that Vietnam was officially recognized by the international community as the 150th WTO member in June 2007. The trends forced SOEs to reform their corporate governance and financial accounts up to international standards. After 17 years of development, the total number of listed companies was 728, and market capitalization was 125.31 billion USD, as shown in Figure 1.1.

Figure 1.1: Number of listed companies and market capitalization in Vietnam



Source: <https://data.worldbank.org>

1.2.2 Typical corporate governance characteristics of public companies in Vietnam

1.2.2.1 The dominant role of the State

Although many SOEs have been equitized and converted into joint-stock companies since 1990s, the State may hold a controlling role in many important sectors such as including post and telecommunication, textile, shipbuilding, petrol, coal and minerals, banking and insurance in Vietnam's economy. Government involvement in the business sector remains extra-ordinary high, remaining the ultimate controlling shareholder in most equitized listed State-owned enterprises (SOEs). A survey conducted by IFC (2012, p20) showed that the government held a controlling ownership of 50% or more in 31% of all the companies surveyed. By retaining majority ownership, the State has directly participated in corporate governance as a key shareholder and exercised its control via the general managers. Moreover, the directors have also been appointed by the State to the company's Board of Directors.

Despite playing the role of a majority shareholder, the State has not generated more positive outcomes in the Corporate Governance Scorecard results, especially compared to those companies with high foreign ownership. In the context of highly concentrated ownership by the State and by other majority shareholders as well as the weak legal system, minority shareholders of Vietnamese-listed firms are less protected. Therefore, Vietnamese firms show frequent conflicts between majority and minority shareholders, which is usually found in other transition economies (*Bebchuk & Hamdani, 2009; Claessens et al., 2000*). The intervention by the State with its multiple objectives and bureaucratic management is likely to cause agency problems in Vietnamese firms.

1.2.2.2 Little separation of ownership and control

In Vietnam, most controlling shareholders act as executive directors. Failure to separate ownership and control typically results in weak accountability and control structures, abusive related party transactions, and inadequate information disclosure. The concept of Board of Directors was first introduced in the Company Law in 1990 and the Law on SOEs in 1995, but the concept of non-executive directors was not taken seriously until recently, when the Vietnamese government issued the Circular 121/2012/TT-BTC dated July 26, providing further regulations on corporate governance applicable to public companies. It is the first official legal document to define the concept of non-executive directors in Vietnam, which has significantly increased board independence. However, the controlling shareholders have still taken control of the whole companies, so they have nominated or appointed non-executive directors who are closely related to them.

Therefore, non-executive directors are said to be advisors other than supervisors in Vietnamese listed firms.

1.2.2.3 The increasing participation of foreign investors

The transition of the Vietnamese economy from state ownership to a market system and the reform of the stakeholder governance structure is premised on the success corporate governance codes in developed countries. The Vietnamese government's strategy for enhancing corporate governance codes towards the international standards is to attract foreign investment capitals into Vietnamese firms. Especially, the integration of Vietnam into WTO - the World Trade Organization, has allowed for a significant increase in foreign ownership since 2007.

1.3 Research questions

This dissertation aims to answer the following research questions:

1. What is the impact of non-executive directors on stock return volatility in Vietnam? How is the influence of the non-executive director ratio on stock return volatility in firms with overinvestment? (Chapter 2)
2. Do firms with more stock return volatility increase or decrease the non-executive director ratio? What is the impact of regulation on this association? (Chapter 3)
3. What is the impact of foreign ownership on stock return volatility in Vietnam? How is the influence of foreign ownership on stock return volatility in large firms? (Chapter 4)

1.4 Research methods

The dissertation answers the three above research questions by investigating non-financial listed firms in the Vietnam stock market during the period from 2007 to 2017. Corporate governance data (for example, the proportion of independent directors, board size, state ownership, foreign ownership, and so forth) was manually collected from published annual reports. If there were any missing observations in the panel data, the data collected on www.ezsearch.fpts.com.vn, www.stockbiz.vn, www.vietstock.vn (They are leading websites providing financial information, market data, and investing tools for institutional and individual investors in Vietnam) are considered as supplementary information.

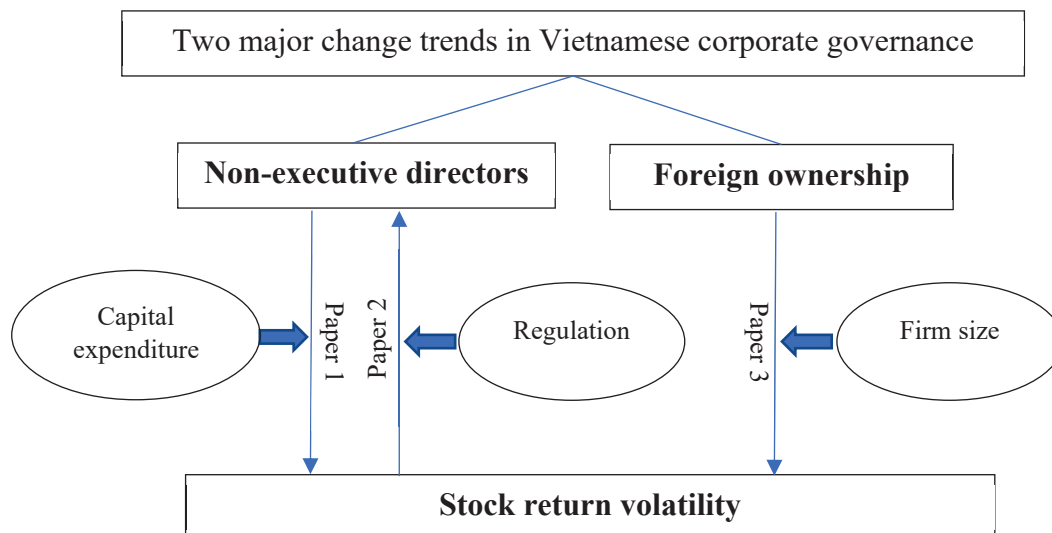
This study mainly uses the fixed effects estimation to examine the impacts of board independence and foreign ownership on stock return volatility. The lag variable of independent variables, the instrumental variables fixed effects, and GMM estimation are used to further control for endogeneity. Besides, the study also conducts some additional

robustness checks by using alternative measures of dependent variables or splitting the original sample into sub-samples to make sure that the results are not spurious.

1.5 Structure of the dissertation

The structure of this dissertation is organized as follows. Chapter 1 provides an introduction about the dissertation. Chapter 2 investigates the impact of non-executive director ratio on stock return volatility, particularly in underinvesting and overinvesting firms. Chapter 3 examines whether board independence is affected by firm risk and regulation. Chapter 4 analyzes the impact of foreign ownership on stock return volatility and the destabilizing role of firm size on this relationship. Finally, the conclusions are summarized in chapter 5.

Figure 1.2: Overall dissertation structure



CHAPTER 2: (PAPER 1) THE RISK MANAGEMENT ROLE OF NON-EXECUTIVE DIRECTORS: FROM CAPITAL EXPENDITURE PERSPECTIVE

2.1. Introduction

Unlike developed economies, developing countries, especially Southeast Asian countries, have had ineffective corporate governance practices. The weaknesses in corporate governance mechanisms had an important effect on the stock market declines in the Asian crisis (*Johnson et al., 2000; Cheah & Lee, 2009*). The establishment of a good corporate governance code has become a significant concern for many governments to prevent financial crises, which usually result from a lack of transparency and disclosure in many companies. Nonetheless, the studies from developed countries may not be applicable in developing countries because many different factors often fall beneath contextualization, such as the structures of corporate ownership, the strength of institutions, legal and government intervention, and so on.

Notably, the unclear separation of control and management, one of the most noticeable characteristics in Southeast Asian firms' corporate governance systems, has become a major obstacle to monitoring and thus led to potential risks. Therefore, the Vietnamese government issued the Circular 121/2012/TT-BTC dated July 26, providing further regulations on corporate governance applicable to public companies. It is the first official legal document to define the concept of non-executive directors in Vietnam, which has an effect of significantly increasing board independence. Although the increase in non-executive director ratio is appreciated as a big step in reforming the board structure towards enhancing transparency, the monitoring role of non-executive directors in Vietnamese listed companies may still be not effective since non-executive directors in emerging markets are often appointed for reasons other than monitoring (*Haniffa & Cooke, 2002*). Majority shareholders often interfere with the appointment of non-executive directors to strengthen their control of the company. Consequently, non-executive directors can hardly influence important decisions and gradually play the role of advisors other than supervisors.

Besides, corporate risk in some industries may also come from poor control of investment spending, in which capital expenditure is likely to be one of the important factors (*Amir & Livne, 2007*). One of the reasons for the excessive capital expenditures in Vietnamese listed firms may be due to the agency problems between majority and minority shareholders. As supported in many previous studies, the potential agency

conflicts in Asian markets are more likely to be large shareholders versus small shareholders, rather than shareholders versus management. Majority shareholders have an incentive to use their control rights to divert funds and resources to other companies or projects they control. In addition to the improved regulation on the separation between ownership and management, the appointment of qualified independent directors has attracted the interests of non-controlling shareholders to partially prevent the self-behavior of entrenched majority shareholders. However, until now, only a few papers examine the direct relationship between capital expenditures and firm risk as well as the combined effect of board characteristics and capital expenditures on firm risk.

This paper is conducted with a sample of 151 listed companies on Vietnamese stock markets from 2007 to 2016, for investigating the impact of non-executive director ratio on firm risk in the presence of overinvestment. Overall, there is a positive relationship between non-executive ratio and firm risk, indicating that the increase in non-executive directors makes stock returns more volatile. This result supports the hypothesis that the information and council of executive directors on boards are more critical to perform efficiently (*De Andres & Vallelado, 2008*). However, the risk management role of non-executive directors is not completely denied because the incorporation of non-executive directors and capital expenditures has a negative impact on firm risk. It means that companies should maintain boards with a high proportion of non-executive directors to reduce risks in the presence of overinvestment.

The remainder of this paper is organized as follows. Section 3.2 provides the literature and develops hypotheses. The research design is explained in Section 3.3. Section 3.4 presents the results of the empirical analysis. The conclusions are summarized in the last section.

2.2 Literature review and research hypotheses

2.2.1. The role of non-executive directors

The role of non-executive directors in risk management has been supported by many theories. Under the agency theory, more non-executive directors on board are generally expected to be effective in providing oversight of firm performance and limiting managerial opportunism (*Jensen & Meckling, 1976; Fama, 1980; Persons, 2006*). Non-executive directors may protect shareholders' interests by affecting important board outcomes and enhancing comprehensive financial disclosures (*Lefort & Urzúa, 2008; Chen & Jaggi, 2000*). In addition to the supervising function, a board of directors also

plays a role as primary linkage mechanism that helps a firm to access important resources, link with its external environment, and overcome adverse environmental conditions (Hillman & Dalziel, 2003). Therefore, from the perspective of resource dependence theory, non-executive directors may provide strategic directions and influence managerial decisions thanks to their expertise, prestige, and contacts (Pearce & Zahra, 1992; Grace et al., 1995). Furthermore, non-executive directors usually serve as external monitoring and advising specialists in directorship market, and consequently they need to protect their reputation under reputation theory (Fama & Jensen, 1983). This is the reason why non-executive directors tend to support less risky projects or pursue the risk-reducing strategies of corporate diversification (Baysinger et al., 1991; Pathan, 2009).

On the contrary, many previous studies suggest that the increasing presence of non-executive directors is unlikely to bring proper supervision (Raheja, 2005; Kim et al., 2014; Baysinger & Hoskinsson, 1990). According to Baysinger and Butler (1985), too much monitoring by outside directors could have a negative influence on shareholder value because too intense supervision may also result in managers' more risk-aversion and underinvestment behavior (Hoskinsson et al., 2009). Secondly, executive directors may be better monitors because of being better informed about the firm's constraints and opportunities than outside directors (Baysinger & Hoskinsson, 1990). Thanks to their firm-specific information, they efficiently deal with problems arising from information asymmetry between the directors and managers (Raheja, 2005). According to Maug (1997) and Kim et al. (2014), it is costly to transfer firm-specific information to outsiders when these firms have higher information asymmetry. Dahya et al. (1996) and Rechner & Dalton (1991) also suggest that reinforcing responsibility and authority to executive directors can enhance effective performance, rather than appointing more non-executive directors on boards. Finally, there is a little doubt about the monitoring role of non-executive directors, especially for firms in developing countries, because non-executive directors are often nominated or appointed by majority shareholders who take control of the company.

In Vietnam, although Vietnam Enterprise Law, which was enacted in 2005, mentioned executive directors, non-executive directors, and independent directors, the differentiation among them was not clarified (Minh & Walker, 2008). Two years later, they were ambiguously categorized into: (i) executive directors, and (ii) non-executive and independent directors in Decision 15/2007/QD-BTC of the Finance Minister on the Model Charter of listed companies (Model Charter 2007) and Decision 12/2007/QD-BTC

of the Finance Minister on Code of Corporate Governance for Listed Companies on Stock Exchange/Securities Trading Centers, but there was no specific definition of the term “*non-executive and independent directors*”. Until 2012, the Circular 121/2012/TT-BTC on July 26, providing further regulations on corporate governance applicable to public companies, has been considered to be the first official legal document to define non-executive directors as a member of the supervisory board and not be the general manager, deputy general manager, chief accountant or any other managers appointed by the supervisory board (because the board structure of companies listed on Vietnamese stock markets is categorized into two tiers including a management board and a supervisory board). The delays in issuing relevant regulations make the supervisory role of non-executive directors not highly appreciated in risk management. Besides, the appointment of non-executive directors in many companies is often interfered with by controlling shareholders, and thus non-executive directors usually do not have many incentives to monitor. In these companies, they often act as advisors or consultants to the majority shareholders. Hence, this study expects that the presence of more non-executive directors can lead to higher firm risk.

H1: The proportion of non-executive directors has a positive impact on firm risk.

2.2.2. Capital expenditures and firm risk

According to previous studies, there is a positive association between capital expenditure and financial performance (*Lev & Thiagrajan, 1993; McConnell & Muscarella, 1985; Fama & French, 1999; Mak & Kusnadi, 2005*). Lev & Thiagrajan (1993) state that capital expenditure is a significant signal required by the analysts in forecasting future profitability and stock returns. Therefore, investment in capital expenditures is expected to generate high future returns, and consequently, increase financial performance. Mak & Kusnadi (2005) also find that firms with higher capital expenditures have higher accounting performance. McConnell & Muscarella (1985) report that the announcement of an increase (decrease) in capital expenditures should have a positive (negative) impact on the stock price.

In major studies on the impact of investment on corporate risk, capital expenditure is only mentioned as an object of comparison with R&D spending. Although capital expenditures are considered as lower-risk investments (*Bhagat & Welch, 1995; Kothari et al., 2002*), the positive impact of capital expenditures on earnings variability is still confirmed for a sample of roughly 50,000 US firm-year observations from 1972–1997 by

Kothari et al. (2002). Meanwhile, earnings variability has historically been found to be closely associated with market-based measures of firm risk (Ryan, 1997; Dhaliwal et al., 2017). Amir & Livne (2007) also use both operating income variability and monthly stock return variability as the dependent variables to prove that investments in capital expenditures are likely to be key and hence more closely linked to business risk for many industries. Therefore, the positive association between capital expenditures and firm risk is expected in this paper.

H2: A high level of capital expenditures has a positive impact on firm risk.

2.2.3. The interaction of non-executive director ratio and capital expenditures

As mentioned in many research papers related to corporate governance in developed markets, lack of monitoring can increase opportunities for executives to pursue overinvestment strategies to enhance their positions or to maximize their own utility at the expense of shareholders (McConnell & Muscarella, 1985; Titman et al., 2004). It is because overconfident executives usually overestimate returns to investment projects, and thus overinvest when they have abundant cash holdings (Malmendier & Tate, 2005). Regarding internal control's role in standardizing corporate investment behavior, strong internal control mechanisms should reduce the likelihood that overinvestment becomes a severe problem (Boot, 1992). Notably, the presence of outside directors on boards might help mitigate managerial optimism problems and hence reduce the investment distortions inherent to managerial overconfidence (Heaton, 2002). By using the interaction between the proportion of non-executive directors and investment, Chung et al. (2003) also find a significant and positive correlation between firm value and investment, as measured by both capital and R&D expenditures, for firms with a high proportion of outside directors.

However, overinvestment caused by shareholder-manager conflicts in emerging markets can be addressed by ownership concentration (Demsetz & Lehn, 1985; Grossman & Hart, 1986). This is considered a benefit of ownership concentration especially in countries with weak legal protection (La Porta et al., 1998). However, high levels of concentration between ownership and control might also lead to sub-optimal investment or overinvestment (Andres, 2008). Because concentrated ownership can cause conflicts between majority and minority shareholders, and in that case, majority shareholders will use their control rights to maximize their own interest at the expense of other shareholders (Shleifer & Vishny, 1997). In other words, they have an incentive to pay out a larger proportion of company cash flows to themselves instead of evenly distributing funds

among all shareholders. One possibility to do so could be to redirect funds to other companies they control.

Consequently, the board structure reform of listed companies in Vietnamese stock markets tends towards increasing board independence when minority shareholders and investors realize that overinvestment might threaten their interests. Firstly, the selection of qualified non-executive directors is also relevant for the protection of minority shareholders with respect to the agency costs of majority shareholders (*Wright et al., 2013*). Secondly, minority shareholders and investors gradually acknowledge the importance of NEDs in monitoring and evaluating the supervisory board's transparency and reliability (*Chang et al., 2006*). In fact, a higher proportion of non-executive directors on board could be seen as a significant restructuring of top management under the Circular 121/2012/TT-BTC applicable to listed companies in Vietnamese stock markets (*Nguyen & Phan, 2016*). It helps to bring confidence to investors, lenders, and minority shareholders, especially for overinvesting companies.

H3: More non-executive directors are needed to control firm risk in the presence of overinvestment

2.3. Data and methodology

2.3.1 Sample

The research sample comprises of 151 non-financial companies listed on Vietnamese stock markets (including HNX - Hanoi Stock Exchange and HOSE - Hochiminh Stock Exchange) from 2007-2016. According to the Industry Classification Benchmark (ICB) 2008 applied in Vietnam, the list of publicly listed companies on the two markets (HOSE and HNX) is classified into 10 industry sectors: (1) Oil & Gas; (2) Basic materials; (3) Industrials; (4) Consumer goods; (5) Healthcare; (6) Consumer services; (7) Telecommunications; (8) Utilities; (9) Financials (including banks, securities companies, insurance companies, real estate and financial services companies); (10) Technology. Financial companies such as banks, securities, insurance, and financial services are excluded from the sample because they act as market makers, and more specifically, the board structure of these companies must comply with some regulations from the state bank. The year 2007 is chosen as the starting year because Vietnamese Securities Law, which prescribes additional rules for listing stocks, transparency and the disclosure of information by public companies, was issued in June 2006 and took effect on January 1st, 2007. Meanwhile, the paper also collects data about sales growth to measure

managerial overinvestment; therefore, financial reports in 2006 are very necessary. The total numbers of listed financial and non-financial companies on two securities trading center HNX and HOSE in 2006 are 87 and 106, respectively. Hence, the selected sample is highly representative.

Data for this paper are collected by reviewing annual reports which are available on <http://ezsearch.fpts.com.vn/>. The industry classification is provided on www.stockbiz.vn. They are leading websites providing financial information, market data, and investing tools for institutional and individual investors in Vietnam.

Table 2.1: Sample description by industry

Industry	Number of firms	Percent
Basic materials	12	7.95
Consumer goods	38	25.17
Consumer services	12	7.95
Health care	6	3.97
Industrials	54	35.76
Oil & Gas	1	0.66
Real estate	14	9.27
Technology	6	3.97
Utilities	8	5.30
Total	151	100.00

2.3.2 Empirical model

The impact of non-executive director ratio on firm risk and the moderating role of capital expenditure are tested by using the following regression model:

$$RISK_{it} = \beta_0 + \beta_1 NON_EX_{it} + \beta_2 FSIZE_{it} + \beta_3 PB_{it} + \beta_4 STDEBT_{it} + \beta_5 CAPEX_{it} + \beta_6 CASH_{it} + \beta_7 DIV_{it} + \beta_8 NON_EX_{it} * CAPEX_{it} + \varepsilon_{it} \quad (2.1)$$

Following Cheng (2008), Nakano & Nguyen (2012), and Wang (2012), the paper uses daily stock returns as a basis for calculating the annual firm risk. RISK1 (Total risk) equals the annualized standard deviation of daily stock returns. RISK2 (Idiosyncratic risk) equals the standard deviation of the residuals estimated from the model: $R_{i,t} = \alpha_i + \beta_i RM_t + \varepsilon_{i,t}$ (where, $R_{i,t}$ donates the daily stock returns; RM_t represents the daily market returns based on the VN-index; the $\varepsilon_{i,t}$ stands for the residuals).

While Florackis & Ozkan (2009) and De Andres & Vallelado (2008) calculate non-executive director ratio (NON_EX) as the number of non-executive directors divided by the total members in a one-tier board, this paper measure this variable by dividing the

number of non-executive directors by total supervisory board members because the board structure of companies listed on Vietnamese stock markets is separated into two tiers: supervising board and managing board. By applying this measure, this paper may evaluate the impact of the non-executive director ratio on firm risk more properly after controlling for the change of managing board members. In addition, non-executive directors are required to retain their seats for more than six months in a fiscal year to ensure that their involvement can have an impact on the performance.

Capital expenditure (CAPEX) is the change in fixed assets plus depreciation scaled by total assets at the beginning of the fiscal year. Huang & Wang (2015) use this ratio as a control variable to investigate the effect of board size on the variability of firm performance while Mak & Kusnadi (2005) consider it as a determinant of firm performance.

The regression models incorporate some control variables that previous studies suggest might affect firm risk. *Firm size (FSIZE)* is calculated as the natural logarithm of total assets. It is selected as a control variable because large firms have more advantages in attracting additional resources, and therefore "*larger businesses tend to have larger pools of financial and managerial resources that help overcome problems that threaten their survival*" (Mitchell, 1994). Malkiel & Xu (1997) also find a negative relation between idiosyncratic risk and firm size. *Price to book value (PB)* is the ratio of the market value of equity to the book value of equity. Fama and French (1992) suggest that PB may reflect the firm risk. *Debt maturity (STDEBT)*, measured as short-term debt divided by total debt, plays a significant role in reducing agency costs by increasing frequency of monitoring from lenders to managerial actions, and thus enhance information transparency (Ranjan & Winton, 1995; Datta et al., 2005). Based on the agency arguments, firms with more short-term debt are expected to be associated with a lower risk. *Cash ratio (CASH)* is calculated as the ratio of cash and equivalent cash to total assets. Tufano (1998) shows that firms can implement risk management programs by managing internal cash surpluses and shortages. *Dividend payment (DIV)* is the ratio of dividend payout to total assets (Jiraporn et al., 2011). Pastor & Veronesi (2003) and Bartram et al. (2012) indicate the negative association between dividend payment and corporate risk. Paying more dividends to reduce the cash in hand is usually considered as a mechanism to avoid overinvestment and consequently mitigate agency problems between managers and shareholders (Lewellen & Emery, 1981).

2.4 Empirical results

Table 2.2: Description statistics

	Obs	Mean	Std. Dev.	5th percentile	25th percentile	50th percentile	75th percentile	95th percentile
RISK1	1405	0.031	0.009	0.018	0.025	0.030	0.036	0.047
RISK2	1405	0.029	0.009	0.017	0.023	0.028	0.034	0.046
NON_EX	1510	0.631	0.178	0.333	0.571	0.600	0.800	0.857
FSIZE	1510	13.215	1.340	11.111	12.292	13.153	14.006	15.651
PB	1370	1.294	1.251	0.280	0.590	0.940	1.540	3.380
STDEBT	1510	0.829	0.222	0.313	0.730	0.935	0.992	1.000
CAPEX	1510	0.070	0.174	-0.055	0.005	0.030	0.093	0.304
CASH	1510	0.105	0.113	0.007	0.029	0.066	0.147	0.332
DIV	1510	0.033	0.044	0.000	0.001	0.021	0.044	0.116

Notes: The table presents descriptive statistics among the variables of this study, where RISK1 is total risk, RISK2 is idiosyncratic risk, NON_EX is the percentage of non-executive on the supervisory board, FSIZE is natural logarithm of total assets, PB is the market value to book value of equity, STDEBT is the ratio of short-term debt to total debt, CAPEX is the change in fixed assets plus depreciation scaled by total assets at the beginning of the fiscal year, CASH is calculated as cash and equivalent cash divided by total assets, DIV is the ratio of dividend payout to total assets.

Table 2.3: Correlation matrix

	RISK1	RISK2	NON_EX	FSIZE	PB	STDEBT	CAPEX	CASH
NON_EX	-0.057	-0.033						
FSIZE	-0.379	-0.449	0.122					
PB	0.041	0.028	0.010	0.054				
STDEBT	-0.006	0.053	-0.012	-0.326	0.032			
CAPEX	0.121	0.045	-0.028	0.036	0.117	-0.163		
CASH	-0.092	-0.078	0.066	-0.012	0.159	0.167	-0.012	
DIV	-0.199	-0.202	0.058	-0.084	0.282	0.176	-0.003	0.362

Note: Variables are defined the same as in Table 2.2

Descriptive statistics of the research variables are presented in Table 2.2. The average total risk (Idiosyncratic risk) of companies listed on Vietnamese stock markets is 3.1% (2.9%). The average proportion of non-executive directors is around 63.1%. It means that on average there are from 3 to 7 non-executive directors serving on a supervisory board because the total number of members on this board for listed companies must comprise 5 to 11 members (under article 30 of Circular 121/2012/TT-BTC). The mean capital expenditure ratio is 7%, which is not much different from the reported figure (4.8%) in the research by Huang & Wang (2015) for Chinese firms over the period 2003-2011.

Table 2.3 presents the correlation matrix among the variables. The correlations between NON_EX and RISK1/RISK2 are -0.057 and -0.033, respectively. They demonstrate the role of non-executive directors in controlling firm risk. Meanwhile, the

correlation with CAPEX is positive, which indicates that capital expenditures cause the volatility of stock returns. Because all the correlation coefficients are lower than 0.8, the model is not at risk of violating multicollinearity (*Gujarati, 2003*).

Table 2.4: Fixed effects regression results

	RISK1		RISK2	
NON_EX	0.00621*** (2.82)	0.00702*** (3.08)	0.00535*** (2.64)	0.00598*** (2.86)
FSIZE	-0.00274*** (-3.49)	-0.00269*** (-3.46)	-0.00339*** (-4.27)	-0.00335*** (-4.26)
PB	0.000396 (1.09)	0.000390 (1.09)	0.000407 (1.06)	0.000402 (1.06)
STDEBT	-0.00171 (-1.03)	-0.00130 (-0.77)	-0.00150 (-0.91)	-0.00118 (-0.71)
CAPEX	0.00209** (2.14)	0.00997** (2.39)	0.00157 (1.54)	0.00768* (1.95)
CASH	0.00396 (1.45)	0.00401 (1.47)	0.00462* (1.67)	0.00466* (1.68)
DIV	-0.0164** (-2.53)	-0.0167*** (-2.62)	-0.0203*** (-3.17)	-0.0205*** (-3.24)
NON_EX*CAPEX		-0.0116** (-2.08)		-0.00902* (-1.73)
Constant	0.0675*** (6.52)	0.0659*** (6.35)	0.0740*** (7.08)	0.0728*** (6.93)
Year fixed	Yes	Yes	Yes	Yes
Firm fixed	Yes	Yes	Yes	Yes
<i>Model fits:</i>				
Within R2	0.2366	0.2387	0.1263	0.1278
Between R2	0.2538	0.2482	0.3736	0.3698
Overall R2	0.2439	0.2429	0.2523	0.2511
F-statistics	17.19***	17.60***	7.47***	7.46***
Hausman test	0.0003	0.0002	0.0158	0.0097
Obs	1360	1360	1360	1360

Note: Variables are defined the same as in Table 2.2. Robust t-statistics adjusted for firm-level clustering are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 2.4 shows the results of the fixed effects estimations. After controlling for serial correlation and heteroskedasticity by using clustered standard errors, firm risk is generally higher when companies have more capital expenditures, as the coefficients on CAPEX fetch a positive sign and are statistically significant (except for the result in column 3). This finding is consistent with Kothari et al. (2002) and Amir & Livne (2007) that show the positive impact of capital expenditure on corporate risk. Table 2.4 also displays the positive coefficients on NON_EX, indicating that firm risk will increase as the proportion of non-executive directors increases. They are statistically significant at 1% level under

both risk measures, providing strong evidence to support the findings of Adams & Ferreira (2007) and Raheja (2005) that companies face high monitoring costs when they increase the number of non-executive directors on board. It is because non-executive directors do not engage in the day-to-day management of the organization. In addition, the appointment of non-executive directors in some listed companies is usually interfered with by majority shareholders who take control of the company, so the monitoring activities from non-executive directors to resolve disputes between owners and managers become less important.

Table 2.5: Effect of overinvestment on the relationship between NON_EX and RISK1

Dependent variable	OVERINV = 1		OVERINV = 0	
	(OVERINV1)	(OVERINV2)	(OVERINV1)	(OVERINV2)
RISK1				
NON_EX	0.00596* (1.72)	0.00776** (2.39)	0.00837*** (2.96)	0.0116*** (3.79)
FSIZE	-0.00382** (-2.48)	-0.00372*** (-3.15)	-0.00167* (-1.66)	-0.00118 (-0.79)
PB	-0.000491 (-1.01)	0.000377 (0.80)	0.000113 (0.20)	0.000358 (0.83)
STDEBT	-0.0000638 (-0.02)	0.000471 (0.17)	0.000111 (0.05)	-0.00383 (-1.53)
CAPEX	0.0195*** (2.81)	0.0145** (2.19)	-0.00178 (-0.19)	-0.00391 (-0.46)
CASH	0.00883** (2.20)	0.0101** (2.27)	-0.00115 (-0.37)	-0.00285 (-0.91)
DIV	-0.00216 (-0.23)	-0.0229** (-2.34)	-0.0174* (-1.75)	-0.0123 (-1.31)
NON_EX*CAPEX	-0.0228** (-2.26)	-0.0188** (-2.13)	0.00530 (0.38)	0.00330 (0.24)
Constant	0.0798*** (3.89)	0.0775*** (5.02)	0.0532*** (3.92)	0.0466** (2.30)
Year fixed	Yes	Yes	Yes	Yes
Firm fixed	Yes	Yes	Yes	Yes
<i>Model fits:</i>				
Within R2	0.2569	0.2766	0.1858	0.2213
Between R2	0.1726	0.1965	0.2540	0.0896
Overall R2	0.2203	0.2229	0.2123	0.1704
F-statistics	9.38***	10.52***	9.60***	7.25***
Obs	501	685	764	675

Note: Variables are defined the same as in Table 2.2. OVERINV1 and OVERINV2 are dummy variables used to divide the sample into overinvesting firms (OVERINV=1) and underinvesting firms (OVERINV=0). Robust t-statistics adjusted for firm-level clustering are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 2.6: Effect of overinvestment on the relationship between NON_EX and RISK2

Dependent variable RISK2	OVERINV = 1		OVERINV = 0	
	(OVERINV1)	(OVERINV2)	(OVERINV1)	(OVERINV2)
NON_EX	0.00449 (1.42)	0.00697** (2.30)	0.00760*** (2.90)	0.0103*** (3.53)
FSIZE	-0.00476*** (-3.23)	-0.00491*** (-4.34)	-0.00251** (-2.42)	-0.00130 (-0.88)
PB	-0.000626 (-1.13)	0.000395 (0.76)	-0.0000738 (-0.14)	0.000355 (0.75)
STDEBT	-0.000108 (-0.04)	-0.0000816 (-0.03)	0.000354 (0.17)	-0.00285 (-1.15)
CAPEX	0.0175*** (2.65)	0.0132** (2.19)	-0.00426 (-0.47)	-0.00442 (-0.47)
CASH	0.00857* (1.88)	0.0114** (2.43)	-0.000185 (-0.06)	-0.00273 (-0.86)
DIV	-0.00759 (-0.79)	-0.0275*** (-2.95)	-0.0200** (-2.05)	-0.0150 (-1.53)
NON_EX*CAPEX	-0.0198* (-1.98)	-0.0174** (-2.20)	0.00727 (0.53)	0.00295 (0.20)
Constant	0.0846*** (4.25)	0.0912*** (6.07)	0.0567*** (4.12)	0.0459** (2.32)
Year fixed	Yes	Yes	Yes	Yes
Firm fixed	Yes	Yes	Yes	Yes
<i>Model fits:</i>				
Within R2	0.1088	0.1821	0.0742	0.1191
Between R2	0.2428	0.2982	0.3649	0.1247
Overall R2	0.2124	0.2412	0.2510	0.1443
F-statistics	3.27***	5.50***	3.38***	3.32***
Obs	501	685	764	675

Note: Variables are defined the same as in Table 2.2. OVERINV1 and OVERINV2 are dummy variables used to divide the sample into overinvesting firms (OVERINV=1) and underinvesting firms (OVERINV=0). Robust t-statistics adjusted for firm-level clustering are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

However, the risk management role of non-executive directors is not completely denied because the estimated coefficients on the interaction terms between NON_EX and CAPEX turn out to be significantly negative at 5% level and 10% level. They demonstrate the moderating role of capital expenditures in the relationship between non-executive directors and firm risk. More remarkably, the absolute values of these coefficients are greater than those of NON_EX and CAPEX. All suggest that a higher proportion of non-executive directors tends to weaken the volatility of stock returns in case that companies increase investment. In other words, maintaining a high proportion of non-executive directors in firms with more capital expenditures are likely to be effective in reducing firm risk. Hausman tests are also reported in Table 2.4. They indicate that the fixed-effects models are preferred to the random-effects models.

To investigate the final hypothesis in more detail, the original sample is divided into two groups: firms with overinvestment and firms with underinvestment. In this paper, two measures of overinvestment are conducted as follows:

Measure 1: According to Biddle et al. (2009) and Gomariz & Ballesta (2014), overinvestment is measured based on the deviation from the regression model:

$$\text{CAPEX}_{it} = \beta_0 + \beta_1 \text{SALE_GRT}_{it-1} + \varepsilon_{it} \quad (2.2)$$

CAPEX_{it} is the capital expenditure of company i for year t , and SALE_GRT_{it-1} is the growth rate of sales during the last year. The paper conducts Eq. (2.2) regression cross-sectionally for each industry-year and define the first variable overinvestment (OVERINV1) as a dummy variable that takes on the value of 1 if the residual is positive, and 0 otherwise.

Measure 2: The second overinvestment (OVERINV2) is also a dummy, which takes on the value of 1 if the capital expenditure ratio in a company is more than the median industry-year adjusted capital expenditure ratio, and 0 otherwise. This measure follows the approach developed by Bates (2005), which determines whether firms overinvest by comparing the capital expenditure ratios of each firm operating in a given industry in a given year with the median ratio of all firms operating in the same industry during that year.

The estimates presented in Table 2.5 and 2.6 show that increasing board independence in firms with overinvestment help to control firm risk. For firms with underinvestment ($\text{OVERINV} = 0$), the non-executive director ratio is strongly and positively associated with firm risk at the significance level of 1% under two risk measures. On the other hand, the coefficients on NON_EX are still positive but weakly significant for firms with overinvestment. Moreover, the coefficients on NON_EX have smaller absolute values for firms with overinvestment. One possible explanation is that companies seem to pay more attention to the role of non-executive directors as they have more capital expenditures. Regarding the interaction term, its coefficients are only negatively significant when OVERINV variables take on the value of 1. Furthermore, the absolute values of these coefficients are greater than those of NON_EX and CAPEX . As expected, these results are in line with the third hypothesis.

All the above results support that excessive capital spending in some firms poses risks to non-controlling shareholders who tend to demand increased supervision from non-executive directors to minimize losses for themselves. In addition, increasing the presence of non-executive directors can also be explained under the resource dependence theory

that outside directors serve to coordinate organizational action, and provide external links to reduce risk (Hillman & Dalziel, 2003), especially for firms with many investment activities. In contrast, the increase in the proportion of non-executive directors in case of underinvestment only makes the costs outweigh the benefits of monitoring, resulting in increased risk.

Table 2.7: Dynamic GMM regression results

	RISK = RISK1		RISK = RISK2	
RISK _{t-1}	0.252*** (3.89)	0.241*** (3.89)	0.232*** (4.12)	0.219*** (4.04)
NON_EX	0.00566* (1.79)	0.00916** (2.46)	0.00669** (2.06)	0.00952*** (2.75)
FSIZE	-0.00271*** (-3.94)	-0.00261*** (-3.79)	-0.00281*** (-3.76)	-0.00263*** (-3.47)
PB	0.000305 (0.25)	-0.000234 (-0.17)	0.000483 (0.44)	-0.000108 (-0.09)
STDEBT	-0.00964*** (-2.67)	-0.00996*** (-3.06)	-0.00820** (-2.13)	-0.00893** (-2.54)
CAPEX	0.00679** (2.33)	0.0320** (2.04)	0.00548* (1.85)	0.0328** (2.33)
CASH	-0.00676 (-1.05)	-0.00580 (-0.87)	-0.00842 (-1.17)	-0.00835 (-1.33)
DIV	-0.0425** (-2.46)	-0.0481*** (-2.78)	-0.0424** (-2.47)	-0.0444*** (-2.71)
NON_EX*CAPEX		-0.0401* (-1.67)		-0.0443* (-1.95)
Constant			0.0595*** (5.02)	
Year Dummies	Yes	Yes	Yes	Yes
Observations	1219	1219	1219	1219
Wald X2-statistics	648.49***	641.62***	7.62***	457.62***
AR(1)	0.000	0.000	0.000	0.000
AR(2)	0.258	0.200	0.269	0.196
Hansen Test	0.162	0.174	0.182	0.226
No of instruments	127	127	127	127

Note: This table reports the two-step GMM system estimators with robust adjustment for a small sample. Variables are defined the same as in Table 2.2. AR(1) and AR(2) are tests for first-order and second-order serial correlation in the first-differenced residuals under the null of no serial correlation. Hansen test of over-identification is under the null that all instruments are valid. The instruments are the lags of the explanatory variables, and year dummies are treated as strictly exogenous variables. Statistically significant at 1% (***), 5%(**), and 10%(*), respectively.

Although the fixed effects method is quite common for panel data, the estimated results may be inconsistent in case of potential endogenous problems. To prevent the bias in coefficient estimates in Table 2.4, the paper re-estimates the models by dynamic generalized method of moments (GMM) panel estimation technique proposed by

Blundell & Bond (1998) and Roodman (2009). It allows treating all the explanatory variables as endogenous variables (*Roodman, 2009*). Using a list of proper instrumental variables, the application of dynamic GMM helps to solve the endogenous problems which arise from simultaneity and unobservable heterogeneity. Besides, dynamic GMM is preferred to eliminate the bias from ignoring dynamic endogeneity. Following Wintoki et al. (2012), the estimated coefficients may still be biased if the current explanatory variables are not completely independent of the lagged dependent variable. Because it is difficult to identify exogenous instruments, dynamic endogeneity is usually ignored in many previous studies.

By using the same instrument variables for all GMM models on the purpose of comparison, the interpretation of the significant coefficients on NON_EX and interaction term in Table 2.7 remains the same as in Table 2.4. Regarding the moderating effect of capital expenditure, the coefficients on the interaction term remain negatively significant for all the columns, reinforcing the results in Table 2.4. Moreover, the robustness of the model estimators is confirmed by the specification tests for system GMM. As expected, the Hansen test indicates that the instruments used in the GMM estimations are not correlated with the error terms. Although there is evidence for negative first-order serial correlation, second-order serial correlation is absent. Wintoki et al. (2012) argue that serial correlation might exist in the first differences AR(1), but there should be no serial correlation in the second differences AR(2). All further support the conclusion that the instruments are used reasonably and the above GMM model is consistent.

2.5 Conclusion

After controlling for the problem of heteroskedasticity, autocorrelation, and potential endogeneity by applying fixed effects with clustered robust standard errors and dynamic GMM for a sample of 151 companies listed on Vietnamese stock markets in the period 2007-2016, this paper shows the positive impact of non-executive director ratio on firm risk. It demonstrates that the inclusion of more non-executive directors does not benefit the monitoring function. However, the risk management role of non-executive directors is improved in the case of overinvestment. This finding is achieved by investigating the moderating role of capital expenditure as well as the difference in the impact of non-executive director ratio on firm risk in case of overinvestment and underinvestment. It suggests that the presence of non-executive directors in firms with more capital expenditures are likely to mitigate the volatility of stock returns. In other words, firms

with high capital expenditures tend to urge non-executive directors to increase supervision as well as to provide more links to external resources for minimizing risks.

From an application standpoint, the results should recommend that the listed firms take stock return volatility into consideration before they intend to nominate and appoint non-executive directors into their board, especially in overinvesting firms. From another perspective, adjusting board independence can play a significant role in pursuing a stable or risky business strategy.

By using alternative measures of overinvestment and firm risk, the findings are robust enough to highlight the importance of adjusting an appropriate proportion of non-executive directors in managing risks in Vietnam boardrooms, especially from a capital expenditure perspective. It also helps Vietnamese lawmakers understand more corporate governance practices thoroughly and then improve current legislation.

CHAPTER 3: (PAPER 2) THE CHANGE IN BOARD INDEPENDENCE IN THE PRESENCE OF FIRM RISK AND REGULATION

3.1. Introduction

Corporate governance has received the attention of researchers over the past several decades, especially as the financial problems of companies appear due to the lack of monitoring. Severe shortcomings related to board independence, risk management, executive remuneration in corporate governance code and principles led to the collapse of many financial institutions and then triggering the crisis (*OECD, 2009*). For instance, the Asian crisis of 1997-1998 and the global financial crisis of 2007–2009 came from weakness in corporate governance mechanisms (*Cheah & Lee, 2009; Akbar et al., 2017*), partially due to the unclear *separation of control and management*. It is the motivation to promote the development of a suitable independent board to prevent such scandals in the future. While a large number of research papers have focused on the effect of board independence on firm risk, the opposite perspective has received relatively little attention. Therefore, two primary factors motivate the research question:

Firstly, so far, there has been debate over the effects of firm risk on board independence. According to many previous studies supported by the agency theory, the presence of non-executive directors can reduce risks for companies. Based on this argument, the organizational portfolio theory introduced by Donaldson (2000) suggests that in the case of high-risk periods, companies have many incentives to increase the number of non-executive directors on boards to prevent an unexpected low performance. High-risk companies often encounter agency conflicts and therefore need more board monitoring (*Bathala & Rao, 1995*). In contrast, Prendergast (2000) argues that in uncertain environments, increased monitoring is not appropriate because of the high information cost. It means that companies with high stock return volatility often face the problem of information asymmetry, so it is costly to transfer specific information to outsiders (*Raheja, 2005*). Thus, it is difficult to make a reasonable assessment of the impacts of firm risk on a non-executive ratio.

Besides, compared with developed economies, the monitoring role of non-executive directors in Vietnamese listed companies as well as in other Southeast Asian companies may be different in terms of market characteristics, economic instability, the strength of institutions, government regulations, and so forth. For instance, non-executive directors in these countries are usually appointed by majority shareholders who have a strong tie

with the management team. They are often perceived as a “rubber stamp” and are appointed for reasons other than monitoring (*Haniffa & Cooke, 2002*). For this reason, the results of the studies on corporate governance from developed markets might not be appropriate in developing markets. It is a great motivation for this paper to investigate whether firm risk drives demand for non-executive directors in Vietnamese companies.

Secondly, maintaining an independent board has become a major regulatory trend in corporate governance and forced many firms to change their board structure to comply, especially for high-risk firms. Governments have had significant interests in corporate governance to prevent the collapse of financial markets from a lack of transparency and disclosure in companies. For instance, in America, the Sarbanes-Oxley Act (2002) and the Dodd-Frank Act (2010) forced companies to appoint more independent directors and disclose more information about compensation. The Malaysian Code on Corporate Governance formed promptly after the 1997-1998 Asian Crisis imposed the requirement on the appointment of more non-executive directors. In Vietnam, the Circular 121/2012/TT-BTC dated July 26, 2012, provided further regulations on corporate governance applicable to public companies. This is the first legal document to define the concept of non-executive directors in Vietnam. Therefore, this paper would like to investigate whether high-risk companies increase their board independence under the pressure of this regulation. In other words, whether has the enactment of this regulation helped high-risk firms to become better aware of the *monitoring role of non-executive directors*?

With a sample of 151 companies listed on the Vietnamese stock markets from 2007 to 2016, the primary purpose of this paper is to estimate the impact of firm risk on the proportion of non-executive directors. This relationship is further explored in the presence of regulation. The research results have two significant contributions. Firstly, it demonstrates the U-shaped nonlinear impact of firm risk on the non-executive director ratio. Listed companies in Vietnamese stock markets tend to decrease the proportion of non-executive directors when their risk increases or, in other words, the correlation, in this case, is negative because of the high cost of monitoring. However, the relationship becomes positive when firm risk is beyond a certain critical level because the companies would like to prevent unexpected low performance caused by too high risk. Secondly, the paper finds out that the Circular 121/2012/TT-BTC has had an impact on motivating companies to increase the percentage of non-executive directors, especially for high-risk firms.

The following section discusses the literature and develops hypotheses. The data and methodology are explained in Section 4.3. Section 4.4 presents the results of the empirical analysis. Section 4.5 concludes the research.

3.2 Literature review and research hypotheses

3.2.1 The risk management role of non-executive directors

A board of directors is described by agency theorists as the "internal control" (Fernández & Arrondo, 2005) to solve the conflicts between owners and managers in organizations (Hennessey, 2008; Fama & Jensen, 1983). The monitoring function of a board relates to selecting senior executives (especially the chief executive officer – CEO), evaluating and rewarding their performance, protecting shareholders' interests (Brickley & James, 1987). While the supervising activeness of a board is assessed by the frequency of official meetings each year (Jackling and Johl, 2009; Azim, 2012), any changes in board composition, such as gender (Hillman et al., 2007; Gul et al., 2011) or board independence (Brick et al., 2012; Chen et al., 2016; Tong & Zhang, 2014), can also affect the board monitoring performance. Indeed, many studies have typically considered the number of non-executive directors on board as one of the essential risk-control mechanisms. Nevertheless, there have still been two competing views on the effect of non-executive directors' presence on risk management.

To support the presence of non-executive directors on boards, agency theory and resource dependence theory complement each other. Firstly, Jensen & Meckling (1976) and Florackis (2008) suggest that agency conflicts can be controlled and minimized by increasing the number of non-executive directors on board. The presence of non-executive directors is expected to be effective in monitoring as they are independent of management (Luan & Tang, 2007). Even firms with boards dominated by outside directors are more likely to fire poorly performing CEOs (Brick et al., 2012; Weisbach, 1988). Under the reputation hypothesis, non-executive directors would support investments in less risky projects or pursue the risk-reducing strategies of corporate diversification (Tong & Zhang, 2014) which will help firms avoid losses and thus protect the image of their firms (Pathan, 2009) as well as protect their own reputation in the labor market (Carcello et al., 2002). Secondly, increasing the presence of non-executive directors can also be explained under resource dependence theory that they can serve to coordinate organizational action, and provide external links to reduce risk (Singh, 2007). An empirical study by Rosenstein & Wyatt (1990) proves that the appointment of outside

directors leads to significantly positive excess returns. Uzun et al. (2004) also find that the incidence of corporate fraud decreases as the number of outside directors on board increases.

In contrast, non-executive directors may not be aware of all the risks that are being taken by executives. It is because non-executive directors typically do not engage in the day-to-day management of the organization. Additionally, non-executive directors do not have enough specific knowledge and experience regarding processes such as sector analysis, internal benchmarks, guidelines, and so forth, while executive directors are an essential source of firm-specific information for the board (Raheja, 2005).

Besides, the concentrated ownership and weak legal protection in Asian countries partly weaken the role of non-executive directors. In Vietnam, a listed company may be controlled by a single shareholder or a group of shareholders who own a large proportion of shares. They are well informed about the operation of the company and able to closely oversee the management. There is too much overlap between management and directors. As a result, non-executive directors can hardly perform their duties adequately because they are usually proposed by majority shareholders, so they gradually play the role of advisors other than supervisors.

3.2.2 The impacts of firm risk on non-executive director ratio

Based on the above arguments about the risk management role of non-executive directors, firm risk is likely to have two different impacts on the number of non-executive director positions on a board.

High-risk companies will have more incentives to increase the number of non-executive directors. Donaldson (2000) develop organizational portfolio theory to support this viewpoint. High risk is derived not only from internal factors (undiversification, undivisionalization, high leverage, and so on) but also from external factors (financial market downturn, business cycle change, and increasing competitors) that make a company's performance drop below the expected level. As a result, the board members are criticized for failing to protect the shareholders, and corporate governance becomes a severe problem. With a low and unacceptable performance, a typical board is independent of management: It means that the companies will tend to increase the number of non-executive directors or replace executives with non-executive directors (Hermalin & Weisbach, 1988). This is consistent with the argument of Pearce & Zahra (1992) that as firms compete in an uncertain environment, the representation of outside directors

increases. Graham & Narasimhan (2004) also find out that companies with boards dominated by insiders are less likely to survive the depression. Because non-executive directors usually have different skills and backgrounds that help a company to pursue opportunities in a new market or industry, so they can play a linking role that connects a company to external resources (Chen et al., 2016). Bathala & Rao (1995) also state that high-risk companies often encounter agency conflicts and therefore need more board monitoring. This point of view is supported by Birnbaum (1984), who reported that the lack of information and volatility might cause increased board size and outsiders' representation.

However, the negative impact of risk firm on the non-executive ratio is taken into more consideration. Prendergast (2000) states that monitoring is less desirable in uncertain environments because of information costs. Fama & Jensen (1983) also note that firms with high stock return volatility are more likely to have specific information unknown to outsiders. Consequently, firms with higher information asymmetry can have higher verification costs (Raheja, 2005). When verification costs are high, there are fewer incentives for the separation between management and ownership. As Maug (1997) shows, it is not optimal for firms with high information asymmetry to invite monitoring from independent directors because it is costly for firms to transfer firm-specific information to outsiders. In line with this viewpoint, Kim et al. (2014) also state that outside directors face higher costs to accumulate knowledge about the firm while inside directors may be better monitors thanks to the superior amount and quality of information they have about the operations of the firm. Consequently, Adams & Ferreira (2007) and Raheja (2005) generally suggest that the number of outsiders decreases in the cost of monitoring.

Even so, the two above impacts are not entirely contrary to each other because Demsetz & Lehn (1985) and Linck et al. (2008) state that the optimal level of monitoring is determined by the tradeoff between the costs and benefits of monitoring. Therefore, companies are motivated to increase the percentage of non-executive directors when firm risk is too low or too high. In case that risk is too low, companies may increase their non-executive director ratio because of the low cost of information. On the contrary, companies that have too high risk may need more monitoring to ensure that their performance is not below the expectation level in the future. Hence, this research also expects a nonlinear relationship between firm risk and non-executive director ratio.

H1: Firm risk has a nonlinear impact on the proportion of non-executive directors

3.2.3 The moderating effect of regulation

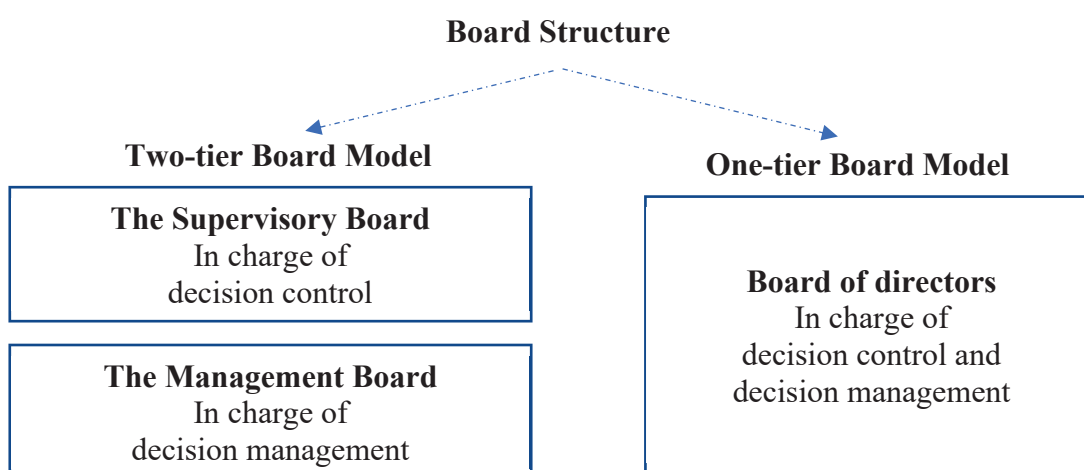
Regulations might be considered as an additional external force to board independence (Hermalin & Weisbach, 2006; Romano, 2005). Shifts in the regulations motivate significant changes in board composition and leadership structure (Hillman, Cannella & Paetzold, 2000). Agrawal & Knoeber (1996) state that outsiders are sometimes added to boards for political reasons. Linck et al. (2006) document the additional monitoring costs imposed upon firms as a result of new regulations. For instance, in the United States, the Sarbanes-Oxley Act (2002) and the Dodd-Frank act (2010) forced companies to appoint more independent directors and disclose more information about compensation. In the context of the United Kingdom, the codes of best practice adopted, beginning with the Cadbury Report in 1992, provide a set of recommendations for the board's composition and responsibilities. The Cadbury Report (1992) required that at least three non-executives be on board; the Hampel Report (1998) also required that at least one-third of the board be non-executives, and the Higgs Report (2003) required at least 50%. Consequently, the London Stock Exchange witnessed a steady increase in the number of outside directors and their average shareholding ratio.

Moreover, regulations create pressures to force high-risk firms to alter their behavior to comply and to avoid potential costly stockholder litigation (Trueman, 1997). The research by Boyd (1995) shows that uncertainty, level of competition, and regulation affect board size, outsider ratio, and interlocks. Specifically, the Malaysian Code on Corporate Governance formed promptly after 1997-1998 Asian Crisis and the revised Malaysian Code on Corporate Governance (2007) required that non-executive directors should represent one-third of total board members (Cheah & Lee, 2009), which imposed the requirement on the appointment of more non-executive directors. As a result, Shakir (2012) found that the board composition was made up about 63.4% of non-executive directors by using 81 property sector companies listed on the Kuala Lumpur Stock Exchange (KLSE) for the period 1999 to 2005. Brick & Chidambaran (2008) also conclude that regulations have two effects on the level of board monitoring. First, the level of board independence will increase in response to the regulations. Second, the increase in the non-executive ratio is likely to be higher in high-risk firms.

3.2.4 Regulations about non-executive directors in Vietnam.

International practices distinguish different categories of directors according to levels of responsibility, segregation of control and policy development, and often divide them into three categories: executive, non-executive, and independent directors. In Vietnam, there was no clear distinction for three categories of directors in the law on enterprises before 2012. They were only mentioned very ambiguously in Decision 15 of the Ministry of Finance dated March 19, 2007, on the model charter applicable to listed companies on the stock exchange and in Decision 12 of the Ministry of Finance dated March 13, 2007 providing regulations on corporate governance applicable to listed companies. Both of them only classified directors into two categories: (i) executive directors, and (ii) non-executive and independent directors but provided no specific definition of the term “non-executive and independent directors”.

Figure 3.1: One-tier and two-tier board structure



Source: Maassen, G. F. (1999).

Until 2012, the Circular 121/2012/TT-BTC issued on July 26, 2012, provided further regulations on corporate governance applicable to public companies, in which the concepts of “non-executive directors” and “independent directors” were presented quite clearly. A non-executive director must be a member of the supervisory board and not be a general manager, deputy general manager, chief accountant, or any other managers appointed by the supervisory board. It is noted that the board structure for Vietnamese listed companies is categorized as two tiers including a management board (the lower tier) which is responsible for firms’ operation and a separate supervisory board (the upper tier) which assumes supervisory functions as to the management and operation of the company (Belot et al., 2014). In a two-tier board system, the supervisory board is led by

a chairman while the top leader of the executive management board is a CEO. Such a dual board structure is popular in Germanic countries of continental Europe, such as Germany and the Netherland while The United States and the United Kingdom provide examples of unitary board structure which gathers both managing board and supervisory board in one group (Douma, 1997).

Basically, the Circular 121/2012/TT-BTC has promoted the change in the supervisory board structure of listed firms to create credibility for the market (Nguyen & Phan, 2016). This regulation required that the number of supervisory board members shall be from three to eleven, and at least one third (1/3) of the supervisory board must be the non-executive director for listed companies. It caused a challenge to some publicly listed firms which had not met the minimum requirement of the non-executive director ratio (Vu et al., 2017). Furthermore, clearly defining the position and responsibility of the non-executive director in this regulation made an essential contribution to ensuring corporate accountability and protecting the legitimate interests of shareholders and investors (Roberts et al., 2005; Daily, Dalton & Cannella, 2003). As a result, the non-executive ratio becomes one of the criteria for investors to monitor and evaluate the supervisory board 's transparency and reliability (Chang et al., 2006). Hence, companies tend to increase this ratio properly to bring confidence to investors, lenders, and shareholders, especially for high-risk companies.

H2: Regulation plays as a moderating factor in the relationship between firm risk and the percentage of non-executive directors

3.3 Data, variables, and methodology

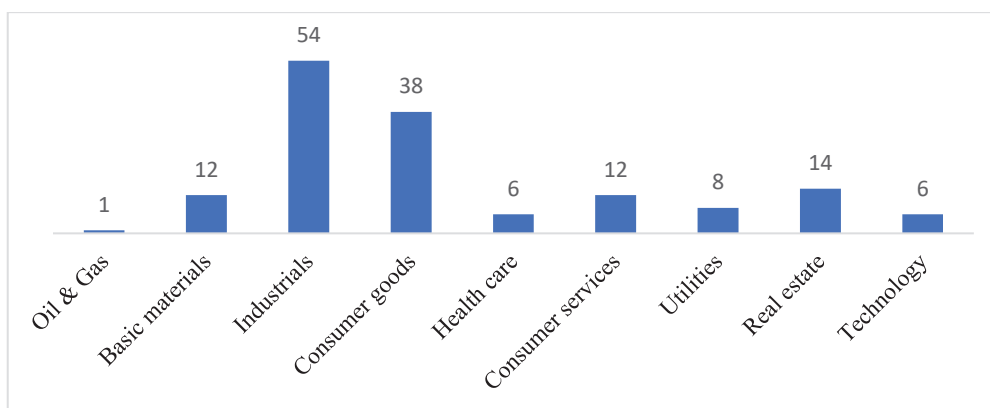
3.3.1 Research data

Data for this paper are collected by reviewing annual reports of 151 non-financial companies listed on Vietnamese stock markets from 2007-2016. The year 2007 is chosen as the starting year because Vietnamese Securities Law, which prescribes additional rules for listing stocks, transparency and the disclosure of information by public companies, was issued in June 2006 and took effect on January 1, 2007. However, this paper also needs to know the change in the supervisory boards between the current year and the previous year; therefore, financial reports in 2006 are essential. They are available on the official websites of the two Vietnamese stock exchanges, HOSE (Ho Chi Minh City Stock Exchange) and HNX (Hanoi Stock Exchange). The total numbers of listed financial and

nonfinancial companies on two securities trading center HNX and HOSE in 2006 are 87 and 106, respectively. Hence, the selected sample is highly representative.

Following the ICB Industry Classification Benchmark, these companies are from nine of the ten industry groups except the telecommunication industry. The financial companies such as banks, insurance, and financial services are excluded from the sample because they act as market makers, and more specifically, the board structure of these companies must comply with some regulations from the state bank. As shown in Figure 3.2, industrials and consumer goods account for significant proportions in the sample.

Figure 3.2. Industry distribution



Source: Research data

3.3.2 Measurement of variables

Dependent variable

Because listed firms in Vietnamese stock markets apply a two-tier board system, the proportion of non-executive directors (NON_EX) in this research is measured as the number of non-executive directors to total supervisory board members ratio. The calculation helps to evaluate the change in the percentage of non-executive directors more appropriately in the absence of management board members. It is different from the non-executive director measure used in most of the previous papers such as Florackis & Ozkan (2009), De Andres & Vallelado (2008) which concentrate on investigating one-tier boards (the number of non-executive directors is therein divided by the total members in a one-tier board).

In addition, non-executive directors in the sample need to retain their seats for more than six months in a fiscal year to ensure that their involvement can have an impact on the performance. This approach helps to determine more exactly whether firm risk drives companies to change their supervisory board structures.

Independent variables

To investigate the impacts of firm risk on the non-executive ratio, the research uses two proxies for risk measurement. Firstly, RISK1 equals the standard deviation of daily stock return for two years preceding the end of the fiscal year. Secondly, RISK2 equals the standard deviation of the residuals from the model: $R_{it} = \alpha_i + \beta_i RM_t + \varepsilon_{it}$ for two years preceding the end of the fiscal year (where, R_{it} donates the daily stock return; RM_t represents the daily market return based on the VN-index; the ε_{it} stands for the residuals). The two risk measures are used much in the previous studies related to the link between governance structure and firm risk (Cheng, 2008; Nakano & Nguyen, 2012; Wang, 2012; Brick & Chidambaran, 2008).

The squared value of firm risk (RISK_SQ) is used to capture the nonlinear effect of firm risk on the proportion of non-executive directors. RISK_REG is an interaction variable between firm risk and regulation (RISK*REG). REG is a dummy variable for the Circular 121/2012/TT-BTC (REG equals 1 for the post-2012 period, and 0 otherwise).

Control variables

The research uses several control variables, including board size (BSIZE), firm size (FSIZE), debt maturity (STDEBT), dividend payout ratio (DIV), and replacement director ratio (REPLACE).

BSIZE and FSIZE are the natural logarithm of the total number of supervisory board members and total assets, respectively. Denis & Sarin (1999) and Weisbach (1988) also suggest that board composition may be related to board size and firm size.

STDEBT is current liabilities over the sum of current liabilities and long-term debt (Demirguc-Kunt & Maksimovic, 1999). It serves as short-term debt is a “powerful tool to monitor managers” (Stulz, 2000) and facilitates creditors to monitor managers with minimum efforts (Rajan & Winton, 1995). Burkart et al. (2003) argue that short-term debt can be used as a mechanism to mitigate any potential agency conflicts in weak investor protection countries. On the other hand, monitoring by debtholders could substitute for board monitoring, which would imply a negative coefficient.

DIV is the ratio of dividend payments to total assets. Easterbrook (1984) proposes that dividend reduces the agency cost of free cash flow and minimize suboptimal managerial behavior. Dividend payout is considered as an outcome of strong corporate governance in emerging markets (Mitton, 2004). Therefore, companies that have a history

of high dividend payments are less likely to require more control from non-executive directors.

REPLACE is calculated as the number of replacement directors (the new directors replace another board members) to the total number of board members. It is noted that an additional appointment to expand board size is not considered as a replacement in this paper because an increase in the number of directors through additional appointments is captured by BSIZE variable. Following Rosenstein & Wyatt (1990) that replacement announcements are “noisier” than board expansion announcements, using REPLACE variable is necessary to investigate the impact of board structure reform on the non-executive ratio. According to Baysinger & Butler (1985), corporate board reform efforts generally result in the growth of outside directors’ representation to solve an agency problem between shareholders and managers.

3.3.3 Method of testing research hypotheses

Following Brick & Chidambaran (2008), this paper includes both RISK_SQ and RISK_REG into the model to test these two above hypotheses simultaneously. Additionally, all right-side control variables are used with a one-year lag to establish the direction of causality (Brammer & Pavelin, 2008). Analytically, the regression model with nonlinear and moderating effects on board independence is shown by equation (3.1). An F-test of joint significance for all independent variables is also significant.

$$\text{NON_EX}_{it} = \beta_0 + \beta_1 \text{RISK}_{it} + \beta_2 \text{RISK_SQ}_{it} + \beta_3 \text{REG}_{it} + \beta_4 \text{RISK_REG}_{it} + \beta_5 \text{REPLACE}_{it-1} + \beta_6 \text{BSIZE}_{it-1} + \beta_7 \text{FSIZE}_{it-1} + \beta_8 \text{STDEBT}_{it-1} + \beta_9 \text{DIV}_{it-1} + \varepsilon_{it} \quad (3.1)$$

Although the common econometric methodologies employed for panel data are fixed effects (FE) and random effects (RE) with firm-level clustered standard errors, fixed and random effect estimators may be biased and inconsistent in case of potential endogenous problems. Most empirical corporate finance researchers acknowledge that there are three types of endogeneity: unobservable heterogeneity, simultaneity, and dynamic endogeneity.

Firstly, simultaneity might exist in the relationship between non-executive director ratio and firm risk. As mentioned above, high return volatility in a period may lead to a change in the non-executive ratio in that period while the reverse can also be accepted – the non-executive ratio has an impact on firm risk. In this case, the non-executive ratio and firm risk are simultaneously determined.

The second endogeneity – unobservable heterogeneity - stems from omitted variables that can affect both the proportion of non-executive directors and the explanatory variables such as the managerial ability. Hermalin & Weisbach (1998) suggest that firms with many high-ability managers require fewer outsider directors because those managers can have enough skills and knowledge to control risks better.

Finally, dynamic endogeneity is usually ignored due to the difficulty in identifying exogenous instruments. This endogeneity arises from the possibility that the current firm risk and some explanatory variables are affected by the past non-executive ratio. Although unobservable heterogeneity can be eliminated by the application of fixed effects models, the reported coefficient estimates may still be biased if the current values of explanatory variables are not entirely independent of the lagged dependent variable (Wintoki et al., 2012).

Consequently, this paper will re-estimate the impacts of firm risk on board independence in a dynamic framework. It means that the lags of the dependent variable are included to capture the dynamic effect of past board independence (Nguyen et al., 2014). Following Akbar et al. (2017) and Wintoki et al. (2012), the study estimates an OLS regression of NON_EX_{it} on NON_EX_{it-1}, NON_EX_{it-2}, NON_EX_{it-3}, controlling for other firm characteristics, to determine how many lags should be included. The study finds no effect of NON_EX_{it-2} on NON_EX_{it}, which means including the one-year lagged dependent variable to be enough to capture the past effect of board independence. Zhou et al. (2014) also suggest that a first-order autoregressive structure is more commonly used in empirical corporate finance studies due to the limited length of the time dimension in panel data. Therefore, the model is rewritten as follows:

$$\begin{aligned} \text{NON_EX}_{it} = & \beta_0 + \beta_1 \text{NON_EX}_{it-1} + \beta_2 \text{RISK}_{it} + \beta_3 \text{RISK_SQ}_{it} + \beta_4 \text{REG}_{it} + \\ & \beta_5 \text{RISK_REG}_{it} + \beta_6 \text{REPLACE}_{it-1} + \beta_7 \text{BSIZE}_{it-1} + \beta_8 \text{FSIZE}_{it-1} + \beta_9 \text{STDEBT}_{it-1} \\ & + \beta_{10} \text{DIV}_{it-1} + \varepsilon_{it} \quad (3.2) \end{aligned}$$

The model is estimated by the system GMM estimator proposed by Blundell and Bond (1998) and Roodman (2009). This method relies on the lags of dependent and explanatory variables which are used as instruments. Using a list of proper instrumental variables, the application of dynamic GMM also helps to remove heteroskedasticity, multicollinearity and serial autocorrelation problem in the model (Ruhashyankiko & Yehoue, 2006).

3.4. Results and discussion

3.4.1 Description statistics and correlation matrix

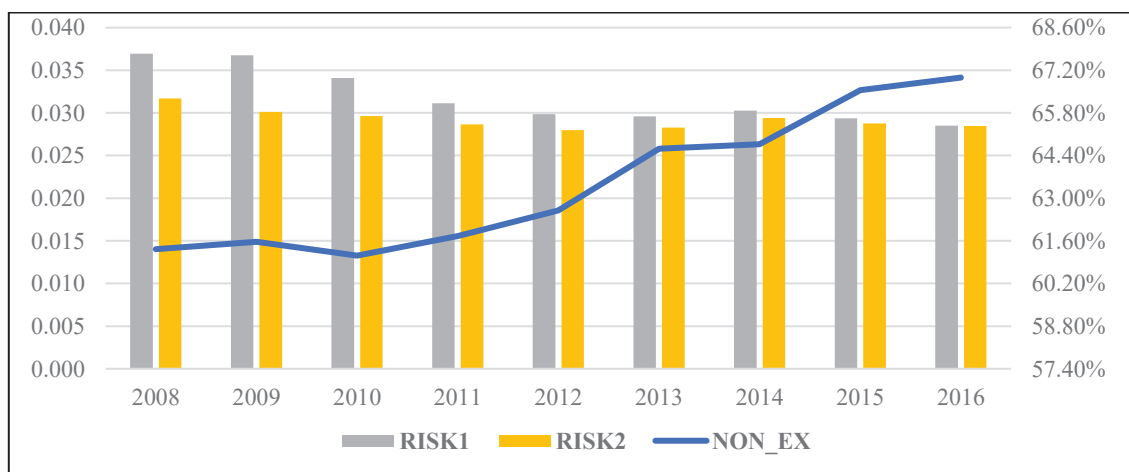
Descriptive statistics of the research variables are presented in Table 3.1. The average total risk (idiosyncratic risk) in Vietnamese companies is 0.032 (0.029). The average proportion of non-executive directors is around 63.1%. From 2008 to 2012, the non-executive director ratio was maintained at around 61.6% with relatively slow growth while the average level of firm risk is quite high. During the later period of the research, Figure 3.3 shows that there is an apparent increase in the proportion of non-executive directors (from below 63% to 67%), and firm risk remains slightly lower. The diagram creates an expectation of a negative correlation between these two variables.

Table 3.1: Description statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
RISK1	1306	0.032	0.008	0.003	0.074
RISK2	1306	0.029	0.008	0.012	0.074
NON_EX	1510	0.631	0.178	0.143	1.000
REPLACE	1510	0.116	0.186	0.000	1.000
BSIZE	1510	1.706	0.191	1.099	2.565
FSIZE	1510	13.215	1.340	9.734	17.319
STDEBT	1510	0.829	0.222	0.074	1.000
DIV	1510	0.033	0.044	0.000	0.359

Notes: The table presents descriptive statistics among the variables of this study, where RISK1 is total risk, RISK2 is idiosyncratic risk, NON_EX is non-executive director ratio, REPLACE is replacement director ratio, BSIZE is board size, FSIZE is firm size, STDEBT is short-term debt maturity, DIV is dividend payout ratio.

Figure 3.3: The mean of firm risk and non-executive director ratio by year from 2008 to 2016



Source: Research data

Table 3.2: Correlation matrix

	NON_EX	RISK1	RISK1_SQ	RISK1_REG	REPLACE	BSIZE	FSIZE	STDEBT
RISK1	-0.073							
RISK1_SQ	-0.061	0.981						
RISK1_REG	0.114	-0.006	0.011					
REPLACE	0.152	-0.012	-0.008	0.094				
BSIZE	0.174	-0.172	-0.165	-0.053	-0.133			
FSIZE	0.119	-0.383	-0.364	0.016	0.000	0.317		
STDEBT	-0.010	-0.019	-0.015	-0.009	-0.002	-0.141	-0.330	
DIV	0.049	-0.176	-0.147	-0.117	-0.040	0.011	-0.098	0.185
	NON_EX	RISK2	RISK2_SQ	RISK2_REG	REPLACE	BSIZE	FSIZE	STDEBT
RISK2	-0.046							
RISK2_SQ	-0.026	0.980						
RISK2_REG	0.112	0.215	0.225					
REPLACE	0.152	0.007	0.012	0.097				
BSIZE	0.174	-0.218	-0.197	-0.063	-0.133			
FSIZE	0.119	-0.470	-0.426	-0.008	0.000	0.317		
STDEBT	-0.010	0.055	0.046	0.001	-0.002	-0.141	-0.330	
DIV	0.049	-0.168	-0.139	-0.117	-0.040	0.011	-0.098	0.185

Notes: The table presents the correlation matrix among the variables of this study, where RISK1 is total risk, RISK2 is idiosyncratic risk, RISK1_SQ is the squared value of total risk, RISK2_SQ is the squared value of idiosyncratic risk, RISK1_REG is the interaction term of total risk and regulation, RISK2_REG is the interaction term of idiosyncratic risk and regulation, NON_EX is the proportion of non-executive directors, REPLACE is replacement director ratio, BSIZE is board size, FSIZE is firm size, STDEBT is short-term debt maturity, DIV is dividend payout ratio.

Table 3.2 presents the correlation matrix among the variable of this research. The correlations between non-executive directors and firm risk, RISK1 and RISK2, are -0.073 and -0.046, respectively, while the negative relationships with the squared firm risk are lower (-0.061 and -0.026, respectively). It demonstrates the gradually improved percentage of non-executive directors as companies face higher risks. Notably, the correlation between RISK1_REG/RISK2_REG and NON_EX is positive. The result indicates that in the presence of regulation, the effect of risk on the proportion of non-executive directors may have been changed. According to Gujarati (2003), if the correlation coefficients are 0.8 or higher, the model is at risk of violating multicollinearity. As evident in Table 3.2, the high values (0.981 and 0.980) between RISK and RISK_SQ show the potential collinearity problem. However, this problem is so common when there is an interaction term between 2 variables or other higher-order terms such as the square of a variable. Additionally, Brambor et al. (2006) state that the omission of essential variables is much more problematic than multicollinearity because omitted variable bias causes the coefficients to be wrong. In this research, GMM is used to treat this problem, as mentioned above.

3.4.2 *The impacts of firm risk and regulation*

Table 3.3 and Table 3.4 show that there are not much statistically significant differences in the impact of the explanatory variables on the independent variable, regardless of the application of fixed effects or random effects.

Firstly, Table 3.3 and Table 3.4 display a hypothesized U-shaped relationship between firm risk and non-executive director ratio. At first glance, most of the negative coefficients on RISK1/RISK2 appear to be significant at 5% level in Table 3.3 and Table 3.4, which means that companies tend to reduce the non-executive director ratio when firm risk increases. In other words, the proportion of non-executive directors has not been assessed as an essential factor in controlling risk as well as helping firms improve their performance due to high monitoring costs (Adams & Ferreira, 2007; Raheja, 2005). This result is in contrast to Guest (2008), who found a positive effect of stock return volatility on board independence by using a large sample of UK firms from 1981 to 2002. It is because the monitoring role of outside directors is more highly appreciated in developed countries. Meanwhile, the previous research by Van Tuan & Tuan (2016) concludes that the presence of non-executive directors has a significantly negative influence on the financial performance of Vietnamese companies. As stated above, non-executive directors are *not regularly involved* in the day-to-day running of the business, so they have low insights into different aspects of the business. It hinders them from performing their oversight activities and assess risks effectively. More remarkably, the appointment of non-executive directors in Vietnamese companies are usually driven by friend or family relationship with majority shareholders rather than by expertise and experience. As a result, they do not have many incentives to monitor, or they are not likely to oversee management activities because of being not qualified professionals. In this case, their presence on board may increase the conflicts between majority shareholders and minority shareholders, so leading to the devaluation of companies by investors.

However, the risk management role of non-executive directors is not entirely denied because the coefficients on the squared firm risks are significantly positive, indicating that the need for non-executive directors starts to increase again when firm risk reached a certain critical level. It is because firms tend to require more separation between ownership and management, especially when more severe agency problems arise between controlling and non-controlling shareholders, with a view to improving firm performance and regaining investors' confidence. This result can also be explained under the resource dependence theory that the increased presence of non-executive directors provides access

to external resources to mitigate risk. Generally, the effects of RISK and RISK_SQ on NON_EX confirm a nonlinear relationship between firm risk and non-executive director ratio. The findings are supported by the argument of Demsetz & Lehn (1985) and Linck et al. (2008) that the optimal level of monitoring is determined by the tradeoff between the costs and benefits of monitoring.

Secondly, by hierarchical analysis, the results also support the hypothesis that regulation plays as a moderating factor in the relationship between firm risk and non-executive ratio. In column 2 and 5, all the coefficients on REG are significantly positive at 1% level, indicating that the Circular 121 has an impact on board independence. This result is once again different from Guest (2008), who do not support that the recommendations of Cadbury (1992) Hampel (1998) on board independence can change UK firms' board structure, because such regulations have been voluntary. On the contrary, Chen & Al-Najjar (2012) indicate that requirements on independent directors from the Chinese Security Regulation Commission have imposed pressure on Chinese firms to increase board independence. However, the question of whether such regulation will make a board more efficient should be considered with caution because adding more non-executives to the board may be only a temporary response to the pressure of the Circular. For instance, companies may randomly invite non-executive directors to participate on their boards to merely demonstrate that they comply strictly with the rule. In that case, the presence of non-executive directors on the board may not necessarily have a beneficial impact on the independence of the board (Van Tuan & Tuan, 2016; Chen, & Al-Najjar, 2012). For this reason, the impact of the interaction between regulation and firm risk on the non-executive ratio should be examined to evaluate the efficiency of the regulation. In columns 3 and 6, the interaction term RISK1_REG/RISK2_REG is also significantly positive, but the coefficients on REG are insignificantly negative. All the results show that REG is a pure moderator, indicating that the enactment of the Circular 121 has increased the proportion of non-executive directors, especially for high-risk companies. It is consistent with the prior published study by Brick & Chidambaran (2008), which suggests that high-risk firms would be pushed by regulations to increase board independence, and thereby intensify monitoring and supporting activities.

However, the signs of some control variables, such as STDEBT and DIV are not in line with expectations, which can be caused by unsolved endogenous problems.

Therefore, the two-step system GMM approach should be used to obtain more consistent results.

Table 3.3: Fixed effects

Dependent variable	RISK = RISK1 (Total risk)			RISK = RISK2 (Idiosyncratic risk)		
	(1)	(2)	(3)	(4)	(5)	(6)
NON_EX						
RISK	-5.637** (-2.18)	-3.622 (-1.44)	-5.555** (-2.34)	-5.446** (-2.09)	-4.913** (-2.01)	-5.814** (-2.57)
RISK_SQ	99.05** (2.59)	76.30** (2.12)	90.63*** (2.74)	107.9*** (2.79)	96.77*** (2.75)	96.33*** (2.98)
REG		0.0357*** (3.24)	-0.0300 (-0.90)		0.0324*** (3.04)	-0.0246 (-0.77)
RISK_REG			2.087* (1.84)			1.938* (1.66)
REPLACE _(t-1)	0.0708*** (4.25)	0.0646*** (4.12)	0.0644*** (4.13)	0.0705*** (4.26)	0.0649*** (4.16)	0.0644*** (4.17)
FSIZE _(t-1)	0.0407*** (3.22)	0.0197 (1.39)	0.0198 (1.39)	0.0387*** (3.07)	0.0159 (1.11)	0.0173 (1.23)
BSIZE _(t-1)	0.0484 (1.41)	0.0522 (1.49)	0.0558 (1.58)	0.0484 (1.42)	0.0546 (1.55)	0.0563 (1.59)
STDEBT _(t-1)	0.0553** (1.98)	0.0378 (1.33)	0.0434 (1.54)	0.0556* (1.97)	0.0369 (1.29)	0.0452 (1.59)
DIV _(t-1)	0.272** (2.23)	0.285** (2.41)	0.298** (2.50)	0.292** (2.39)	0.292** (2.47)	0.297** (2.51)
Constant	0.0245 (0.13)	0.254 (1.28)	0.290 (1.42)	0.0376 (0.21)	0.324 (1.65)	0.322 (1.64)
Obs	1306	1306	1306	1306	1306	1306
F-statistic	7.26***	7.05***	7.23***	7.04***	7.05***	7.15***
R-sq within	0.0516	0.0725	0.0774	0.0553	0.0730	0.0776
R-sq between	0.0277	0.0404	0.0441	0.0324	0.0540	0.0528
R-sq overall	0.0339	0.0521	0.0564	0.0394	0.0590	0.0610

Notes: The table presents the results of the fixed effects estimator. RISK1 is total risk, RISK2 is idiosyncratic risk, RISK_SQ is the squared value of total risk/idiosyncratic risk, RISK_REG is the interaction term of total risk/idiosyncratic risk and regulation, NON_EX is the proportion of non-executive directors, REPLACE is replacement director ratio, BSIZE is board size, FSIZE is firm size, STDEBT is short-term debt maturity, DIV is dividend payout ratio. Robust t-statistics adjusted for firm-level clustering are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 3.4: Random effects

Dependent variable	RISK = RISK1 (Total risk)			RISK = RISK2 (Idiosyncratic risk)		
	(1)	(2)	(3)	(4)	(5)	(6)
NON_EX						
RISK	-5.918** (-2.35)	-3.534 (-1.47)	-5.554** (-2.37)	-5.386** (-2.18)	-4.766** (-2.07)	-5.695** (-2.56)
RISK_SQ	97.27*** (2.68)	72.07** (2.13)	87.06*** (2.70)	105.1*** (2.92)	93.44*** (2.90)	93.13*** (2.97)
REG		0.0371*** (3.64)	-0.0317 (-0.97)		0.0336*** (3.42)	-0.0241 (-0.76)
RISK_REG			2.182** (1.98)			1.968* (1.70)
REPLACE _(t-1)	0.0758*** (4.56)	0.0686*** (4.38)	0.0682*** (4.39)	0.0754*** (4.56)	0.0688*** (4.41)	0.0682*** (4.41)
FSIZE _(t-1)	0.0272*** (2.97)	0.0145 (1.58)	0.0148 (1.61)	0.0281*** (3.02)	0.0127 (1.38)	0.0138 (1.49)
BSIZE _(t-1)	0.0690** (2.28)	0.0748** (2.45)	0.0782** (2.51)	0.0680** (2.26)	0.0764** (2.49)	0.0777** (2.52)
STDEBT _(t-1)	0.0533* (1.92)	0.0389 (1.42)	0.0442 (1.62)	0.0551** (1.97)	0.0385 (1.39)	0.0460* (1.67)
DIV _(t-1)	0.268** (2.32)	0.289** (2.58)	0.302*** (2.66)	0.293** (2.50)	0.295*** (2.63)	0.302*** (2.66)
Constant	0.163 (1.09)	0.274* (1.91)	0.309** (2.09)	0.128 (0.86)	0.314** (2.17)	0.318** (2.19)
Obs	1306	1306	1306	1306	1306	1306
Chi-sq	148.34***	148.08***	163.13***	147.59***	151.83***	166.54***
R-sq within	0.0494	0.0718	0.0768	0.0535	0.0725	0.0771
R-sq between	0.0587	0.0781	0.0826	0.0638	0.0874	0.0889
R-sq overall	0.0572	0.0776	0.0826	0.0625	0.0835	0.0866

Notes: The table presents the results of the random effects estimator. RISK1 is total risk, RISK2 is idiosyncratic risk, RISK_SQ is the squared value of total risk/idiosyncratic risk, RISK_REG is the interaction term of total risk/idiosyncratic risk and regulation, NON_EX is the proportion of non-executive directors, REPLACE is replacement director ratio, BSIZE is board size, FSIZE is firm size, STDEBT is short-term debt maturity, DIV is dividend payout ratio. Robust t-statistics adjusted for firm-level clustering are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. The industrial dummies are included but are not reported.

Table 3.5: Dynamic GMM results

Dependent variable	RISK = RISK1 (Total risk)			RISK = RISK2 (Idiosyncratic risk)		
	(1)	(2)	(3)	(4)	(5)	(6)
NON_EX						
NON_EX _(t-1)	0.748*** (8.48)	0.752*** (8.70)	0.715*** (7.85)	0.697*** (7.84)	0.700*** (8.29)	0.685*** (8.06)
RISK	-7.176** (-2.03)	-7.207** (-2.04)	-8.296** (-2.22)	-9.692** (-2.46)	-9.749** (-2.44)	-10.75*** (-2.74)
RISK_SQ	89.48* (1.95)	90.07* (1.96)	88.90* (1.72)	132.1** (2.31)	133.3** (2.30)	126.9** (2.22)
REG		0.260* (1.68)	-0.0287 (-0.93)		0.368** (2.40)	-0.0193 (-0.64)
RISK_REG			1.778** (2.06)			1.667* (1.79)
REPLACE _(t-1)	0.0381 (0.66)	0.0371 (0.65)	0.0101 (0.22)	0.0464 (0.80)	0.0464 (0.80)	0.0150 (0.32)
FSIZE _(t-1)	-0.0104 (-1.09)	-0.0102 (-1.06)	-0.0117 (-1.11)	-0.0160* (-1.81)	-0.0160* (-1.80)	-0.0161* (-1.72)
BSIZE _(t-1)	0.129* (1.73)	0.126* (1.70)	0.132* (1.72)	0.149* (1.96)	0.146** (2.00)	0.157** (2.16)
STDEBT _(t-1)	-0.0306 (-0.60)	-0.0318 (-0.66)	-0.0232 (-0.47)	-0.0324 (-0.60)	-0.0332 (-0.65)	-0.0102 (-0.18)
DIV _(t-1)	-0.0580 (-0.26)	-0.0569 (-0.25)	-0.0256 (-0.12)	-0.104 (-0.47)	-0.101 (-0.46)	-0.0788 (-0.37)
Constant	0.232 (1.52)		0.299* (1.92)	0.334** (2.12)		0.339** (2.24)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Obs	1306	1306	1306	1306	1306	1306
Wald X2-statistics	17.06***	1772.76***	18.74***	11.71***	1636.46***	14.70***
AR (1)	0.000	0.000	0.000	0.000	0.000	0.000
AR (2)	0.462	0.463	0.518	0.497	0.498	0.556
Hansen test	0.351	0.344	0.428	0.512	0.502	0.493
No of instruments	105	106	108	105	106	108

This table reports the two-step GMM system estimators with robust adjustment for a small sample. Explanatory variables: RISK1 is total risk, RISK2 is idiosyncratic risk, RISK_SQ is the squared value of total risk/idiosyncratic risk, RISK_REG is the interaction term of total risk/idiosyncratic risk and regulation, NON_EX is the proportion of non-executive directors, REPLACE is replacement director ratio, BSIZE is board size, FSIZE is firm size, STDEBT is short-term debt maturity, DIV is dividend payout ratio. AR (1) and AR (2) are tests for first-order and second-order serial correlation in the first-differenced residuals under the null of no serial correlation. Sargan/Hansen test of over-identification is under the null that all instruments are valid. The instruments are the lags of the explanatory variables, and YEAR dummies are treated as strictly exogenous variables. Statistically significant at 1%(***), 5%(**), and 10%(*), respectively.

Table 3.6: Robustness checks with two alternative measures of firm risk

Dependent variable	RISK = RISK3		RISK = RISK4	
	(1)	(2)	(3)	(4)
NON_EX				
NON_EX _(t-1)	0.768*** (8.21)	0.757*** (7.92)	0.767*** (8.08)	0.758*** (7.90)
RISK	-0.984* (-1.81)	-1.536** (-2.39)	-0.371* (-1.75)	-0.596** (-2.36)
RISK_SQ	3.209** (2.12)	1.717* (1.77)	0.486** (2.04)	0.257* (1.78)
REG	0.394** (2.58)	-0.0279 (-1.08)	0.381** (2.52)	0.266** (2.18)
RISK_REG		1.108* (1.82)		0.439* (1.85)
REPLACE _(t-1)	0.0230 (0.53)	0.0158 (0.34)	0.0290 (0.65)	0.0186 (0.40)
FSIZE _(t-1)	-0.000261 (-0.03)	0.00429 (0.57)	0.000459 (0.06)	0.00493 (0.68)
BSIZE _(t-1)	-0.0778 (-1.08)	-0.0772 (-1.08)	-0.0797 (-1.16)	-0.0743 (-1.07)
STDEBT _(t-1)	-0.0915* (-1.82)	-0.0473 (-0.99)	-0.0856* (-1.68)	-0.0422 (-0.89)
DIV _(t-1)	0.129 (0.59)	0.0714 (0.37)	0.106 (0.52)	0.0790 (0.43)
Constant		0.319** (2.54)		
Year Dummies	Yes	Yes	Yes	Yes
Obs	906	906	906	906
Wald X2-statistics	1589.94***	8.22***	1623.38***	1886.02***
AR (1)	0.000	0.000	0.000	0.000
AR (2)	0.146	0.112	0.151	0.112
Hansen test	0.165	0.349	0.145	0.392
No of instruments	104	108	104	108

This table reports the two-step GMM system estimators with robust adjustment for a small sample. Explanatory variables: RISK3 is the volatility of a firm's return on assets (ROA) over five-year overlapping periods, RISK4 is the difference between maximum and minimum ROA over five overlapping years, RISK_SQ is the squared value of RISK3/RISK4, RISK_REG is the interaction term of RISK3/RISK4 and regulation, NON_EX is non-executive director ratio, REPLACE is replacement director ratio, BSIZE is board size, FSIZE is firm size, STDEBT is short-term debt maturity, DIV is dividend payout ratio. AR (1) and AR (2) are tests for first-order and second-order serial correlation in the first-differenced residuals under the null of no serial correlation. Sargan/Hansen test of over-identification is under the null that all instruments are valid. The instruments are the lags of the explanatory variables, and YEAR dummies are treated as strictly exogenous variables. Statistically significant at 1% (***), 5% (**), and 10% (*), respectively.

Table 3.5 reports the results of system GMM estimation, according to Arellano & Bover (1995) and Blundell & Bond (1998). To obtain estimates of system GMM, this paper applies `xtabond2` in Stata, where the instruments are the lags of the dependent and explanatory variables (Roodman, 2009). The study specifies the function for small-sample adjustment and report t-statistics and Wald chi-square as opposed to Z-statistics and F-tests. The study also uses robust standard errors, which are consistent with panel-specific autocorrelation and heteroskedasticity. Furthermore, year dummies are added into GMM analysis to capture macro conditions that equally affect all firms. Since Vietnamese corporate governance reform is mainly driven by the government and a time-frame is set for listed companies to increase non-executive directors and board independence should increase over the period. Following Wintoki et al. (2012), the study treats year dummies as strictly exogenous variables.

The interpretation of the results in table 3.5 is similar to those reported in Table 3.3 and Table 3.4. With regard to the impacts of firm risk, the coefficients on firm risk as well as squared risk are significant for all the columns, reinforcing the aforementioned results. The results also imply that firm risk is an economically important factor in predicting whether a firm should adjust board independence or not. From another perspective, pursuing a stable or risky business strategy is crucial to appointing and inviting non-executive directors to the board of directors. This argument is supported by Rosenstein and Wyatt (1990), who suggests that “the addition of an outside director signals a change in firm strategy”. Also, the moderating role of regulation remains unchanged, indicating that high-risk firms changed their supervisory board structure towards increasing the separation of ownership and management to comply with the Circular 121/2012/TT-BTC. In other words, this new regulation significantly contributes to reforming high-risk companies’ board structure. Because high-risk firms often face significant information asymmetries and minority shareholders’ benefits are often not guaranteed, such a new regulation on the corporate governance plays a role in motivating more transparency and then increasing investors’ confidence. Additionally, the lag of `NON_EX` is highly significant, which justifies its inclusion in the model specification. The diagnostics tests for GMM estimations show that the models are well-fitted with statistically insignificant test statistics for both second-order autocorrelations in second differences and Hansen tests of over-identifying restrictions. They indicate that the instruments are valid in the estimation. Finally, the number of instruments used in the model is less than the panel (151), which makes the Hansen tests more reliable.

After controlling for potential endogeneity by dynamic GMM regressions, the coefficients on control variables such as firm size, debt maturity, and dividend payout in Table 3.5 turn out to be insignificantly negative. Regarding firm size, Brick & Chidambaran (2008) also show its impact on the percentage of independent directors is changed into insignificantly negative by using 2SLS regressions to solve the endogeneity problem in their model. Meanwhile, STDEBT and DIV variables present a negative sign as expected above.

In Table 3.6, the study conducts additional robustness checks to make sure that the results are not spurious. Following John et al. (2008) and Faccio et al. (2011), the study uses two alternative measures to proxy for firm risk: RISK3 is the volatility of a firm's return on assets (ROA) over five-year overlapping periods and RISK4 is the difference between maximum and minimum ROA over five overlapping years. As reported in Table 3.6, all coefficients on firm risk as well as squared risk are significant for all the columns, reinforcing the non-linear effect. Regarding regulation, although the effect of REG in column 4 is different from those in the other models, its coefficient is significantly positive. Therefore, the moderating role of REG remains valid. In brief, all the above robustness checks provide persuasive evidence of the nonlinear effect of firm risk and the moderating effect of regulation.

3.5 Conclusion

The impact of firm risk on the change in board structure has still received little attention from researchers, especially for developing countries such as Vietnam. In addition, building an independent board has become a trend in corporate governance. Indeed, governments have enacted legislation to re-establish corporate governance after the past financial market crises which partially stemmed from weak board monitoring. In Vietnam, the government also issued the Circular 121/2012/TT-BTC dated July 26, 2012, on corporate governance applicable to public companies, which caused changes in listed companies' supervisory board structure. Hence, this paper investigates the impact of firm risk on the non-executive director ratio and the moderating effects of regulation to serve current corporate risk management.

The research results indicated the U-shaped nonlinear impact of firm risk on the non-executive director ratio. The monitoring role of non-executive directors became less important when the stock return volatility became higher; however, there is a limit beyond which the benefits outweigh the costs of monitoring. This result supports that the optimal

level of monitoring was determined by the tradeoff between the costs and benefits of monitoring (Demsetz & Lehn, 1985; Linck et al., 2008). Other outcomes show that in the presence of regulation, high-risk firms have more incentives to increase the percentage of non-executive directors because the probability of poor performance is higher for high-risk firms, and the supervisory board is often criticized for having failed in their duties to protect shareholders, especially for minority shareholders.

However, the study was limited to the identification of non-executive directors' characteristics. It would, therefore, be interesting to investigate the impact of firm risk on the proportion of female or foreign non-executive directors. From another perspective, non-executive directors' ownership also attracts the attention of researchers, especially in emerging markets. Such further studies could improve the understanding of the non-executive directors' risk management role.

Finally, the findings also offer some implications of corporate governance in Vietnam as well as in emerging countries. Firstly, decisions on board independence should be made after considering environmental and strategic factors. Secondly, improving the regulations on corporate governance towards dispersed ownership and management control is essential to enhance the quality of governance systems and risk management. In brief, the effect of firm risk on the proportion of non-executive directors will give more significant insights into the role of non-executive directors in Vietnamese listed companies and helps lawmakers improve corporate governance legislations.

CHAPTER 4: (PAPER 3) FOREIGN OWNERSHIP AND STOCK RETURN VOLATILITY IN VIETNAM: THE DESTABILIZING ROLE OF FIRM SIZE

4.1 Introduction

Foreign ownership has gradually become an inevitable trend in the era of international economic integration, in which stock markets play a supporting role in promoting foreign capital investments into domestic companies (Foong & Lim, 2016). Foreign ownership has, in turn, contributed to the development of capital markets and has become an essential factor in diversifying ownership structure in many listed companies. The question of whether foreign ownership relates to the development and stability of stock markets has drawn the attention of academics and policy-makers. However, current literature has mixed findings on the association between foreign ownership and the fluctuation of stock returns.

Several studies indicated a negative impact. (Wang, 2007; Li et al., 2011; Vo, 2015). Wang (2007) gives two economic interpretations of a negative relationship between foreign investment and volatility. First, attracting foreign investors is considered to widen the investor base for a stock, which leads to greater risk-sharing and lowers volatility (Mitton, 2006; Wang, 2007). It is an investor base-broadening effect which is identified by Merton (1987). Second, more substantial ownership of foreign shareholders reduces the capital cost of a firm under the well-known leverage effect theory. In other words, companies can take advantage of foreign investments instead of debts, which helps to reduce the financial burdens and risks. Besides, foreign investors could improve the information quality in local stock markets, provide better corporate control and reporting standards, enhance the corporate governance environments and thus significantly reduce transaction costs, informational costs (Li et al., 2011; Vo, 2015). Indeed, foreign investors usually choose well-managed companies to invest, and this should further accelerate improvement in corporate governance (Leuz et al., 2009). Another explanation is that foreign investors will appoint representatives or seek experts to coordinate and monitor corporate governance. Min & Bowman (2015) also support that foreign investors place considerable merit on the appointment of independent directors in the firms listed on the Korea Exchange.

On the contrary, many other studies showed a positive impact of foreign investment on firm-level volatility (Bae et al., 2004; Bohl & Brzeszczyński, 2006; Han & Singal, 2000). Bae et al. (2004) suggest that foreign ownership can cause significant firm-level

return volatility in an emerging market because it makes stock returns more vulnerable to the world market risk. In other words, the local stock markets are very volatile with foreign capital movements because emerging markets are not very liquid and transparent (Han & Singal, 2000). Besides, many foreign investors pursue short-term or speculative investment strategies (Bohl & Brzeszczynski, 2006; Stiglitz, 2000), which promotes frequent trading activities. According to Zhang (2010), a higher trading volume creates price movements and reflects a higher level of volatility. Also, portfolio adjustments by large foreign institutional investors are likely to result in significant price fluctuations (Bae et al., 2004).

In Vietnam, economic reforms under “Doi Moi” policy, which was launched in 1986 to transition the country from a centralized economy to a market-oriented economy, created a wave of equitization of state-owned enterprises (SOEs) and broadened opportunities for foreign investors. In the 1990s, the Vietnam stock market had not yet been established, so restructuring was implemented by focusing on the small-sized and medium-sized SOEs, and by integrating plural SOEs into groups. Until 2000, the first stock exchange was launched in Ho Chi Minh city with only two listed companies, which made its milestone in the transitional process of Vietnam’s economy.

Under international economic integration, the gradual removal of the restrictions on foreign ownership has boosted foreign capital inflows into the Vietnam stock market (My & Truong, 2011). Notably, the Decree No. 60/2015/ND-CP permits foreign investors to own up to 100 percent of the equity (instead of 49 percent as promulgated before) in most public Vietnamese companies, except for companies in specific restricted sectors. The increased presence of foreign investors is expected to improve transparency for listed companies and hence provide stock price stabilization. Therefore, it drives us to investigate whether attracting more foreign ownership can be considered as a mechanism to control stock return volatility for the listed firms.

However, foreign investors in many large listed companies in the Vietnam stock market are usually large financial institutions. Their high proportions of equity can promote them to become large shareholders with the opportunities to divert firm resources for their own benefits at the expense of minority shareholders (*entrenchment effect*). To hide their self-serving behaviors, entrenched large shareholders usually withhold unfavorable information or selectively disclosing information (McConnell & Servaes, 1990), which can lead to more information asymmetries. The impact of foreign investors on stock return volatility in such firms should be thus evaluated with more caution.

Most studies related to foreign ownership in Vietnam mainly focus on its impact on performance rather than stock return volatility, except for Vo (2015). However, the study provides a more general empirical investigation for the entire Vietnamese stock market while Vo (2015) only focuses on studying the firms listed on the Ho Chi Minh City stock exchange which is one of the two largest stock exchanges in Vietnam. More significantly, the study does not only examine the direct influence of foreign ownership on the volatility of stock returns but also further consider this association in relation to firm size. It helps to bring a thorough explanation of foreign investors' participation in stock return volatility in the context of an emerging market.

The main results of this study regarding the influence of foreign ownership on stock return volatility are as follows. The estimated regressions show a negative effect of foreign ownership on stock return volatility after controlling for firm characteristics and potential endogeneity problems. It indicates that the increased presence of foreign investors contributes to stabilizing the firm-level fluctuation of stock returns because they have many advantages (such as substantial capital, investment experiences) to manage risks, as well as enhance a better corporate governance environment. From a different perspective, foreign investors in Vietnam tend to invest long-term and hold more strategic portfolios, which also explains the low return volatility. However, the negative influence of foreign ownership becomes weaker in large firms because large foreign investors in such firms tend to become majority shareholders and have the power for entrenchment.

The paper process is as follows: Section 2 reviews the impact of foreign ownership on stock return volatility in the Vietnam stock market and the destabilizing influence of firm size. Section 3 presents the model and data. Section 4 shows the results of the empirical analysis. A conclusion is provided in section 5.

4.2 Literature review

4.2.1. The impact of foreign ownership on stock return volatility in the Vietnam stock market.

Vietnam's securities law was issued in 2006 and amended in 2010 but did not cite foreign ownership limits. However, Decision No. 238/2005/QD-TT on the percentage of foreign parties' participation in the Vietnam securities market was considered as the big step towards attracting foreign investment capitals, by raising the limit on foreign holding of listed companies' stocks from 30 percent to 49 percent. Then, it was replaced by Decision No. 55/2009/QD-TT on holding rates of foreign investors in the Vietnam

securities market, but the 49 percent foreign ownership cap on most local companies remained in force until 2015.

As an effort to attract more foreign investors in the Vietnam stock market, the government issued Decree No. 60/2015/ND-CP on 26 June 2015, amending and supplementing several articles of Decree No. 58/2012/ND-CP dated 20 July 2012 providing details and implementation guidelines on several articles of the Law on Securities. Among the changes, the most welcomed amendment is that public companies operating in unconditional sectors can remove foreign ownership limits. Although the move helped the listed companies to remove the limit and seek more foreign investors, only a handful of firms, including Vinamilk, Domesco Medical Import Export, and DHG Pharma, raised limits.

Figure 4.1: The percentage of foreign trading volume over the whole market



Source: Data from Ho Chi Minh Stock Exchange

Foreign ownership is expected to provide better corporate governance and transparency improvement in the listed companies. First, many large firms in the Vietnam stock market have historically been inefficient state-owned companies, so the equitization (i.e. partial privatization) and divestment of state-owned enterprises to foreign investors aim to promote their efficiency. Second, foreign investors in Vietnamese listed companies tend to be institutions (such as mutual funds, hedge funds, and foreign investment banks)

with a long history of successful investment in many other stock markets. The annual reports of the Vietnam Security Depository (www.vsd.vn) also prove that the growth of foreign institutional trading accounts is higher than that of foreign individual trading accounts. The total number of foreign trading accounts rose from 11,257 accounts in 2008 up to 22,561 accounts in 2017 (a 2-fold increase); of which the number of foreign institutional trading accounts increase from below 1,000 accounts in 2008 to 2,865 accounts in 2017 (more than 2.8 times). Such financial institutions are expected to improve the corporate governance environments as well as control stock price volatility better.

Another study by Vo (2016b) adds that foreign investors in the Vietnam stock market focus on long-run perspectives rather than short term gain, by investigating the impact of foreign ownership on the corporate risk-taking activity for a sample of 263 Vietnamese listed companies in the 2007-2014 period. In other words, they pursue an inactive buy-and-hold investment strategy, which reduces the need for frequent trading for price discovery (Batten & Vo, 2015; Nguyen, 2017). Their low proportions of the trading volume and tendency towards the net purchase, as shown in figure 4.1, also support this strategy. Also, their trading activities tend to become the pattern for domestic investors (Nguyen, 2017). These findings also contribute to explaining the stability of stock prices from a trading perspective.

From the above arguments, the study expects that foreign ownership has a negative impact on stock return volatility.

4.2.2 Firm size, foreign ownership, and stock return volatility

Many previous studies indicate that foreign investors favor large and well-operated firms (Dahlquist & Robertsson, 2001; Kang & Stulz, 1997; Lin & Shiu, 2003). First, small-size firms are usually limited in their resources and experience to attract foreign investors, while large firms have more financial and technical capabilities, the economies of scope (Damanpour, 2010). Second, large firms tend to have fewer competitors thanks to their monopoly power. Tsang (2005) also finds that the level of foreign ownership should be negatively associated with the degree of industrial competition. Third, these firms do not only have their financial performance but also transparency and disclosure, which is taken into more consideration by foreign investors, especially in emerging stock markets. Another reason is that small-sized firms' market capitalization is too small for large institutional investors, which drives foreign investors to narrow their options to larger firms. Batten & Vo (2015), who investigate the determinants of foreign ownership

in the Vietnam stock market, also indicate that foreign investors allocate a disproportionately high share of their capitals to large firms.

Holding a high proportion of equity, large financial institutions in Vietnam tend to become majority shareholders and increase control over corporate decisions to serve their own interests against those of other investors under the entrenchment effect perspective. Brockman & Yan (2009) also support that the increase in foreign ownership can also cause more information asymmetries. Besides, Vo (2016c) states that firms with substantial foreign ownership have a close tie with local governments, especially in emerging markets with weak corporate governance and poor institutional aspects. Hence, this study also raises the question of whether the stabilizing effect of foreign ownership on the fluctuation of stock returns become weaker in large firms.

4.3. Data and methodology

4.3.1 Model specification

According to Chen et al. (2013) and Vo (2015), the impact of foreign ownership on stock return volatility is presented as follows:

$$VOL_{it} = \beta_0 + \beta_1 FOWN_{it} + \sum \beta_k * Control_{it} + \varepsilon_{it} \quad (4.1)$$

Furthermore, the study also wants to further investigate this relationship under the destabilizing effect of firm size. Consequently, the above model is restructured in equation (4.2):

$$VOL_{it} = \beta_0 + \beta_1 FOWN_{it} + \beta_2 FOWN_{it} * FSIZE_{it} + \sum \beta_k * Control_{it} + \varepsilon_{it} \quad (4.2)$$

Following Cosset et al. (2016) and Hasan et al. (2017), the study uses two measures of stock return volatility (VOL_{it}): (i) the standard deviation of daily stock returns on a fiscal year basis and (ii) the standard deviation of the residuals from the market model: $R_{it} = \alpha_i + \beta_i RM_t + \varepsilon_{it}$ on a fiscal year basis (R_{it} donates the daily stock returns; RM_t represents the daily market returns based on the VN-index; the $\varepsilon_{i,t}$ stands for the residuals). $FOWN_{it}$ is the proportion of shares held by foreign investors. $Control_{it}$ are controlling variables.

The regression model also incorporates the other variables that previous studies suggest might affect VOL. 1. Firm size (FSIZE) is calculated as the natural logarithm of total assets. According to Vo (2015), stock return volatility is driven by firm characteristics, particularly firm size. Pástor & Veronesi (2003) also find a negative relation between return volatility and firm size. 2. Leverage (LEV) is measured as the ratio of total liabilities to total assets. The stock price of highly leveraged firms tends to

be more volatile since these firms are supposed to have higher bankruptcy risk (Wei & Zhang, 2006; Chen et al., 2013). 3. Returns on equity (ROE) is defined as net income divided by shareholders' equity. Both Pastor & Veronesi (2003) and Wei & Zhang (2006) confirm that firms with lower ROE are expected to experience higher stock return fluctuations. 4. Two control variables to capture board composition characteristics: Non-executive director ratio (NON_EX) is measured as the number of non-executive directors to total board members, and board size (lnBSIZE) is calculated as the natural logarithm of total members on board. Many studies such as Cheng (2008), Pathan (2009), Nakano & Nguyen (2012), Huang & Wang (2015) prove that corporate risk is related to board size and board independence. 6. State ownership (STATE) is the number of shares held by the state to the total number of shares outstanding. This variable is included in the model because Vietnam historically installed a centralized economy characterized by state ownership. Moreover, state ownership tends to offer policy and resource benefits (Zhou et al., 2017), which allow state-owned companies to reduce volatility. 7. Price to book value (PB) is the ratio of the market value of equity to the book value of equity, which is a proxy for growth opportunity. 8. Stock liquidity (LIQ) is calculated as the proportion of trading days in one year in which the stock return is non-zero. This variable should be controlled in the model because the movements of the stock price are highly associated with trading activities (Zhang, 2010). 9. Firm age (lnFAGE) is also included because the corporate risk is found to be higher for younger firms (Bartram et al., 2012; Rubin & Smith, 2009). The study also includes industry and year fixed effects to control for industry-specific and aggregate time-varying factors.

4.3.2 Data

The research sample comprises of 160 non-financial companies listed on Vietnamese stock markets (including HNX - Hanoi Stock Exchange and HOSE – Ho Chi Minh Stock Exchange) from 2008 to 2017. The listed companies are classified according to the Industry Classification Benchmark (ICB) 2008 applied in Vietnam.

The data was collected from various sources: governance-related variables such as foreign ownership, state ownership, and non-executive director ratio were manually collected reviewing annual reports which are available on the www.vietstock.vn (a leading website providing financial information, market data, and investing tools for institutional and individual investors in Vietnam). The other financial variables were collected from DataStream. Any additional data or information is directly gathered from companies' websites if necessary. From DataStream, the study used a list of companies

whose stock price is available from January 1st, 2008. The sample consisted of 219 companies after financial companies such as banks, securities, insurance, and financial services were excluded because these companies act as market makers. Additionally, the foreign ownership restrictions in the listed banks are stricter than the other listed companies. For a long time, Viet Nam imposed restrictions on foreign ownership in domestically listed firms: up to 49 percent of the equity for the listed companies and up to 30 percent for the listed banks. Since the Decree No. 60/2015/ND-CP took effect, the government has removed the existing 49 percent foreign ownership cap on the listed firms, but the foreign ownership limit in the banking industry has remained unchanged at 30 percent. In the process of collecting the governance-related data, the study continued to exclude 59 companies due to too many missing observations.

4.4. Results and discussions

4.4.1. Descriptive statistics and correlation

Table 4.1: Description statistics

	Obs	Mean	SD	Min	25th percentile	50th percentile	75th percentile	Max
VOL1 (%)	1600	3.03	1.14	1.06	2.35	2.98	3.58	32.99
VOL2 (%)	1600	2.75	1.12	0.93	2.14	2.62	3.27	33.05
FSIZE	1600	20.30	1.44	16.31	19.27	20.19	21.23	24.69
LEV	1600	0.48	0.22	0.02	0.30	0.50	0.66	0.95
ROE	1600	0.13	0.16	-2.32	0.06	0.12	0.19	3.34
PB	1589	1.13	0.91	0.13	0.60	0.91	1.40	12.95
LIQ	1600	0.73	0.19	0.02	0.65	0.78	0.88	0.99
NON_EX	1600	0.57	0.20	0.00	0.40	0.60	0.75	1.00
BSIZE	1600	5.52	1.18	2	5	5	6	11
FAGE	1600	6.79	3.30	1	4	7	9	17
STATE (%)	1593	31.63	22.85	0	8.19	34.71	51.00	84.44
FOWN (%)	1340	11.91	14.67	0	1.37	4.84	17.39	65.16

Notes: The table presents descriptive statistics among the variables of this study, where VOL1 and VOL2 are the two measures of the stock return volatility, FOWN is the proportion of shares held by foreign investors, FSIZE is the natural logarithm of total assets, LEV is the ratio of total liabilities to total assets, ROE is return on equity, PB is the ratio of the market value of equity to the book value of equity, LIQ is the proportion of trading days in one year in which the stock return is non-zero, NON_EX is the percentage of non-executive directors on board, BSIZE is the total number of directors on board, STATE is the proportion of shares held by state shareholders, FAGE is the number of years from the time the company is listed for the first time in the Vietnam stock market. For interpretation purposes, the descriptive statistics of board size and firm age are calculated on the basis of levels instead of logarithmic form.

Table 4.1 presents the summary statistics of the sample on board and ownership structure, as well as firm characteristics. The mean (median) of foreign ownership in the sample is 11.91% (4.84%), quite close to the reported figures (12.29% and 5.98%) by Vo

(2015) for a sample of 268 non-financial firms listed on the Ho Chi Minh stock exchange in the 2006-2012 period. The two volatility measures do not have much difference in their mean values (3.03 and 2.75) and standard deviations (1.14 and 1.12).

Table 4.2: Correlation matrix

	VOL1	VOL2	FOWN	FSIZE	LEV	ROE	NON_EX	lnBSIZE	STATE	PB	LIQ	VIFs
FOWN	-0.30	-0.31										1.77
FSIZE	-0.34	-0.37	0.42									2.11
LEV	0.10	0.10	-0.28	0.26								1.42
ROE	-0.10	-0.14	0.18	0.08	-0.11							1.13
NON_EX	-0.04	0.00	0.10	0.11	-0.08	-0.04						1.09
lnBSIZE	-0.17	-0.19	0.36	0.33	-0.04	0.04	0.02					1.25
STATE	-0.02	-0.05	-0.15	0.05	0.07	0.06	0.07	-0.17				1.17
PB	-0.13	-0.14	0.38	0.19	-0.17	0.25	0.10	0.11	0.02			1.24
LIQ	-0.01	-0.21	0.19	0.37	0.00	0.18	-0.03	0.17	-0.05	0.07		1.73
lnFAGE	-0.23	0.01	0.11	0.13	-0.04	-0.17	0.21	0.01	-0.17	0.02	-0.44	1.64

Note: The table presents correlation matrix among the variables of this study, where VOL1 and VOL2 are the two measures of the stock return volatility, FOWN is the proportion of shares held by foreign investors, FSIZE is the natural logarithm of total assets, LEV is the ratio of total liabilities to total assets, ROE is return on equity, PB is the ratio of the market value of equity to the book value of equity, LIQ is the proportion of trading days in one year in which the stock return is non-zero, NON_EX is the percentage of non-executive directors on board, lnBSIZE is the natural logarithm of the total number of directors on board, STATE is the proportion of shares held by state shareholders, lnFAGE is the natural logarithm of firm age. VIFs are variance inflation factors.

As reported in Table 4.2, FOWN is negatively related to VOL1 and VOL2, which is consistent with the above expectation. The correlation matrix gives no suggestion to any serious multicollinearity concerns since none of the correlation coefficients among independent variables are larger than the value of 0.8. The study also calculates the variance inflation factors (VIFs) to check again for any multicollinearity issue in the model, but all VIFs are low, with a mean of 1.46 (not reported in the table). It is supported by Chatterjee & Hadi (2015) who suggest that a value of VIF larger than 10 indicates the presence of a multicollinearity problem.

4.4.2. The impacts of foreign ownership and firm size

Table 4.3 provides the estimated results of foreign ownership on stock return volatility by using year and industry fixed effects regressions with firm-level clustered standard errors. The study uses both current and one-year future volatility as proxies for the dependent variable. According to Wang (2013), the future one-year volatility helps to better confirm the causal effect of foreign ownership on stock return volatility. After controlling for some board characteristics (such as board independence, board size, state

ownership) and the other firm characteristics, the study finds that the coefficients on FOWN are statistically negative. This result implies the role and benefits of foreign investors in enhancing better corporate governance and reducing information asymmetries, especially when many listed firms in the Vietnam stock market have historically been inefficient state-owned companies. Foreign investments in Vietnamese firms also play an essential role as an alternative financial source under well-known leverage effect theory. From a trading behavior perspective, the negative impact of ownership can be explained by the buy-and-hold investment strategy because they tend to be long-term investors, rather than short-term speculators.

The obtained result supports the first hypothesis, indicating that a high proportion of foreign ownership plays as one of the determinants to mitigate the fluctuation of stock returns. The finding is in line with that of the previously published studies in other emerging countries. Wang (2013) showed the calming effect of foreign ownership on stock return volatility for a sample of Indonesian firms listed on the Jakarta Stock Exchange from 1996 to 2000. Another study by Li et al. (2011) confirms that the stabilizing effect of large foreign ownership is present in 31 emerging markets. Both Wang (2013) and Li et al. (2011) imply that establishing an ownership structure towards international liberalization and integration is crucial to risk management.

Regarding the effect of firm size, the coefficients on FSIZE are negative and significant in all regressions, thereby confirming that large firms tend to reduce stock return volatility due to their better governance and less information asymmetry. The negative relationship also supports the viewpoint of Damanpour (2010) that larger companies are also recognized to have more advantages to control stock price fluctuations.

4.4.3. The destabilizing role of firm size

Regarding the destabilizing effect of firm size on the relationship between foreign ownership and stock return volatility, the estimated coefficient on the interaction term between FOWN and FSIZE turns out to be positive at the significance level of 0.01 in Table 4.3. The converse results on FOWN suggests that firm size tends to weaken the foreign ownership-volatility relationship. In other words, the presence of foreign investors in large firms helps to decrease the stability of stock prices. It is because most of the foreign shareholders in such firms are large financial institutions whose high proportion of equity is associated with board membership. As majority shareholders and corporate insiders, such foreign investors tend to retain weak corporate governance or

deters the release of specific-firm information to the market on purpose of easily facilitating their potential expropriation. Such inadequate information disclosure causes more information asymmetries between minority and majority shareholders, which leads to more volatility.

In line with the viewpoint, Viet (2013) also give two significant contributions to explain foreign investors' behavior in the Vietnam stock market, by using a sample of 407 non-financial listed firms from 2006 to 2010. First, foreign investors seem to prefer firms with large size and higher market reputation. Second, there exists an inverted U-shaped relationship between foreign ownership and firm performances, which indicates that the negative effects of foreign shareholders on firm performance may occur if their ownership reaches a certain high level. He explains that a too high level of foreign ownership can allow foreign investors to influence several vital aspects of invested firms and weaken firm efficiencies.

To investigate the second hypothesis in more details, the original sample is divided into two subsamples, corresponding to small and large firms, by comparing the firm size of each firm operating in a given industry in a given year with the average firm size of all firms operating in the same industry during that year. The estimates presented in Table 4.4 show that foreign ownership has a weaker significant impact on current volatility and an insignificant impact on future volatility in large firms. Moreover, the negative coefficients on FSIZE have smaller absolute values for large firms. All these results confirm the destabilizing role of firm size.

4.4.4. Potential endogeneity and robustness tests

Although unobservable heterogeneity can be eliminated by the application of the fixed effects model, the estimated coefficients may still be biased if the dependent variable and explanatory variables are simultaneously determined. According to Roberts & White (2012) and Wintoki et al. (2012), this endogeneity problem should be taken into more consideration because it can undermine causal inference in corporate governance studies. The studies by Vo (2015), Li et al. (2011), and Chen et al. (2013), examining the impact of foreign ownership on stock return volatility in emerging markets, mention the possibility of endogeneity problem in their model by referring the previous studies in developed countries such as Kang & Stulz (1997) and Dahlquist & Robertsson (2001). However, all their results are not changed after they apply first-difference regressions, IV regressions, and GMM regressions to address the potential endogeneity. Chen et al.

(2013) even conclude that their study is less subjective to the potential endogeneity problems. Despite that, the study still re-estimates the model by instrumental variable regressions with industry and year fixed effects to check the robustness of the estimates.

Besides, according to Adams & Ferreira (2007) and Raheja (2005), high information asymmetry discourages firms from increasing the monitoring activities from independent directors because it is costly to transfer firm-specific information to outsiders, especially when the supervising role of independent directors is proved to be not inefficient in an emerging market like Vietnam (Van Tuan & Tuan, 2016). The positive coefficients on NON_EX in Table 4.3 also support this viewpoint. In other words, high return volatility in a period may lead to a change in the non-executive ratio. Thus, NON_EX variable is likely to be another endogenous variable.

To address the potential problems, the study uses $FOWN_{t-1}$ (the lagged value of foreign ownership) as an instrument for FOWN (Han et al., 2015). Another potential instrument for FOWN is DIR_EXP (the average working years of the directors in the company) because boards with long-serving members tend to be averse to strategic change and reluctant to internationalization (Golden & Zajac, 2001), which deters foreign investment. According to Li (1994) and Mak & Li (2001), board size has a negative impact on the composition of outside board members. Besides, individual director attributes (such as directors' age, experience, and so on) are associated with the environment in which non-executive directors perform their duties. Therefore, the study uses $\Delta \ln BSIZE_{t-1}$ (the lag of the change in $\ln BSIZE$), DIR_EXP (the average working years of the directors in the company), DIR_AGE (the average age of the directors on board) as instrumental variables for NON_EX. Then, F-tests and Hansen tests of over-identifying restrictions are necessary to confirm the validity of these instruments.

The study shows that the negative relationship between foreign ownership and volatility is not changed in table 4.5 and Table 4.6. All the coefficients on FOWN are significantly negative, confirming the risk-controlling role of foreign investors as well as their long-term investment strategy. Regarding the second hypothesis, the destabilizing role of FSIZE remains valid because all the estimated coefficients on the interaction term are still significantly positive in Table 4.6. Besides, the validity of the instruments can be justified by an obtained F-statistics of more than 10 in the first-stage regression and Hansen tests of over-identifying restrictions indicate that the instruments are not correlated with the error term. All the diagnostics tests support the conclusion that the instruments used are reasonable, and the regression results are consistent.

Table 4.3: Industry and year fixed effects regressions

	Current volatility			Future one-year volatility		
	VOL1	VOL2	VOL1 _(t+1)	VOL1 _(t+1)	VOL2 _(t+1)	VOL2 _(t+1)
FOWN	-0.00985*** (-2.95)	-0.00847*** (-2.63)	-0.00860** (-2.41)	-0.0868*** (-3.12)	-0.00776** (-2.25)	-0.0789*** (-2.79)
FSIZE	-0.210*** (-5.40)	-0.261*** (-6.42)	-0.179*** (-5.63)	-0.232*** (-6.19)	-0.239*** (-7.21)	-0.288*** (-7.37)
FOWN*FSIZE	0.00345*** (3.11)	0.00311*** (2.69)	0.00376*** (2.93)		0.00342*** (2.62)	
LEV	0.593** (2.04)	0.655** (2.31)	0.502 (1.56)	0.550* (1.74)	0.575* (1.82)	0.618** (1.99)
ROE	-0.504*** (-4.17)	-0.432*** (-3.88)	-0.730** (-2.38)	-0.719** (-2.35)	-0.654** (-2.20)	-0.644** (-2.17)
NON_EX	0.343** (2.18)	0.358** (2.32)	0.453*** (2.72)	0.474*** (2.83)	0.450*** (2.78)	0.470*** (2.86)
lnBSIZE	-0.389** (-2.12)	-0.368** (-2.00)	-0.350* (-1.66)	-0.366* (-1.79)	-0.331 (-1.55)	-0.346 (-1.64)
STATE	-0.00236 (-0.96)	-0.00213 (-0.88)	-0.00257 (-1.02)	-0.00231 (-0.93)	-0.00201 (-0.82)	-0.00177 (-0.73)
PB	0.00427 (0.11)	-0.00412 (-0.11)	-0.0312 (-0.60)	-0.0482 (-0.89)	-0.0368 (-0.72)	-0.0522 (-0.99)
LIQ	0.239 (0.65)	-0.168 (-0.44)	-0.476** (-2.00)	-0.458* (-1.92)	-0.710*** (-2.84)	-0.693*** (-2.77)
lnFAGE	-0.170 (-1.46)	-0.143 (-1.20)	-0.0902 (-0.71)	-0.0455 (-0.38)	-0.0507 (-0.39)	-0.0100 (-0.08)
Constant	7.799*** (3.11)	8.731*** (3.11)	7.459*** (2.69)	8.438*** (2.93)	8.508*** (2.62)	9.399*** (2.62)

Observations	(12.48)	(11.81)	(13.45)	(12.13)	(10.46)	(9.54)	(11.73)	(10.37)
Year fixed	1329	1329	1329	1329	1188	1188	1188	1188
Industry fixed	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
F-statistics	22.27	23.08	26.65	26.47	17.14	16.24	21.78	20.52
P-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
R-squared	0.2400	0.2434	0.2313	0.2340	0.2209	0.2245	0.2349	0.2379

Note: This table presents industry and year fixed effects regressions to examine the relationship between foreign ownership and stock return volatility. VOL1 and VOL2 are the two measures of the stock return volatility, FOWN is the proportion of shares held by foreign investors, FSIZE is the natural logarithm of total assets, LEV is the ratio of total liabilities to total assets, ROE is return on equity, NON_EX is the percentage of non-executive directors on board, lnBSIZE is the natural logarithm of the total number of directors on board, PB is the ratio of the market value of equity to the book value of equity, LIQ is the proportion of trading days in one year in which the stock return is non-zero, STATE is the proportion of shares held by state shareholders, lnFAGE is the natural logarithm of firm age. Robust t-statistics adjusted for firm-level clustering are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 4.4: Industry and year fixed effects regressions with sub-samples

	Current volatility						Future one-year volatility					
	Large firms			Small firms			Large firms			Small firms		
	VOL1	VOL2	VOL1	VOL2	VOL1	VOL2	VOL1 _(t+1)	VOL2 _(t+1)	VOL1 _(t+1)	VOL2 _(t+1)	VOL1 _(t+1)	VOL2 _(t+1)
FOWN	-0.00849** (-2.42)	-0.00642* (-1.98)	-0.0133** (-2.51)	-0.0131** (-2.49)	-0.00526 (-1.48)	-0.00392 (-1.17)	-0.0132** (-2.39)	-0.0136** (-2.44)	-0.00526 (-1.48)	-0.00392 (-1.17)	-0.0132** (-2.39)	-0.0136** (-2.44)
FSIZE	-0.127** (-2.58)	-0.205*** (-3.95)	-0.337*** (-3.58)	-0.372*** (-3.90)	-0.112** (-2.42)	-0.202*** (-4.13)	-0.275*** (-3.58)	-0.319*** (-4.18)	-0.112** (-2.42)	-0.202*** (-4.13)	-0.275*** (-3.58)	-0.319*** (-4.18)
LEV	0.871*** (4.20)	0.914*** (4.35)	0.663 (1.34)	0.699 (1.44)	0.857*** (3.98)	0.925*** (4.30)	0.522 (1.04)	0.559 (1.13)	0.857*** (3.98)	0.925*** (4.30)	0.522 (1.04)	0.559 (1.13)
ROE	-0.376*** (-3.76)	-0.298*** (-3.32)	-0.894** (-2.14)	-0.733* (-1.76)	-0.289** (-2.19)	-0.239* (-1.79)	-1.845*** (-3.70)	-1.770*** (-3.59)	-0.289** (-2.19)	-0.239* (-1.79)	-1.845*** (-3.70)	-1.770*** (-3.59)
NON_EX	0.270 (1.60)	0.284* (1.73)	0.366 (1.50)	0.364 (1.52)	0.424** (2.56)	0.420** (2.55)	0.402 (1.58)	0.378 (1.52)	0.424** (2.56)	0.420** (2.55)	0.402 (1.58)	0.378 (1.52)

lnBSIZE	-0.433**	-0.342*	-0.356	-0.392	-0.138	-0.107	-0.454	-0.441
	(-2.22)	(-1.70)	(-1.01)	(-1.14)	(-0.70)	(-0.52)	(-1.13)	(-1.11)
STATE	-0.00135	-0.00166	-0.00358	-0.00282	-0.000770	-0.000741	-0.00336	-0.00227
	(-0.64)	(-0.76)	(-0.82)	(-0.67)	(-0.38)	(-0.36)	(-0.75)	(-0.52)
PB	0.00498	0.0135	-0.00726	-0.0321	-0.0552	-0.0374	0.0120	0.00290
	(0.15)	(0.43)	(-0.07)	(-0.29)	(-1.21)	(-0.86)	(0.11)	(0.03)
LIQ	0.440	-0.436	0.504	0.184	-0.874***	-1.451***	0.0433	-0.129
	(1.50)	(-1.52)	(0.82)	(0.29)	(-3.34)	(-5.17)	(0.13)	(-0.37)
lnFAGE	-0.0995	-0.118	-0.0938	-0.0244	-0.0786	-0.0537	0.0739	0.130
	(-0.95)	(-0.99)	(-0.58)	(-0.16)	(-0.76)	(-0.45)	(0.42)	(0.74)
Constant	5.629***	7.457***	9.987***	10.59***	5.626***	7.574***	9.039***	9.740***
	(5.51)	(7.04)	(6.93)	(7.40)	(6.06)	(8.01)	(5.51)	(6.02)
Observations	634	634	695	695	569	569	619	619
Year fixed	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
F-statistics	20.44	18.06	7.35	7.14	20.22	23.46	5.47	5.65
P-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
R-squared	0.5299	0.4495	0.1579	0.1524	0.5068	0.4945	0.1492	0.1545

Note: This table presents industry and year fixed effects regressions to examine the relationship between foreign ownership and stock return volatility. VOL1 and VOL2 are the two measures of the stock return volatility, FOWN is the proportion of shares held by foreign investors, FSIZE is the natural logarithm of total assets, LEV is the ratio of total liabilities to total assets, ROE is return on equity, NON_EX is the percentage of non-executive directors on board, lnBSIZE is the natural logarithm of the total number of directors on board, PB is the ratio of the market value of equity to the book value of equity, LIQ is the proportion of trading days in one year in which the stock return is non-zero, STATE is the proportion of shares held by state shareholders, lnFAGE is the natural logarithm of firm age. Robust t-statistics adjusted for firm-level clustering are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 4.5: Instrumental variable regressions with year and industry fixed effects

	Current volatility				Future one-year volatility			
	First stage		Second stage		First stage		Second stage	
	NON_EX	FOWN	VOL1	VOL2	NON_EX	FOWN	VOL1 _(t+1)	VOL2 _(t+1)
<i>Instruments</i>								
$\Delta \ln \text{BSIZE}_{(t-1)}$	-0.107** (-1.97)	2.194 (1.43)			-0.0987* (-1.82)	3.216* (1.90)		
$\text{FOWN}_{(t-1)}$	0.000121 (0.12)	0.886*** (35.01)			0.000245 (0.23)	0.876*** (30.26)		
DIR_EXP	-0.134*** (-7.68)	-0.536* (-1.67)			-0.135*** (-7.34)	-0.633* (-1.88)		
DIR_AGE	0.252** (2.39)	2.029 (0.87)			0.306*** (2.71)	2.132 (0.83)		
<i>Instrumented</i>								
NON_EX			1.714** (2.43)	1.551** (2.27)			2.385** (2.01)	2.225* (1.89)
FOWN			-0.0109** (-2.37)	-0.0103** (-2.38)			-0.0109** (-2.04)	-0.0102** (-2.05)
<i>Control variables</i>								
FSIZE	0.00616 (0.49)	0.575** (2.55)	-0.197*** (-4.09)	-0.238*** (-4.92)	0.00434 (0.34)	0.571** (2.49)	-0.156*** (-3.20)	-0.210*** (-4.37)
LEV	-0.0754 (-1.29)	-1.776 (-1.64)	0.574* (1.70)	0.608* (1.85)	-0.0764 (-1.23)	-2.240* (-1.92)	0.514 (1.36)	0.559 (1.53)
ROE	-0.0255 (-0.61)	1.646* (1.75)	-0.463*** (-3.90)	-0.395*** (-3.51)	-0.0316 (-0.54)	1.403 (1.27)	-0.559** (-2.38)	-0.498** (-2.14)
lnBSIZE	0.0674	2.162*	-0.404*	-0.394*	0.0703	2.516*	-0.370	-0.369

STATE	(1.08)	(1.76)	(-1.74)	(-1.77)	(1.03)	(1.87)	(-1.23)	(-1.28)
	0.00135**	-0.0114	-0.00518	-0.00497	0.00133**	-0.00772	-0.00541	-0.00512
	(2.52)	(-1.38)	(-1.59)	(-1.58)	(2.31)	(-0.89)	(-1.33)	(-1.30)
PB	0.0151*	0.691***	-0.0251	-0.0280	0.0161	0.828***	-0.0788	-0.0774
	(1.74)	(3.75)	(-0.47)	(-0.53)	(1.35)	(3.25)	(-0.98)	(-0.99)
LIQ	0.0470	-0.576	0.0894	-0.289	0.0535	-0.848	-0.697**	-0.910***
	(0.85)	(-0.49)	(0.21)	(-0.67)	(0.92)	(-0.68)	(-2.37)	(-3.08)
InFAGE	0.145**	-0.703	-0.297	-0.238	0.132**	-0.833	-0.253	-0.226
	(2.42)	(-0.69)	(-1.14)	(-0.95)	(2.22)	(-0.81)	(-0.76)	(-0.70)
Observations	1092	1092	1092	1092	959	959	959	959
Year fixed	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>F test of excluded instruments:</i>								
F-statistics	18.21	372.73			15.72	283.96		
P-value	0.000	0.000			0.000	0.000		
<i>Overidentification test of all instruments</i>								
Hansen J-statistics			2.766	3.008			3.065	2.617
P-value			0.2508	0.2222			0.2160	0.2702

Note: This table presents instrumental variable regressions with industry and year fixed effects to confirm the relationship between foreign ownership and stock return volatility. FOWN and NON_EX are treated as potentially endogenous variables. $\Delta \ln \text{BSIZE}_{i,t}$ (the lag of the change in $\ln \text{BSIZE}$), $\text{FOWN}_{i,t-1}$ (the lag of foreign ownership), DIR_EXP (the average working years of the directors in the company), DIR_AGE (the average age of the directors on board) are instrumental variables. The other variables are defined as the same as in Table 4.3. The first-stage F test is used to test for the joint significance of the instruments. Hansen test for overidentifying restrictions is tested with the null hypothesis that the excluded instruments are not correlated to the error term. Robust t-statistics adjusted for firm-level clustering are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 4.6: Instrumental variable regressions with year and industry fixed effects for the model including an interaction term.

	Current volatility						Future one-year volatility					
	First stage			Second stage			First stage			Second stage		
	NON_EX	FOWN	FOWN*FSIZE	VOL1	VOL2		NON_EX	FOWN	FOWN*FSIZE	VOL1 _(t+1)	VOL2 _(t+1)	
<i>Instruments</i>												
$\Delta \ln \text{BSIZE}_{(t-1)}$	-0.105*	2.243	45.48				-0.0964*	3.314*	68.77*			
	(-1.95)	(1.46)	(1.39)				(-1.77)	(1.94)	(1.89)			
$\text{FOWN}_{(t-1)}$	0.0138	1.380***	9.494**				0.0147	1.488***	12.09**			
	(1.44)	(6.46)	(2.00)				(1.48)	(6.62)	(2.41)			
$\text{FOWN}_{(t-1)} * \text{FSIZE}$	-0.000651	-0.0236**	0.428*				-0.000691	-0.0293***	0.292			
	(-1.43)	(-2.28)	(1.84)				(-1.47)	(-2.65)	(1.18)			
DIR_EXP	-0.134***	-0.536	-11.59*				-0.135***	-0.608*	-13.07*			
	(-7.66)	(-1.64)	(-1.66)				(-7.26)	(-1.77)	(-1.78)			
DIR_AGE	0.262**	2.387	56.12				0.310***	2.326	53.50			
	(2.50)	(0.99)	(1.08)				(2.77)	(0.87)	(0.93)			
<i>Instrumented</i>												
NON_EX				1.700**	1.538**					2.401**	2.238*	
				(2.43)	(2.27)					(2.01)	(1.89)	
FOWN				-0.108***	-0.0929**					-0.118**	-0.0998*	
				(-2.84)	(-2.49)					(-2.15)	(-1.86)	
$\text{FOWN} * \text{FSIZE}$				0.00463***	0.00396**					0.00518**	0.00432*	
				(2.61)	(2.27)					(2.01)	(1.72)	
<i>Control variables</i>												
FSIZE	0.0161	0.937***	21.71***	-0.272***	-0.301***		0.0149	1.019***	23.61***	-0.239***	-0.280***	
	(1.11)	(3.14)	(3.26)	(-5.12)	(-5.67)		(0.99)	(3.15)	(3.28)	(-3.61)	(-4.27)	
LEV	-0.0836	-2.073*	-44.82*	0.634*	0.659**		-0.0854	-2.622**	-56.65**	0.588	0.620*	
	(-1.43)	(-1.84)	(-1.86)	(1.94)	(2.07)		(-1.37)	(-2.14)	(-2.17)	(1.62)	(1.78)	

ROE	-0.0258 (-0.63)	1.633* (1.69)	34.08 (1.64)	-0.461*** (-3.77)	-0.393*** (-3.37)	-0.0335 (-0.57)	1.323 (1.19)	25.32 (1.10)	-0.534** (-2.29)	-0.477** (-2.06)
lnBSIZE	0.0701 (1.15)	2.263* (1.77)	52.30* (1.88)	-0.446** (-1.98)	-0.430* (-1.95)	0.0699 (1.05)	2.498* (1.82)	57.44* (1.95)	-0.398 (-1.37)	-0.392 (-1.38)
STATE	0.00129** (2.47)	-0.0137 (-1.55)	-0.318* (-1.68)	-0.00471 (-1.50)	-0.00456 (-1.50)	0.00127** (2.25)	-0.0104 (-1.13)	-0.245 (-1.25)	-0.00492 (-1.25)	-0.00472 (-1.24)
PB	0.0180** (2.22)	0.796*** (3.86)	17.84*** (3.91)	-0.0499 (-0.89)	-0.0492 (-0.90)	0.0193* (1.67)	0.962*** (3.63)	21.60*** (3.76)	-0.109 (-1.25)	-0.103 (-1.21)
LIQ	0.0380 (0.71)	-0.900 (-0.75)	-20.35 (-0.81)	0.153 (0.37)	-0.234 (-0.55)	0.0445 (0.78)	-1.229 (-0.95)	-26.98 (-1.00)	-0.631** (-2.22)	-0.854*** (-2.99)
lnFAGE	0.136** (2.35)	-1.020 (-0.95)	-21.34 (-0.92)	-0.238 (-0.99)	-0.188 (-0.79)	0.123** (2.14)	-1.211 (-1.12)	-26.28 (-1.15)	-0.190 (-0.62)	-0.174 (-0.57)
Observations	1092	1092	1092	1092	1092	959	959	959	959	959
Year fixed	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>F test of excluded instruments:</i>										
F-statistics	14.75	373.70	346.39			13.44	299.69	273.94		
P-value	0.000	0.000	0.000			0.000	0.000	0.000		
<i>Overidentification test of all instruments</i>										
Hansen J-statistics				3.615	3.704				3.099	2.628
P-value				0.1641	0.1569				0.2124	0.2687

Note: This table presents instrumental variable regressions with industry and year fixed effects to confirm the destabilizing role of firm size. FOWN, FOWN*FSIZE, and NON_EX are treated as potentially endogenous variables. $\Delta \ln \text{BSIZE}_{i,t-1}$ (the lag of the change in lnBSIZE), $\text{FOWN}_{i,t-1}$ (the lag of foreign ownership), DIR_EXP (the average working years of the directors in the company), DIR_AGE (the average age of the directors on board), and $\text{FOWN}_{i,t-1} * \text{FSIZE}$ are instrumental variables. The other variables are defined as the same as in Table 4.3. The first-stage F test is used to test for the joint significance of the instruments. Hansen test for overidentifying restrictions is tested with the null hypothesis that the excluded instruments are not correlated to the error term. Robust t-statistics adjusted for firm-level clustering are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

4.5. Conclusion

Stock market liberalization has gradually become a global trend, forcing the governments in emerging markets to gradually remove restrictions on foreign ownership. By allowing foreign investors to participate in the Vietnam stock market under Decision No. 238/2005/QĐ-TT and relaxing foreign ownership rules to attract capital and support local companies under Decree No. 60/2015/NĐ-CP, the Vietnam stock market has witnessed a significant inflow of foreign investments. Therefore, investigating the impact of foreign ownership on stock return volatility in the Vietnam stock market contributes to shedding light on the role and investment behavior of foreign ownership in the context of an emerging market.

The corporate governance literature usually focuses on explaining the stabilizing impact of foreign ownership but does not consider the association in relation to firm characteristics. By using a sample of 160 companies listed in the Vietnam stock markets in the period 2008-2017, the study shows a negative influence of foreign ownership on stock return volatility, but notably, the calming impact of foreign ownership becomes weaker in large firms. The findings are proved to be consistent when the study applies instrumental variable regressions and uses the future one-year volatility as an alternative measure of the dependent variable.

However, the study was limited to the detailed identification of foreign investors' characteristics. It would, therefore, be interesting to investigate the impact of foreign institutional ownership or large foreign shareholders' ownership on the volatility in emerging markets. Such further studies could contribute to a more in-depth understanding of the role of foreign investors in the stability of the Vietnam stock market.

Finally, the findings also offer some implications of corporate governance in Vietnam as well as in emerging countries. First, attracting foreign investors should be considered as a risk control mechanism, but its effectiveness may depend on firm size. Second, improving the regulations on corporate governance towards removing the restrictions on foreign ownership is essential to enhance the quality of governance systems and risk management. In brief, the effect of foreign ownership on stock return volatility in Vietnamese listed companies will give more significant insights into the role of foreign investors in emerging markets.

CHAPTER 5: CONCLUSIONS AND IMPLICATIONS

This final chapter provides a summary of the findings, implications, and limitations of the dissertation and suggestions for future research. Section 1 summarizes the findings in previous chapters. Section 2 provides several implications from the theoretical and practical perspectives of the dissertation. Finally, section 3 points out some limitations of the dissertation, and section 4 suggests areas of research in the future.

5.1 Summary of main findings

The dissertation assesses whether the presence of board independence and foreign ownership is effective in controlling stock return volatility in Vietnamese listed firms. Three central research questions have been addressed. The first question asks whether increasing non-executive directors can reduce stock return volatility, especially in overinvesting firms. The second question asks whether firms with more stock return volatility increase or decrease non-executive director ratio, and how the regulation influences the association. The last question asks whether a high level of foreign ownership can stabilize the fluctuations of stock return, especially in large-sized firms.

To address these questions, the dissertation employs a panel data sample of Vietnamese listed firm during the period from 2007 to 2017. Findings from the dissertation suggest: First, there are numerous challenges preventing non-executive directors from implementing their supervising activities, which leads to information asymmetries and stock return volatility. These challenges come from non-executive directors themselves (limited perceptions of their roles), from corporate governance systems (such as weak governance mechanisms, concentrated ownership and the dominance of the State). Gradually, they play as advisors other than supervisors. Despite that, the risk management role of non-executive directors is not completely denied in firms with high risk or overinvestment. Second, increasing foreign ownership should be considered as an important mechanism to control stock return volatility, but its effectiveness may depend on firm size.

5.2 Implications

5.2.1 *About the role of non-executive directors in emerging market*

Findings in this dissertation extend the literature on the roles of non-executive directors by examining the relationship between non-executive director ratio and stock return volatility in a transition economy. The study in the chapter 2 and 3 found that in Vietnam, the inclusion of more non-executive directors does not benefit the monitoring function. Instead, non-executive directors tend to place more emphasis on their advisory

role. However, the monitoring role of non-executive directors is improved in the case of overinvestment or high risk. Chapter 2 suggests that the presence of non-executive directors in firms with more capital expenditures are likely to mitigate the volatility of stock returns. Chapter 3 indicates that the need for non-executive directors starts to increase again when firm risk reached a certain critical level. In other words, firms with too much capital expenditures or stock return volatility tend to urge non-executive directors to increase supervision as well as to provide more links to external resources for minimizing risks. It indicates that non-executive directors can undertake both advisory and supervisory functions at the same time, but their preference for a certain function may be according to a particular circumstance in a different context. In transition economies, where independent directors found it difficult to execute a monitoring function, they might gradually shift their focus into an advisory function.

From an application standpoint, the results should recommend that the listed firms take stock return volatility into consideration before they intend to nominate and appoint non-executive directors into their board, especially in overinvesting or high-risk firms. It is because adjusting board independence can play a significant role in pursuing a stable or risky business strategy. The findings also offer some implications of corporate governance in Vietnam as well as in emerging countries. First, decisions on board independence should be made after considering environmental and strategic factors. Secondly, improving the regulations on corporate governance towards dispersed ownership and management control is essential to enhance the quality of governance systems and risk management. In brief, investigating the relationship between non-executive directors and stock return volatility will give more significant insights into the role of non-executive directors in Vietnamese listed companies and helps lawmakers improve corporate governance legislations.

5.2.2 About the role of foreign ownership in emerging market

Chapter 4 offers some implications of corporate governance in Vietnam as well as in emerging countries. First, attracting foreign investors should be considered as a risk control mechanism, but its effectiveness may depend on firm size. Second, improving the regulations on corporate governance towards removing the restrictions on foreign ownership is essential to enhance the quality of governance systems and risk management.

5.3 Limitations of the dissertation

This dissertation has several limitations, as follows:

First, although chapter 2 and chapter 3 focus on the relationship between non-executive directors and stock return volatility, the study cannot differentiate whether a non-executive director is nominated and appointed by controlling shareholders or minority shareholders. Separating non-executive directors into 2 groups is important in assessing whether non-executive directors are representing the interests of minority shareholders or they are under the control of controlling shareholders. If this study has enough information on the nomination of non-executive directors, further analysis can be conducted to explain the role of non-executive directors better. Besides, non-executive directors' specific characteristics such as demographics in terms of age, gender, and experience; individual and representative ownership; their foreign ownership ratio; and so forth might also have an influence on their advisory or supervisory activities.

Second, the impact of large foreign ownership on stock return volatility has not been investigated in chapter 4 because large foreign shareholders in the listed firms are usually large financial institutions. Their behavior and investment strategy are appreciated to be different from other foreign investors.

5.4 Further research

Because board independence has still been a new and under-explored area in Vietnamese corporate governance system, investigating the effects of non-executive directors' specific characteristics such as demographics in terms of age, gender, and experience; individual and representative ownership; their foreign ownership ratio; and so forth helps to better explain the behavior of non-executive directors in Vietnam.

Regarding foreign ownership, it has brought many benefits in stabilizing fluctuations of stock returns, but the behavior of majority foreign shareholders should be deeply investigated to bring a more detailed explanation about the behavior of foreign investors.

Apart from stock return volatility, future research may investigate the relationship of non-executive directors and foreign ownership with other aspects of corporate activity such as mergers and acquisitions, corporate policies such as debts or dividend policies, investment efficiency.

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