



**Tomas Bata University in Zlín**  
**Faculty of Management and Economics**

Doctoral Thesis

**Cash holding, Corporate governance mechanisms  
and Firm value in transition economies: A study of  
listed corporations in Vietnam**

**Držba hotovosti, mechanismy řízení podniku a hodnota firmy v  
tranzitních ekonomikách: Studie kótovaných podniků ve  
Vietnamu**

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*The doctoral thesis can be found in the library of Tomas Bata University in Zlin.*

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## **ABSTRACT**

This study is conducted with the main aim to clarify the impact of the corporate governance mechanisms on the corporate cash holdings to improve the firm value in the Vietnamese context, investigating the sample of 610 listed firms on the Vietnamese Stock Exchanges including Hochiminh and Hanoi stock exchanges for the period of 2007-2015. Firstly, to achieve the main objective, the study affirms the impact of cash holding on firm value by the quantitative method to confirm the vital role of cash in the businesses. Secondly, the study reviews the literature and Vietnamese economy to define the components of corporate governance mechanisms which affect the cash holding level. The state ownership, some characteristics of the board of directors and listing requirements of Vietnamese stock exchange are considered as the important corporate governance mechanism factors which can affect the corporate cash holding level. The influence of these components on cash holding is tested using quantitative methods.

The results demonstrate that find out the cash holding has an impact on firm value in an inverted U-shaped form. This confirms that corporate cash holding level affects the firm value. Then, the firms with the right level of cash reserve can increase their value. In order to keep the suitable amount level of cash, the firms need to understand whether the components of the corporate governance mechanisms influence the corporate cash holding. The findings indicate that state ownership has a negative relationship with the corporate cash holding. The firms who have a high percentage of the state ownership because they can easily to borrow money based on their political connections. Moreover, some characteristics of the board of directors (BOD) have the impact on the corporate cash holding. In detail, the corporate cash holding is higher when the chairman and manager are the same people. Meanwhile, the board ownership is negatively related to the corporate cash holding. The firms can consider these factors when they want to adjust the level of cash reserve.

Besides that, the listing requirements of the stock exchange are one of the external components of the corporate governance mechanisms which affect the corporate cash holding level. The firms listed on the different listing requirements keep the different level of cash holding.

The thesis contributes as a reference resource for corporate finance executives. The corporate governance mechanisms should be considered as the factors which affect the cash management. When the managers and the owners understand more about these relationships, they can decide better financial strategy which can improve their firm value.

## ABSTRAKT

Hlavním cílem této práce je objasnit vliv mechanismů řízení podniku na podnikovou držbu hotovosti pro zvýšení hodnoty firem ve Vietnamu s využitím studia vzorku 610 kótovaných společností na vietnamských akciových burzách za období 2007-2015. K dosažení hlavního cíle předložená studie nejdříve potvrzuje vliv držby hotovosti na hodnotu firmy za použití kvantitativní metody, aby se potvrdila zásadní role hotovosti v podnicích. Dále je provedena rešerše literárních zdrojů a charakteristika země k identifikaci složek mechanismů řízení podniku, které ovlivňují výši držby hotovosti v podniku. Státní vlastnictví, některé charakteristiky představenstva podniku a kótační požadavky byly identifikovány jako významné faktory mechanismu řízení podniku, jenž mohou ovlivnit výši držby podnikové hotovosti. V další fázi je zkoumán vliv těchto komponent na držbu hotovosti za použití kvantitativních metod.

Zjištěné výsledky ukazují, že držba hotovosti má vliv na hodnotu firmy ve formě obrácené „U“-křivky. To potvrzuje, že držba podnikové hotovosti ovlivňuje hodnotu firmy. Dále pak, že firmy se správnou úrovní hotovostní rezervy mohou zvýšit svoji hodnotu. K držení té správné výše hotovosti firmy potřebují znát, zda komponenty mechanismů podnikového řízení mají vliv na držbu podnikové hotovosti. Výsledky naznačují, že mezi státním vlastnictvím a držbou podnikové hotovosti existuje negativní vazba. Firmy s vysokým procentem státního vlastnictví si mohou jednoduše zapůjčit peněžní prostředky na základě svých politických vazeb. Navíc mají dopad na držbu podnikové hotovosti také některé charakteristiky představenstva firmy. Konkrétně, držba hotovosti v podniku je vyšší, pokud je předseda a manažer v podniku jednou osobou. Zatímco vlastnictví podílů je negativně spojeno s držením hotovosti podniku. Firmy mohou tyto faktory zvážit při úpravách výše hotovostní rezervy. Kromě toho jsou kótační požadavky akciové burzy jednou z vnějších komponent mechanismu podnikového řízení, které mají vliv na úroveň držení hotovosti v podnikové sféře. Firmy jsou kótovány na akciových burzách podle rozdílných kótačních požadavků, a proto s rozdílnou úrovní držení hotovosti.

Na základě předložených výsledků tvoří dizertační práce referenční zdroj pro finanční manažery v podnikové sféře. Ti by měli chápat mechanismus řízení podniku jako faktor, který ovlivňuje řízení hotovosti. Když manažeři a vlastníci porozumí více těmto vazbám, mohou se lépe rozhodovat v rámci finanční strategie a mohou zvýšit hodnotu firmy.

# CONTENTS

ACKNOWLEDGMENT.....	2
ABSTRACT.....	3
ABSTRAKT.....	4
LIST OF FIGURES .....	7
LIST OF TABLES .....	8
LIST OF ABBREVIATIONS AND ACRONYMS .....	9
1. INTRODUCTION.....	10
2. LITERATURE REVIEW.....	13
2.1 Theories of Cash Holdings.....	13
2.2 The impact of corporate cash holding level on firm value .....	17
2.3 The determinants impact the corporate cash holding level.....	19
2.4 Corporate governance mechanisms.....	21
2.5 Relationship between corporate governance mechanism and the corporate cash holding level .....	22
2.5.1 Relationship between ownership structure (state ownership) and the corporate cash holding .....	22
2.5.2 Relationship between the board of directors (BOD) and corporate cash holding .....	26
2.5.3 Relationship between listing requirements and cash holding.....	29
2.6 Summary of the literature review.....	31
3. RESEARCH PROBLEM AND MAIN OBJECTIVE OF RESEARCH .....	33
3.1. Vietnamese economy .....	33
3.2. Research problem and the main objective of the research.....	35
4. RESEARCH METHODOLOGY .....	39
4.1. Research design.....	39
4.2. Conceptual Framework .....	46

4.3. Research stages.....	47
4.4. Sampling and data collection .....	48
4.5. Data processing .....	49
4.6. Models for testing the hypotheses .....	54
5. FINDINGS AND DISCUSSIONS .....	68
5.1 The influence of corporate cash holding on the firm value in the Vietnamese context.....	68
5.2 The impact of the state ownership on the corporate cash holding level....	74
5.3 The influence of BOD on the corporate cash holding level .....	80
5.4 The impact of the stricter listing requirements of Vietnamese stock exchanges on the corporate cash holding level .....	86
6. LIMITATIONS OF RESEARCH .....	93
7. CONTRIBUTIONS .....	94
7.1. Contribution to theory .....	94
7.2. Contribution to practice.....	94
8. CONCLUSION .....	96
BIBLIOGRAPHY .....	98
LIST OF PUBLICATIONS .....	115
AUTHOR’S PROFESSIONAL CURRICULUM VITAE .....	116

## **LIST OF FIGURES**

Fig.3.1: Vietnam Lending Interest rate (%).....	35
Fig. 4.1: The research framework.....	46
Fig. 4.2: The stages of the research.....	47
Fig. 4.3: The stages of processing data.....	50



## LIST OF TABLES

Table 4.1: The comparison of the listing requirements between HOSE and HNX.....	45
Table 4.2: The control variables using for the study.....	54
Table 5.1: Descriptive Statistic for cash holding and firm value.....	68
Table 5.2: Correlation Matrix for cash holding and firm value.....	70
Table 5.3: The results of cash holding and firm value.....	71
Table 5.4: Descriptive Statistic of cash holding and state ownership.....	74
Table 5.5: Correlation Matrix for cash holding and state ownership.....	76
Table 5.6: The results of cash holding and state ownership.....	77
Table 5.7: Descriptive Statistics of cash holding and BOD.....	80
Table 5.8: Correlation Matrix of cash holding and BOD.....	82
Table 5.9: The results of cash holding and BOD.....	83
Table 5.10: Descriptive Statistics of cash holding and listing requirements.....	87
Table 5.11: Correlation Matrix of cash holding and listing requirements.....	88
Table 5.12: The results of cash holding and listing requirements.....	90

## **LIST OF ABBREVIATIONS AND ACRONYMS**

BOD	Board of directors
CEO	Chief Executive Officer
GMM	Generalized method of moments
OLS	Ordinary least squares
3SLS	3 stages least square
FCF	Free cash flow
GDP	Gross domestic product
RO	Research objective
HOSE	Hochiminh stock exchange
HNX (HASTC)	Hanoi stock exchange
FEM	Fixed effects model
REM	Random effects model
OTC	Over the counter
BLUE	Best linear unbiased estimator
AR	Autocorrelation

# 1. INTRODUCTION

Managing cash and cash equivalents have recently been an important decision for managers who use them for all operating activities in the corporations (Megginson et al., 2014). Controlling cash has provided many challenges for all kind of businesses because the free cash should be invested to be more profitable but the firms also have to ensure they can reserve cash for their needs in the future. Likewise, the companies have low cash level which cannot cope with all emergency situation. Then, according to (Martínez-Sola et al., 2013), the firm value can be reduced because the firms have to suffer from losing affordability. However, stockpiling too much cash can cause some contrary consequences. Harford (1999), Oler and Picconi (2014) examined that the excess cash affects the future stock returns and the firm value. Particularly, there is also the conflict between managers and shareholders in decisions on the level of cash holding because of the agency problem (Shleifer and Vishny, 1997, Megginson and Netter, 2001). Therefore, the task of the manager is to seek the right level of cash holding that helps the firms to balance between profitability and cost to improve the value for the company (Martínez-Sola et al., 2013).

Recently, there have been some studies which have indicated the determinants affect the cash holding such as firm size, net working capital, leverage, inventories, growth opportunities, financial distress, cash flow, and dividend payment (Uyar and Kuzey, 2014, Ogundipe et al., 2012, Megginson et al., 2014). However, the way of management and structures of the executive leadership are essential in operating the corporations, especially the liquidity management (Lien and Li, 2013). Besides this, Klapper and Love (2004) state that a better legal environment relates to better operating performance and market valuation in emerging countries. Hence, the corporations recently should seriously consider the connection between cash holding and corporate governance mechanism to improve the firm value.

Corporate governance mechanism defines the rights and the responsibilities (obligations) among the participants in the corporation including external and internal factors (Azim, 2012). Turnbull (1997) prove that the internal mechanisms are the compensation policy, the board of directors, and the shareholders while the external mechanisms are the regulations, the market, government, external audit, and creditors. Furthermore, the monitoring of actions, policies, practices, and decisions of corporations, their agents, and the stakeholders are the components of governance mechanisms (Babatunde and Olaniran, 2009). Hence, corporate governance mechanisms play an important role in businesses as well as a vital element of corporate finance. Over the past decades, this has attracted the interest of practitioners and researchers around the world (Claessens and Yurtoglu, 2013). Moreover, corporate governance mechanisms are essential in managing the performance of the firms (Goh and Rasli, 2014). In the emerging

economies, the firms tend to be more sensitive with the corporate governance mechanisms (Lien and Li, 2013).

The relation between cash holding, corporate governance, and firm value is becoming an exciting issue for research. Ammann et al. (2011) and Harford et al. (2008) present that the level of governance impacts the level of cash holding. Considering the corporate governance mechanisms is a critical characteristic for the managers and the shareholders of firms because they affect the operating activities as well as the cash management in the corporations (Lee et al., 2011) and (Kusnadi, 2011). There have many challenges for businesses to control corporate governance mechanisms and the level of cash in creating more value for shareholders as well as improving the firm value.

After reforming the economy, the Vietnamese government has privatized some state-owned corporations, which increased private and listed corporations in the country (Mishra, 2012). The number of listed firms has increased sharply, but the controlling of corporate governance mechanisms is not good enough to take all advantages of the emerging market as well as manage the difficulties. Besides this, the short funds of banks, bubbles in the stock market and the financial crisis around the world impact the Vietnamese economy. As a result, Vietnamese corporations have recently faced the liquidity problems. Also, the rising interest rates and the growth of the number of corporations led to the upward trend in capital demand, but it is hard to obtain funds from the banks or investors. These reasons caused unexpected adverse consequences for the corporations in Vietnam due to the high cost of borrowing. Hence, the corporations tend to balance the cash holdings to be more active in the operating of their businesses that are matters of concern. In order to keep the suitable amount of cash, the firms should understand the determinants which impact the corporate cash holding level. In the prior studies, the papers indicate a lot of the determinants. And, the corporate governance mechanism is one of the vital factors which influence the firm operations as well the firm's liquidity (Kusnadi, 2011 and Megginson et al., 2014). Especially, in Vietnam the corporate governance mechanism has limited studies on this issue. This research focuses on the relationship between cash holding, corporate governance, and firm value in the Vietnamese context which is expected to fill the gap.

The dissertation uses the financial accounting information that is provided on financial statements of non-financial corporations listed on Vietnamese stock exchange from 2007 to 2015. The dissertation uses the items in a financial statement such as cash and cash equivalents, short-term assets, borrowings, profits, cash flow, capital expenditure, etc. and other information disclosure on the stock exchange as trading volume and the number of shares. Financial institutions (banks, credit institutions, insurance corporations, etc.) are excluded in the study due to the fact that the characteristics of business operations are relatively different from non-financial corporations which can cause various implications on the results of the research.

The main objective of the dissertation is to find out the impact of corporate governance mechanism on the corporate cash holding level to improve the firm value. To achieve this aim, seven questions and six hypotheses are formulated in the dissertation. After testing the hypotheses, the dissertation finds out that there is an inverted U-shaped relationship between cash holding and firm value. This means that the firms keep the right level of cash holding can increase the firm level. Next part is to indicate the connection between some components of corporate governance mechanisms which affect the corporate cash holding level. The finding suggests the negative relationship between cash holding and state ownership. Also, the characteristics of the board of directors including CEO duality and board ownership have an impact on the corporate cash holding level, but board compensation is not significantly related to the corporate cash holding level. Besides that, the external corporate governance mechanism as listing requirements of the stock exchange affects the corporate cash holding.

The remainder of the dissertation is divided into eight chapters as follow. The first chapter is the introduction which presents the research background, the motivation for selecting the research topics and the scope of the study. Chapter 2 focuses on the theoretical underpinnings of cash management as well as the corporate governance mechanisms. Also, the dissertation reviews the previous studies on the corporate cash holding level and corporate governance mechanisms. Moreover, the earlier studies about the relationship between the corporate cash holding level and the corporate governance mechanisms are presented. Based on the theoretical and the previous studies, the dissertation points out the gap in the research. Next chapter is the brief introduction of Vietnamese economy and indicates the research problem. Chapter 4 includes methodology introducing the research problem, research questions, research objectives, research hypotheses and research stages. The quantitative approach is applied and the hypotheses are tested. Chapter 5 presents the findings and discussions of all results. Chapter 6 points out some limitation of research. Chapters 7 and 8 proposes the contributions to theory and practice, conclusion and proposal for future research.

## 2. LITERATURE REVIEW

This part aims to review the literature on corporate governance mechanisms, cash holding, and firm value. Notably, the dissertation focuses on the impact of corporate governance mechanism and the corporate cash holding level; and the importance of the corporate cash holding level on the firm value.

This part is organized into four sections. Firstly, the theories of cash holdings are presented. Next, the importance of the cash holding level in the firms is demonstrated by focusing on the literature about the effect of the corporate cash holding level on the firm value. The third section documents the determinants which impact the corporate cash holding level in the prior studies. Next part interprets the issue of corporate governance mechanisms as well as its role in the businesses, and how the factors of corporate governance mechanisms connect with the corporate cash holding level. Furthermore, the significant components of corporate governance mechanisms which influence the corporate cash holding level are interpreted in the following sections. Finally, section 6 summarizes the literature and indicate the gaps in this field of research.

### 2.1 Theories of Cash Holding

The earlier studies indicate that cash holding level is important in the operation of the firms. Moreover, the finding suggests that the firms should keep the suitable amount of cash holding in the companies for daily activities. There is a complete difference between the profitability of the businesses and cash available for paying all the expenses. In particular, the company has a profit on the financial statement, but at the moment the company does not have sufficient cash to cover its debts or other necessary expenses. In this case, the company cannot wait for profit generated in the short time. As the results, the company is lacking cash to pay for the expenses at a time that is called "technical bankruptcy." With the vital role of cash, there are many incentives for businesses to hold cash.

In 1936, after the publication of Keynes (1936) "The General Theory of Employment, Interest, and Money," the concept of this treatise has greatly influenced the monetary policies of many countries. At that time, the theory of monetary demand was called the "Liquidity Preference Theory." In this book, Keynes discusses the factors which has an impact on the decisions for keeping cash or whether the cash holding is essential in the firms. And, Keynes also indicate that there are three main reasons for holding cash such as *transaction*, *precautionary*, and *speculative motives*.

With *transaction motive*, the firms hold cash for maintaining the businesses and performing the transactions as they occur. In other words, any company needs cash to meet their operating expenses in time. Every company should have the amount of cash for their business to pay interest, expenses and capital expenditures, and some emergency situations. Moreover, the firms need to remain the liquidity to face all cases. Additionally, the companies may improve liquidity

in a variety of ways, such as raising capital, decreasing dividend payments, declining some investments, or selling liquidity assets but the firms have to pay some cost. Therefore, stockpiling cash can mitigate short-term payment problems or take all advances in the worthwhile projects. Furthermore, holding cash helps companies become secure when they have to face with unexpected expenditure without raising capital from outside or selling other assets. Similarly, Baumol (1952) and Miller and Orr (1966) indicate the firms should keep the amount of cash which is enough for a company's operations when the transactions occur to avoid the costs for converting the assets to cash.

In the past, the previous economists thought that the firms only need to keep cash for firm's operating activities. Nevertheless, Keynes's theory indicates that another motivation for holding cash is the *precautionary motive*. The *precautionary motive* concerns the fact that the managers prefer keeping more cash in the case of unexpected problems to decrease the borrowing cost from external sources. Holding cash for precautionary is important which needs to be considered carefully by managers whereas the amount of cash reserve should be enough for unexpected events. Notably, the developing countries have a lot of investment opportunities, but they also are frequent risky. Thus, the firms should have a cash reserve to prevent risk in unexpected case. Kim et al. (1998) confirm that the firms have to raise a fund with high external financing cost, significant fluctuation in profitability which tends to hold large amounts of cash in order prevent the unexpected cases. Furthermore, when the firms expand the business, the firms should have a higher level of cash reserve to manage all situations which usually happen in the starting periods (Li et al., 2009). The precautionary motive implies that the company keeps cash to cope better with dangerous situations, avoiding cash shortage for investments, because the external funding is more expensive in comparison with using internal capital because of asymmetric information (Opler et al., 1999).

Keynes (1936) agrees that money has a storing function which is known as *speculative motive*. Keynes concurs that wealth is connected with income, so the speculative motivate is related to income. Keynes divides assets which can be stored wealth in two categories: money and securities. And, Keynes also confirms that the securities are fluctuating in related to the interest rate of the market. Keynes assumes that the interest rates tend to turn in a reasonable value. But, if the interest rate is lower than the normal value, the securities can reduce the value, and the loss of capital is expected. As a result, people are more likely to keep cash than securities and demand for money is also high in this case. Based on this theory, the monetary demand is negatively correlated with interest rates. Mainly, speculative motive expresses that the companies hold more cash when the interest rate of the securities fall due to the increase in money demand and vice versa. Thus, according to Keynes' theory, speculative motive expresses that the companies hold more cash in the situations of scarcity and fluctuations in commodity prices or the change in exchange rates. Similarly, Lins et al. (2010)

state that firms hold excessive cash holdings as insurance in financial distress. Furthermore, Opler et al. (1999) suggest that firms should keep retained earnings which help the firms in developing periods to minimize the problem of insufficient capital for investment.

There are the motivations of keeping cash but keeping cash too much raises the costs of holding cash. Therefore, with these costs, the firms should notice about maintaining cash in the suitable level for the firms. Three motivations above explain the reasons for keeping cash. However, the firms need to understand related theories to find out the right amount of cash that can bring in the profits and minimize the cost of capital for the firms (Ferreira and Vilela, 2004). In the previous studies, the impact of the corporate cash holding level on firm value is explained by trade-off theory (Myers, 1977), the pecking order theory (Myers and Majluf, 1984), and the free cash flow theory (Jensen, 1986).

Firstly, *the trade-off theory* (Myers, 1977) suggests that the companies have different goals regarding debt and capital structure to maximize their firm's value. The potential cost of using debt is the financial distress costs such as the cost of paying an attorney for bankruptcy, the expense for accountants and administrative staffs in the process of liquidation and cost due to losing customers and suppliers. Therefore, if the cost of debt is higher in comparisons with the benefit from the tax shield, this has a bad influence on the businesses. Because of this, the companies try to identify the point at which the increase of debt is sufficient to offset the rise of financial distress costs. In this case, the firms should consider keeping the amount of cash for their businesses than borrowing money. Thus, Myers (1977) asserts that the managers need to seek the balance level between debt and cash holding level to boost the firm value. As the results, the firms should maintain a reasonable amount of cash to avoid seeking money from external parties as cost of debt increases.

*The trade-off theory* confirms that the optimal level of corporate cash holdings is established by the balancing of the marginal cost and the marginal benefit of keeping cash (Martínez-Sola et al., 2013). On the one hand, maintaining cash reduces the financial distress. In the financial distress situation, the cash reserve is used as a storage for unexpected losses, and the firms with higher level of cash holding can avoid the high external financing costs. Additionally, keeping cash leads the firms to pursuit good investment opportunities. Moreover, if the firm does not have sufficient cash reserves which have to mobilize external capital at high cost, then the firm may give up some projects that bring positive net present value. Therefore, in this case, cash holding contributes to minimize the cost of capital and increase the firm liquidity. On the other hand, keeping too much cash also causes agency problem if managers cannot invest in efficient ways. Thus, the firms need to find the balance point between the cost and benefits of holding cash. Based on this theory, the dissertation builds the model to explore the effects of cash holdings on the firm management as well as the impact on the firm value.



Secondly, *the pecking order theory* of Myers and Majluf (1984) suggest that the firms should keep the cash reserve to minimize the cost of issuing new equities due to asymmetric information. This theory represents that the internal funding as cash is the most preferable, and next priority is debt, and the final step is to issue the new shares. The earliest foundations for pecking order theory is from Donaldson (1961). Donaldson argues that the managers have the priorities in using internal funding and the managers then consider external financing (debt and issuing new securities) when the firms need capital in emergency situations. Myers and Majluf (1984) show that the bias of this financial behavior deriving from information asymmetry. This theory is concerned about asymmetric information which affects investment decisions and financing of businesses. The asymmetric information causes the conflict between the managers and shareholders and other investors because the managers understand better their company's activities as well as the profitability of future projects than the other investors. Thus, the new investors require a higher rate of return than existing shareholders when the firms issue new securities to raise their funds, which lead the cost of external financing to be more expensive. If the project is predicted to have higher profitability, the managers and shareholders try to fund by using available internal resources from retained earnings. In the case of an insufficient fund, the managers and shareholders consider borrowing money with the fixed-rate which is often lower than the project's profitability rate; thus, they do not need to share profit with new shareholders. They only consider the use of equity financing when the company's shares are priced higher than the market value. According to the pecking order theory, to minimize financing cost, the companies prefer using the internal funds than external sources. Thus, at first, the companies usually use internal retained earnings (retained earnings), then the debt securities and finally they issue new shares as the final option. According to this theory, the firms consider holding more cash to reduce the cost of raising funds from an external source which can lead to improving the firm value (Ferreira and Vilela, 2004).

Thirdly, *free cash flow theory* (Jensen, 1986) reveals that managers have an incentive to store cash to accelerate the volume of assets under their control and to take full advantages of the firm's investment decision. Free cash flow (FCF) is the cash from business activities after deducting capital expenditures such as construction costs and machinery costs. According to Rose (2007) "FCF is a measure of a company's financial performance, calculated as operating cash flow minus capital expenditures." In other words, the free cash flow represents the amount of cash that an enterprise can generate after leaving a portion to maintain or expand its assets for production and operating the businesses. The concept of free cash flow is important because it explains that the companies can pursue investment opportunities to maximize shareholder value. Without cash, the firms have difficulties in developing new products, investing in the proper opportunities, paying dividends, paying off debts, and other purposes. Many

investors believe that free cash flow can provide a clearer picture of the ability to generate cash and generate profits for the firms.

In addition, the theory argues that the excess amount of cash holding level brings more benefits for the managers. Firstly, the managers invest in the projects without reporting to the shareholders can adversely affect the firms or the shareholder wealth. In this case, the managers have high power to control the projects and other investment opportunities while they do not care too much about the shareholder benefits. Secondly, the managers want to keep a higher level of cash holdings to avoid the bank loans, a financial source which offers the benefits of tax shield. For this reason, the theory suggests a negative connection between corporate cash holding level and firm value.

Besides that, according to free cash flow theory, when the amount of cash exceeds the amount of money required for businesses and investment, the conflict of interest between the manager and the shareholders arise. In this case, the managers may approach all investment including the poor projects (Opler et al., 1999). Due to this reason, the cost of holding cash can be higher when the managers do not maximize the shareholder's wealth and keeping cash can decrease the firm value. Therefore, the managers have to balance the cash holding level in the company to reduce this agency problem. This issue is related to the corporate governance mechanisms of the firms. This is because the good corporate governance mechanism leads to lower the agency problem (Shleifer and Vishny, 1997). Then, the firms need to consider the corporate governance mechanism as the factor which can impact the level of cash holding.

The three main theories explain the cash holding level in the firms, the pecking order theory indicates that the firms should keep more cash to reduce the cost of borrowing cost from external sources but the free cash flow theory argues that the firms keep too much cash, causing higher agency cost for the firms. Then, according to the trade-off theory, the firms should find out the level of cash reserve which can balance the cost and benefits of holding cash.

## **2.2 The impact of corporate cash holding level on firm value**

For all businesses, cash is a critical account that reflects the status and structure of assets on a balance sheet. In addition, cash reserve is the current asset with the highest liquidity. Besides, Martínez-Sola et al. (2013) reveal that one of the essential determinants that have an impact on firm value is the level of cash holding. Moreover, the decision on cash holding which is vital to business operations is the most vital factor in company's health and their value (Lee and Powell, 2011). Ferreira and Vilela (2004) confirm that the cash holding plays an important role in the daily operations of a firm because they sometimes need money to solve the financial problems immediately.

Saddour (2006) argue that having a higher level of cash holding helps the firms to reduce risk. In detail, these studies show that the cash holdings and market value of firms have positive relationships, especially, since keeping more cash

reserve is more important for the growing firms than mature firms period. These results are in line with the pecking order theory. In detail, the firms prefer using the internal funds with cheaper cost than another external source. Similarly, Bates et al. (2009) and Frésard and Salva (2010) document that cash holdings level has a positive impact on the value of the firms. This is in line with the precautionary principle that the firms should keep more cash to prevent the emerging situations in growing periods. Moreover, Gill and Shah (2012) argue that there is a different cash reserve level in developing countries and developed countries to maximize the firm value. Given that the results of previous studies are mixed, then the dissertation need to discover whether the right amount of corporate cash holding level can improve the firm value or not.

Additionally, Martínez-Sola et al. (2013) confirm that the cash holding has a strong effect on firm value by collecting publicly traded US firms during the period 2001 to 2007. And, the firm value is measured by Tobin's Q. Martínez-Sola et al. (2013) discover the optimal level of cash holding to maximize firm value. The findings suggest that the firm value decreases if cash holding level moves away from optimal level. Likewise, Lee and Powell (2011) show that the reduction of excess cash holding contributes to an increase in the firm value and the change in excess cash reacts differently in determining firm value. Moreover, Oler and Picconi (2014) indicate that the stock return and firm value can be changed when the cash holding is insufficient for firm operations.

The impact of corporate cash holding level on the firm value has been especially motivated by the fact that corporations hold significant amounts of cash on their balance sheets. There is empirical evidence of the increase of cash holding in firms as follows: 10% of cash holding (Bigelli and Sánchez-Vidal, 2012); 18.5% in Japan (Pinkowitz and Williamson, 2001); 17% in the United States during 1971-1994 (Opler et al., 1999). According to Dittmar and Mahrt-Smith (2007), the sum of all cash and marketable securities represented more than 13% of the sum of all assets for large public US firms. Besides, the average ratio of cash in total assets of the companies in the U.S. increased by about 0,45% per year from 1980 to 2006 (Bates et al., 2009). Moreover, the average cash holding level in Vietnam is 9.8% which is also high in comparison with other current assets (Do and Ha, 2016). Furthermore, the rate of cash reserve in the Vietnamese context is higher than other countries in the previous papers. In detail, the previous paper show the average cash holding is 6.57% in Spain (García-Teruel and Martínez-Solano, 2008), 3.87% in Canada (Gill and Shah, 2012) and 7% in Nigeria (Ogundipe et al., 2012). Thus, the cash holding in the Vietnamese context has a vital role in their businesses. But when the companies keep more cash, the conflict between managers and shareholders increase according to agency problem (Jensen, 1986). However, the firms maintain enough cash for their operation that can maximize the firm value or firm performance (Martínez-Sola et al., 2013). In this case, choosing the suitable amount of corporate cash holding level can help the firms to improve their value. This is because they have enough

cash to invest in all good opportunities with cheaper cost of capital as they do not borrow money from an external source which is usually higher cost.

There are several previous studies relating to the corporate cash holding topics which have been conducted, but the research on this topic is quite limited in the Vietnamese context. And, some recent studies have been highlighted in this field. Le et al. (2014) indicate that the relationship between corporate cash holding level in the Vietnamese context. Also, Nguyen and Truong (2016) use a sample of 100 non-financial listed companies in Vietnam from 2007 to 2012 which confirms the strong influence of the corporate cash holdings on the firm value because there is a nonlinear relationship which is quadratic (concave) but the sample is small. Besides that, they also argue that there exists the optimal level of corporate cash holding level to maximize the firm value. As a result, the firm value may be reduced when the corporate cash holding excess is lower or higher than the optimal level. Furthermore, the paper of Nguyen et al. (2015b) shows the result that there exists a U-shaped relationship between the firm value and cash holding ratio and the data includes 2,572 observations of companies listed on the stock exchange of Vietnam from 2008 to 2013. As a result, the paper suggests that cash holdings are a significant factor influencing investment decisions and positively impacting firm value.

### **2.3 The determinants impact the corporate cash holding level**

The previous studies document that the determinants impact the corporate cash holding level which concentrate on these factors such as net working capital, leverage, inventories, growth opportunities, financial distress, cash flow, dividend payments, cash flow, leverage, firm size, and etc. (Ferreira and Vilela, 2004, Saddour, 2006, Opler et al., 1999, Harford et al., 2008, Martínez-Sola et al., 2013, Megginson and Wei, 2010). The firms can keep the right amount of cash reserve which depends on the situations of firms (Martínez-Sola et al., 2013). But the results are mixed in different studies. Ferreira and Vilela (2004) indicate the investment opportunities and cash flow have positive connections, but it negatively impacts on asset liquidity, leverage and firm size. Furthermore, bank debt and cash holdings have a negative correlation. Saddour (2006) uses regression analysis to investigate the determinants which impact the corporate cash holding level in France from 1998 to 2002. The paper concludes that the firms hold more cash level for growing period, the study finds out a negative relationship between cash holding and the characteristics of the enterprise such as size, the degree of liquid assets and current liabilities. Meanwhile, the level of cash holding in mature firms which increases with the size, level of investment, dividend payments. Megginson and Wei (2010) indicate that the factors which impact on the level of cash holding in China such as the positive connection between growth, profitability and cash holding level are confirmed while the smaller size holds a higher level of cash. Moreover, the debt and net working capital are a negative relationship with cash holdings. Kim et al. (2011) study a

sample including 125 listed companies in the United States between 1997 and 2008 and point out that firms with greater investment opportunities tend to keep more profits and less cash. In Turkey, Ali and Cemil (2014) show that cash flow and growth opportunities have the positive impact on cash holding but the debt ratio, capital expenditure, size, noncash liquid assets, and leverage affect negatively. The previous studies focus on the internal factor of firms which can impact on the corporate cash holding level.

However, recently the researchers try to find out other important factors influence the corporate cash holding level. Currently, the growing number of literature attempted to explain how the corporate governance mechanisms influence the development of the companies as well as firm performance. Furthermore, the several papers begin to examine the connection between the cash holding level and corporate governance in some countries as China (Megginson et al., 2014). To understand more about the corporate governance mechanism, the dissertation provides the related literature. In addition, the relationship between corporate governance mechanism and the corporate cash holding level has not been studied deeply and entirely in developing countries. Therefore, these above issues motivate new studies on the relationship between the corporate governance mechanisms and the corporate cash holding level in the Vietnamese context.

In Vietnam, some recent studies have been highlighted in this field. Most studies focus on discovering the determinants as firm size, net working capital, leverage, inventories, growth opportunities, financial distress, cash flow, and dividend payment which has an impact on the corporate cash holding level. Le et al. (2014) examine the determinants which affect the corporate cash holding level. The paper uses a sample of 100 non-financial listed companies in Vietnam from 2007 to 2012, and the article finds out that cash flow, liquidity, firm size, leverage, and growing to influence the corporate cash holding decisions for businesses in Vietnam. The previous papers in Vietnam concentrate on the internal factors which can influence the corporate cash holding level.

The corporate governance mechanism issue has been discussed for a long time, and this issue has become the great interest of researchers and practitioners in developed countries. However, this topic is still new in emerging economies and transition economies such as Vietnam. The issue of corporate governance mechanism is still a new concept. The perception of corporate governance mechanism of the participants remains limited. Meanwhile, the business environment and the capital markets have changed rapidly and become more complex after the financial crisis in 2007 and 2008. Thus, the corporate governance mechanism has attracted more researchers to improve the firm management and firm performance. There are just a few studies which examine the theoretical basis of corporate governance mechanism in the Vietnamese context, but most papers are not in-depth studies on the effect of corporate governance mechanism and the firm operations. Therefore, the impact of

corporate governance mechanism on the corporate cash holding level has not been explored in the Vietnamese context.

## **2.4 Corporate governance mechanisms**

Corporate governance mechanisms have many different definitions which depend on the view of the world (Gillan, 2006). Jarboui et al. (2015) define corporate governance mechanisms as the responsibility and the rights of different participants such as the board of directors, managers, shareholders, creditors, auditors. Furthermore, governance sets the structure to accomplish the goals in the context of the social, regulations, and market environment. The corporate governance mechanism defines as *“Corporate governance mechanism is a term that is often used, but rarely defined. It can be most simply defined as the system of laws, rules, and factors that control operations at a company.”* (Gillan and Starks, 2000).

Gillan (2006), Monks and Nell (2011) also categorize the components of corporate governance mechanisms into two groups: internal and external factors. In detail, the internal corporate governance mechanism indicates the shareholders, the firm managers, and the BOD. The external corporate governance mechanism mentions the providers as well the regulations which impact the firm activities. Then, the regulations of the stock exchange need to consider in the study of corporate governance mechanisms. Besides that, the other previous papers state that the internal factors include the ownership structure, the board of directors, CEO duality, and board compensation which influence the firm’s operating (Adams and Mehran, 2012; Germain et al., 2014; Kumar and Singh, 2013). Meanwhile, the external factors focus on the effectiveness of the managerial labor market, the market for corporate management and the regulations which are important in operating the businesses (Fan et al., 2007). Thus, understanding more about corporate governance mechanisms helps to reduce the conflict of interest between shareholders and managers which leads to better performance for the firms (Megginson et al., 2014).

Alchian and Demsetz (1972) mention the roots of the agency problems and then Jensen and Meckling (1976) develop the definition that “the agency problem is the relationship between the principals, such as shareholders and agents such as the company executives and managers.” The agency problem is the conflict of interest between principals and agents due to the difference of ownership and control. Jensen (1986) reveals that the managers maximize the benefits of their individual rather than the profit for shareholders. Likewise, arising business opportunities provide incentives for managers to hold more cash to take all investment opportunities. However, doing so would adversely affect shareholders’ wealth despite raising capital from outside sources. As a result, having companies with more cash on hand leads to an increase in the agency problems. Al-Najjar and Clark (2017) suggest that better management of external and internal corporate governance mechanisms can mitigate the conflict between

the managers and shareholders. The internal corporate governance mechanisms are managed by the board and internal auditing which are considered as vital tools to reduce the agency cost (Lasfer, 2006). External corporate governance mechanisms include the regulations, external environment and external auditing which can impact the agency cost (Al-Najjar and Clark, 2017).

## **2.5 Relationship between corporate governance mechanism and the corporate cash holding level**

Fan et al. (2007) and Gillan (2006) represent that the corporate governance mechanisms include the internal and external factors. According to Germain et al. (2014); Kumar and Singh (2013), some internal corporate governance mechanisms are the ownership structure, board of directors, CEO duality and board compensation which can strongly affect the firm's operating. Firstly, the ownership structure is considered as an important factor in improving the firm performance in developing countries according to Demsetz (1983); Demsetz and Villalonga (2001). Besides that, Ananchotikul (2015) and Al-Malkawi et al. (2014) examine some major effect of corporate governance mechanisms (board structure, board responsibility, disclosure, and transparency) in emerging countries that have connections with the liquidity management. Besides, Prommin et al. (2014) report that the firms have the better liquidity due to the good management of corporate governance mechanism. Consequently, the dissertation concentrates on the internal components of the corporate governance mechanisms as ownership structure and board of director.

Considering external corporate governance is one of the critical characteristics of the managers and the shareholders of firms because they affect the operating activities as well as the cash management in the corporations (Kusnadi, 2011). Additionally, Turnbull (1997) defines that the external factors which include the regulations, the market, government, audit, and creditors. The listing regulations of the stock exchange are considered as one of the external corporate governance components. Moreover, the listing of firms in different stock exchanges has brought a lot benefits such as mitigating the information asymmetric which can increase the benefits for investors (La Porta et al., 2000). Correspondingly, Avramov et al. (2006) propose that the supplying cost of the liquidity have the difference rate in the different stock exchanges. As an illustration, the listed firms on each stock market have unique opportunities to raise their capital. This is because the various stock exchanges have different creditable which have an impact on the cost of raising capital (Cetorelli and Peristiani, 2015). Thus, in next part, the dissertation reviews the literature on the relationship between ownership structure and the corporate cash holding level.

### **2.5.1 Relationship between ownership structure (state ownership) and the corporate cash holding**

Firstly, ownership structure including the percentages of shares are held by the managers (managerial ownership), government (state ownership), foreign investors (foreign ownership), institutions (institutional ownership) or individual ownership which are measure by Ebel Ezeoha and Okafor (2010). The different ownership structure can have different effects on the firm's operation, and this correlation also explains the varying levels of impact across countries (Megginson et al., 2014). The dissertation studies about the ownership structure because the changes of ownership structure which impact differently on the firm management (Megginson et al., 2014). This problem has attracted a lot of scholars and practitioners in many previous studies. And, the changes in ownership structure leads to increase the agency problem in the firms (Huang et al., 2011). Furthermore, the agency problem is becoming more and more serious as companies grow and expand in size. When the corporations are bigger, the shareholders who cannot operate the company tend to hire managers from outside to run the company. Thus, when the company separates the power between managers and shareholders, the conflict of interest between the owners and the managers arises (Adam Smith, 1973). And, this separation brings potential problems for the cash management strategy because both of them want to maximize their benefits, but the conditions for maximizing their profits are not the same. And, the managers want to keep cash to have the ability to access the funds when they need, but the shareholders consider in different ways. And, the shareholders indicate that the managers want to hold cash for their interest. Thus, the ownership structure may have an impact on the corporate cash holding level due to the agency problem.

Furthermore, Myers and Rajan (1998) note that arising business opportunities provide incentives for managers to hold more cash. However, doing so would adversely affect shareholders' wealth despite raising capital from outside sources. As a result, having companies with more cash in hand leads to an increase in the agency problems owing to the fact is that the companies with massive free cash flow create more opportunities for managers to take advantage for their benefits easily. Likewise, the firms with higher level of cash reserve make the shareholders think that the managers may invest in all investment opportunities without considering the firm value (Jensen and Meckling, 1976). The agency problem can be reduced by resolving conflicts of interest between owners and managers.

Lasfer (2006) considers the right ownership structure can reduce the agency cost. Easterbrook (1984) and Jensen (1986) point out that the managers prefer hoarding large cash reverses owing to the less efficient control of shareholders, namely flexibility hypothesis. This means that the different owners lead to the various cash holding levels. The ownership structure influences the firm management so that if the owners have more investment experiences or more power to help the firms raise the capital, the agency problem can be reduced. Additionally, the different ownership structure has a disparate impact on the firm's operations as well as the investment decisions.



In addition, the state ownership is the high rate in the developing countries which need to study in the correlation with the firm's operation as well as the corporate cash holding level (Megginson et al., 2014, Phung and Mishra, 2016). Moreover, the dissertation focuses on the state ownership because the corporation still has high percentage of state ownership in developing countries or transition economies (Megginson et al., 2014). State ownership in these countries often has a high rate after the economy is transformed from a centrally planned economy, which demonstrates that the state still intervenes in the operations of these companies. Accordingly, the results of empirical research on the effect of state ownership on the firms' operations are also very different in each sample (Hartzell and Starks, 2003).

The relationship between the state ownership and corporate cash holding level is a matter of concern for researchers and company managers (Megginson et al., 2014). However, the research results are not consistent. Firstly, many studies point out the influence of state ownership on the effectiveness of the business operations. Yu (2013) shows that the positive connection between the state ownership and firm performance is due to assistance from political connections and government support to take advantages in operating the businesses. The positive relationship between state ownership and firm performance is confirmed by many studies from Najid and Rahman (2011); Le and Buck (2011); Le and Chizema (2011). Nevertheless, some earlier studies show that the higher proportion of state ownership means more pressure from politicians such as lower sales price, more unnecessary employee and lack of flexibility in decisions in operating the firms which cause the drawbacks for state ownership (Wei et al., 2005). Besides that, state ownership is connected with weak corporate governance mechanisms, weak performance, and severe moral hazard problems which is similar with previous studies from Shleifer and Vishny (1997); Megginson and Netter (2001). Borisova et al. (2012) state the negative association between state ownership and corporate governance mechanisms. Consequently, being state-owned may cause poor corporate governance mechanisms. Since the listed firms should hold more cash to avoid risks, this predicts the positive relation with cash holding.

Besides that, Aljifri and Moustafa (2007) explain that the companies that have a higher proportion of being state-owned do not have the pressure on the financial report. Hence, the manager can keep the money for improving the firm performance. Le and Chizema (2011) claim the managers do not exert any effort to create more value for the shareholders or maximize the value of assets, so they prefer hoarding more cash. In the same way, state ownership leads to the rise of cash holding level because the firms can take advantages of the help from the government to seek the good investment opportunity (Yu, 2013).

However, some studies indicate the negative connection between corporate cash holding level and being state-owned. Likewise, in countries with the high intervention of the government power in economic activities, the state ownership

has the opposite effect on the performance of the company when the agent represents for the capital of the state who is not the actual owner (Wang et al., 2008). According to Jensen and Meckling (1976), the agency problem incurred when the state shareholders are represented by individuals who may not operate the firms in useful ways. This can lead to increases in the agency cost and the conflict between the owners and managers. Thus, the firms should maintain less cash because of the rise of the agency problem when the firms have a higher level of state ownership. Megginson et al. (2014) confirm that the firms with higher level of state ownership cause soft budget constraints and this lead to increase the agency problem for the firms. Therefore, the firms hold less cash reserve in this case. According to the agency theory from Jensen (1986), the managers tend to control the corporate resources to take all advantages for themselves. The cash reserve as one of the liquid assets is natural to be used by the managers to invest in the projects. Moreover, these managers may also have the intention to take the commission when they invest in the projects as the corruption (Megginson et al., 2014). Additionally, the managers have the pressure from the political issue to take the investment even if the projects are not suitable for the firms. Therefore, the firms should keep less cash level to avoid these issues.

In addition, Shleifer and Vishny (1997) indicate that there is the helping hand from the government for raising the capital for the state-owned firms. In this case, the companies tend to have a smaller amount of cash reserve. Tam and Tan (2007) argue that the firms with state shareholders have easy to access the debt from the government banks than other firms in the time of distress. Thus, the firms do not need to keep the high level of cash in any situation owing to the fact is that the state-owned firms can borrow money from the external sources as the state-owned banks. Furthermore, Lam et al. (2012) find out that there is a positive correlation between the state-owned and the rate of cash dividend payment. Cash dividend payments are used as a “tool” which can decrease the cash reserve level to reduce agency costs (Lam et al., 2012). Therefore, the corporate cash holding level connects negatively with the percentage of state ownership.

The influence of the state on the corporate cash holding level has different findings in the previous studies. And, Vietnam is one of emerging economy countries with significant changes in the ownership structure which can impact the firm management (Nguyen et al., 2015a). Moreover, Nguyen and Ramachandran (2006) argue that the firm with majority state ownership has more advantages to borrow money from external sources which are based on their connection with the government and the banks. This finding is similar to Nguyen et al. (2012) that there is the positive connection between debt ratio and corporate cash holding level. Thus, the firms with high state ownership have a higher ratio of debt compared to others. In this case, the firms do not need to hold too much cash because they can borrow money. However, Okuda and Nhung (2010) document that the firms do not have the intention to issue more debt, then the firms should keep more cash to reduce the risks. To summarize, the impact of

state ownership on the corporate cash holding level has different results in each study. Thus, the effect of state ownership on the corporate cash holding level need to investigate.

### **2.5.2 Relationship between the board of directors (BOD) and corporate cash holding**

According to Gillan (2006), the board of directors (BOD) is one of the internal corporate governance mechanisms. Moreover, previous papers indicate that BOD has an impact on the firm performance (Coles et al., 2001, Jensen, 1993). In the board of director, Gillan (2006) documents that the important characteristics of boards are structure and incentive. The composition of the board as CEO duality is considered one of an essential element in previous studies which influence the firm performance (Lee and Lee, 2009). The CEO duality defines as the chairman and CEO are the same people. For the BOD structure, the dissertation only focuses on the impact of CEO duality on the corporate cash holding level. Besides that, the incentive of BOD includes the ownership and compensation of BOD (Gillan, 2006). According to Fama and Jensen (1983), there is a difficulty in supervising the managers' decisions. Moreover, if the firms want BOD to bring more benefits for the shareholders or impact the firm performance, the firms should give the BOD appropriate motivations as higher compensation or combine material and spiritual (Frydman and Saks, 2010).

#### **➤ *Relationship between CEO duality and corporate cash holding***

In the corporation, CEO may hold the position of the chairman (concurrent power), or maybe a member of the board, or not keeping any position. Firstly, the dissertation reviews the previous studies which relate to the separation between CEO and chairman. On the one hand, the different person between CEO and chairman can achieve less fraud in financial statement (Beasley et al., 2000). In this case, the firms keep less cash holding level because the cost of borrowing debt is lower (Anderson et al., 2004). Equally, higher board independence which is measured by the separation power between CEO and chairman is related to higher efficient managing and firm performance (Lee and Lee, 2009). Thus, the firms hold a lower level of cash reserve when the board is more independence. On the other hand, when CEO and chairman are the same person (CEO duality) who has high power and this issue leads to more frauds in financial reporting (Dunn, 2004). Consequently, the firms need to keep more cash because of the higher cost of borrowing. Hence, the separation of CEO and chairman have mixed results for corporate cash holding level.

According to the agency theory (1976), the firms should discriminate the right from CEO and chairman. Some of the researchers conclude that the CEO duality helps the firms to improve their firm performance. In particular, having the same person as CEO and the chairman has the most advantageous such that with this corporate governance structures give CEOs the power to make their own decision

in the urgent situations (Donaldson and Davis, 1991). These decisions are on time and correctly which can bring more profit for the firms. Once CEOs are also the chairmen, CEOs are more willing to work for the company, and they maximize their ability as well as performance to reach organizational goals rather than personal goals (Davis et al., 1997). These authors also argue that the same person for the positions creates a clear and definitive leadership style in line with the firm's strategy and they also execute the corporate strategy. Therefore, executives employed concurrently as CEOs and chairmen can create higher firm value and improve the effectiveness of the company (Guillet et al., 2013, Yang and Zhao, 2014). In this situation, the firms should hold a high level of cash reserve to invest in more projects to earn more money (Harford et al., 2008).

Nevertheless, some previous papers indicate that having the same person for CEO and chairman position leads to the increase of insider ownership (McConnell and Servaes, 1990). The higher insider of ownership causes higher agency problem in the firms which leads to the lower level of corporate cash holding (Kusnadi, 2011). According to Dittmar and Mahrt-Smith (2007), the managers believe that they create more profit when they keep cash rather than distribute to the shareholders. Besides that, the companies with CEOs who are also the chairman have high rates of bankruptcy (Daily and Dalton, 1994, Finegold et al., 2007) or reduce firm performance (Coles et al., 2001). In this case, when the bankruptcy rate is higher, the cost of capital is increased when the firms want to ask money from the bank and other external sources. Then, the firms should hold more cash to reduce the high cost of borrowing the external source (Pecking order theory, 1984).

#### ➤ *The relationship between BOD compensation and cash holding*

Van Herpen et al. (2005) define the main components of the compensation as fixed pay, flexible pay, and other benefits. And, the author confirms that the compensation considers as work motivation and job's satisfaction as factors that improve the firm value. Moreover, many papers explain how executive compensation outcomes are positively related to the firm performance (Jensen and Murphy, 1990, Frydman and Saks, 2010).

Ryan Jr and Wiggins III (2004) point out that the difference of BOD compensation has various impacts on the firm performance. In detail, the BOD with high payment may cause the increase of conflict between CEOs and BOD. In this case, the agency problem increases, then, the firms should not hold a high level of cash (Dittmar et al., 2003). Besides that, Hermalin and Weisbach (1998) document that the board receiving the high compensation packages is connected positively with the shareholder's wealth. Thus, BOD with a high level of compensation improves the firm value which does not keep a high level of cash reserve. This is because the firm with a higher performance can easily borrow money from external sources (Lee and Lee, 2009). Likewise, Conyon (1997) designates the higher of compensation of BOD is related to the shareholder

returns. In this case, the firms do not hold cash in hand because they may tend to invest more money in the project to earn a profit for all shareholders.

Nevertheless, Brick et al. (2006) point out that excess compensation can cause the underperformance of the firms. Similarly, Barontini and Bozzi (2011) confirm a negative correlation between excess of board compensation and firm performance because BOD does not want to take all investment opportunities to have a high level of cash reserve to get more compensation. Jensen (1993) expresses that board of director failure to improve the firm's management with any degree of compensation. Thus, the firms should consider the compensation of managers in order to get better in the management of the corporations to improve the firm performance. And, Lee and Lee (2009) confirm that there is a connection between the firm performance and the corporate cash holding level. Therefore, it is needed to find out whether the BOD compensation affect the corporate cash holding level.

➤ *Relationship between BOD share on ownership and corporate cash holding level*

The separation between control and ownership leads to the issue of agency problems between the managers and the shareholders in the corporations. Jensen and Meckling (1976) recommend that the benefits of shareholders can be improved when the managers also own the shares of firms. Additionally, having the managers hold the company's shares give the motivation for managers to be more efficient in operating their businesses (Brickley et al., 1997). Thus, the firms are getting higher performance when BOD hold more firm's shares. To support this argument, Elsilä et al. (2013) indicate that the shareholding ratio is positively related to the firm performance. Then, the firms do not keep the high cash reserve level because they can use the internal source as profit when the firms need money (Myers and Majluf, 1984). Moreover, the firms with higher firm performance who can easily to raise funds with cheaper cost (Ozkan and Ozkan, 2004). Besides that, the final goal of shareholders or BOD is to maximize the firm's wealth (Rose, 2007). Furthermore, the shareholders want the managers to use cash to invest in more projects to improve the firm value (Harford et al., 2008). Therefore, the level of cash holding is not high. And, Kusnadi (2011) points out the cash holding level is inversely connected with the block holders. This means that the firms keep less cash when the BOD has a higher level of ownership.

Additionally, the board with higher share-owned wants to pay more dividend (Bathala and Rao, 1995). And, the dividend policy is also related to the cash holding level which the results are mixed (Dittmar and Mahrt-Smith, 2007). Bathala and Rao (1995) also state that the agency problem can be reduced when the firms pay out more dividend. As a result, the firms that pay more dividend do not have much cash reserve in the firms because they may easily raise funds with cheaper cost (Ozkan and Ozkan, 2004). It is the similar view from Easterbrook (1984) when the firms pay more dividend, then the shareholders have more money

to reinvest when the firms want to raise capital by issuing more shares. In this case, the firms hold less level of cash holding because they can easier get capital from the shareholders. Moreover, when the firms want to raise capital, they need to announce all information to the banks or investors. Thus, the asymmetric information can be less which help the firms prevent the manager's opportunistic behavior (Bathala and Rao, 1995). However, when BOD have higher percentage share-owned, they want to pay more dividend for the firms which can impact negatively on the cash holding level. Opler et al. (1999) designate a negative correlation between dividend payment and cash holding. Then, the firms should keep a high level of cash to have money to pay for the shareholders. As these arguments above, there are the mixed results for the relationship between the board ownership and corporate cash holding level.

In Vietnam, the previous studies have focused on some factors of BOD such as CEO duality, board ownership, board compensation on the firm performance. But there is not any research about the connection between BOD and the corporate cash holding level. Minh and Walker (2008) show that the framework for the corporate governance of Vietnamese listed firms has been improved to ensure the market transparency and increased investor protection. Moreover, the better corporate governance which will enhance the management effectiveness to develop Vietnamese stock exchange. In particular, the paper indicates that when the board is more independence, the corporate governance of the firms is better, then the firm performance can be increased. Vo and Phan (2013) examine the connection between corporate governance and firm performance in Vietnam. This study contributes to the literature on the corporate governance in developing countries. Notably, the results show that the following factors of corporate governance as the female of the board, CEO duality, working experience of the board and the board compensation have a positive impact on the firm performance. Nevertheless, board size has a negative correlation with the firm performance while the ownership of board has no relationship with the firm performance. Nguyen (2010) confirms that the firms with better corporate governance help to improve their competitiveness and diversify their development resources. The paper indicates that there is no clear distinction between the rights and obligations of the board of directors, the board of management, the board of supervisors and employees.

### **2.5.3 Relationship between listing requirements and cash holding**

In the earlier studies, the determinants impact on the corporate cash holding which includes firm size, leverage, inventories, growth, net working capital, cash flow, firm age, profit, debt, capital expenditure and dividend (Uyar and Kuzey, 2014, Ogundipe et al., 2012, Megginson et al., 2014). As a new point of this dissertation, it examines the impact of listing requirements of stock exchanges on the corporate cash holding where the firms are listed. Likewise, Turnbull (1997) confirms that the listing requirements of the stock market are one of the factors of

external corporate governance. Also, Al-Najjar and Clark (2017) suggest that the listing conditions should be considered as an essential factor which impacts on liquidity management as well as the operation of the businesses. Particularly, there is the external corporate governance which influences the activities of the firms such as raising the capital (Jensen, 1993). Moreover, La Porta et al. (2000) argue that the listed firms have to satisfy all standard which results to mitigate the information asymmetry, then this can increase the protection for investors. Equally, Avramov et al. (2006) document that the firms listed on the different stock exchanges have different cost of supplying the liquidity. Consequently, the listed firms on the various stock exchanges have the dissimilar opportunities to raise funds because of the different prestige (Cetorelli and Peristiani, 2015).

The companies are listed in different stock exchanges which affect their operations and the ability to raise capital. Additionally, there are different requirements for various stock exchanges which have a significant influence on the growth of firms (Al-Tamimi et al., 2011). Different stock exchanges have their listing conditions which can bring more opportunities as well as challenges for the listing corporations (Shi et al., 2012). In particular, firms that are listed have to satisfy all the standards of the markets, so they can be confident to attract more investors with cheaper borrowing cost. Thus, these listed firms consider having lower cash on the stock exchange with stricter listing requirements. Moreover, investors believe that these firms are listed on the stock exchange with more stringent listing requirements can gain higher protection for minority shareholders (Stulz, 1999 and Doidge et al., 2004). This can explain why listed firms have to follow all requirements of the market to stay list. Therefore, Doidge et al. (2004) indicate that the firms are more accessible to raise capital after listing on the U.S stock exchange. Nevertheless, some listed firms have to deal with the challenges as they need to keep all the standards to remain in the market.

Subrahmanyam and Titman (1999) confirm the listing requirements of the stock market which influences on the firm's operation. The firms are listed or cross-listed on prestigious stock exchanges which get higher market performance (Cetorelli and Peristiani, 2015). Likewise, the cross-listing in high reputation market leads to improvement in corporate governance which causes the lower capital cost (Benos and Weisbach, 2004). Similarly, Huang et al. (2013) suggest that the higher cash level connects with cross-listed firms where the firms have to satisfy higher requirements. The growth of firm value leads to better financial health when they are listed in different markets (Bianconi et al., 2013). The firms are listed on the stock exchange tend to hold less cash level because they can access the funds more accessible in the capital market (Opler et al., 1999). To support it, this dissertation examines whether the stricter listing requirements of the stock exchanges impact the corporate cash holding level.

Nguyen (2010) confirms that the better legal framework and good corporate governance can attract more investors. Despite the rapid increase in some firms, however, the competitiveness of Vietnamese firms is still weak in recent years

which has many causes. One of the reason is that the structure is very simple regarding family management and the management skills are weak. Consequently, there is no clear distinction between the rights and obligations of the board of directors, the board of management, the board of supervisors and employees. Besides that, transparency is limited, and there is no regulation to reduce the information asymmetrically. Thus, the agency problem is still high in the firms. These restrictions have an adverse impact on the growth of the businesses and unsustainable development for the firms. Then, the firms are listed on the stock exchange have to follow all the requirements which can reduce these problems. Nguyen et al. (2015a) designate that Vietnamese stock exchanges with two different stock exchanges including Hochiminh (HOSE) and Hanoi (HNX). And, the listing requirements of two stock exchanges are different in the requirements which have a disparate impact on the firm performance and the ability for raising funds.

## **2.6 Summary of the literature review**

The previous studies focus on the determinants which affect the corporate cash holding level are conducted in developed countries such as Europeans, United State, Australia, Turkey, Korea, France, New Zealand, Switzerland, etc. The researchers on this topic in Vietnam have only started in the past few years. Furthermore, the previous studies on the determinants impact the corporate cash holding level which concentrates on internal factors of the firms. There are not any studies about the relationship between corporate governance mechanism and the corporate cash holding level deeply and entirely in developing countries. Accordingly, these above issues motivate new studies on the relationship between the corporate governance mechanisms and the corporate cash holding level in the Vietnamese context.

The internal factors of corporate governance influence the corporate cash holding level such as ownership structure which was studied in emerging countries as China (Megginson et al., 2014). Meanwhile, the study about the effect of ownership in Vietnamese context has not attracted any researchers. This study examines the structure of ownership whether it has an impact on cash holding in Vietnamese listed corporations. Obviously, the paper examines the interaction between state ownership and the corporate cash holding level. This topic is important components of listed firms in Vietnam which have recently received a lot of attention in the growing literature on the corporate cash holding. The paper is also the first study in Vietnam to examine the changing in ownership structure effects on cash holding level. And, the finding can give the suggestions to improve the management of cash policy as well as provide the appropriate policies for the equalization process.

In addition, several types of research have concentrated on aspects of BOD, but there are not many studies that fully examine the effect of BOD on the corporate cash holding level. The previous studies indicate BOD has an impact on the



borrowing cost, dividend payment, firm performance. However, there is no study on the topic that tests the influence of BOD on the corporate cash holding level. As such, this issue becomes a motivation for researching. Hence, one of the purposes of the dissertation is to provide a better understanding how the board of director could play a critical role in influencing corporate cash holding decisions.

Moreover, the connection between external factors of corporate governance mechanisms and the corporate cash holding level has not been studied in developing countries in the previous papers. The listed firms are the objects of this research, then, the listing requirements of the stock exchanges are on the factor need to study. This dissertation aims to expand the literature in exploring the relationship between the listing requirements of stock exchanges and corporate cash holding in Vietnamese context which represents as emerging markets and transition economies.

Besides that, the impact of corporate cash holding level on firm value is confirmed in some previous studies (Martínez-Sola et al., 2013; Oler and Picconi, 2014). Nguyen and Truong (2016) confirm this relationship in Vietnamese context with the data from 2008 to 2013. The economy is in constant fluctuation as the financial crisis took place in many countries in the world as well as in Vietnam. In these cases, the level of cash holding may change which may cause the different results. Consequently, the dissertation uses the updated data to provide the finding more precisely.

### **3. RESEARCH PROBLEM AND MAIN OBJECTIVE OF RESEARCH**

After the literature review, the brief of Vietnamese economy is presented to clarify the research context, then the research problem and main objective are identified.

#### **3.1. Vietnamese economy**

In 1986, Vietnam changed the economic regime, known as *Doi Moi*, with the goal of transforming the centrally planned economy into the market-oriented economy. Since Vietnamese economy has been transformed, the economy has to face new challenges and opportunities. Vietnam has become the destination of foreign direct investment, multinational corporations. In November 2006, Vietnam officially became the 150th member of the World Trade Organization. And, Vietnam is also Asia's second-fastest-growing economy with stable growth rate (Mishra, 2012).

Firstly, with the market-oriented economy and the effort to shorten the gap on the world economy, Vietnamese financial market had been required to set up the stock market. Vietnamese stock market was established in 2000 which is also part of *Doi Moi* policy. The aim is to support raising the capital for the industrialization and modernization of the country. Over the period, the stock market has grown in capitalization as well as a number of listed firms. The stock exchange promotes saving and delivery of capital to the firms. In addition, the stock market with 35 percent of GDP in 2016 is very important and sensitive to economic activity, which is a measure of the efficiency of economic activity (Phung and Mishra, 2016). However, the financial market remained under the government's umbrella, and the state ownership played a critical role in the financial market. This arrangement reflected unbalance on the economy which caused some trouble to access the capital for some listed firms (Nguyen et al., 2015a).

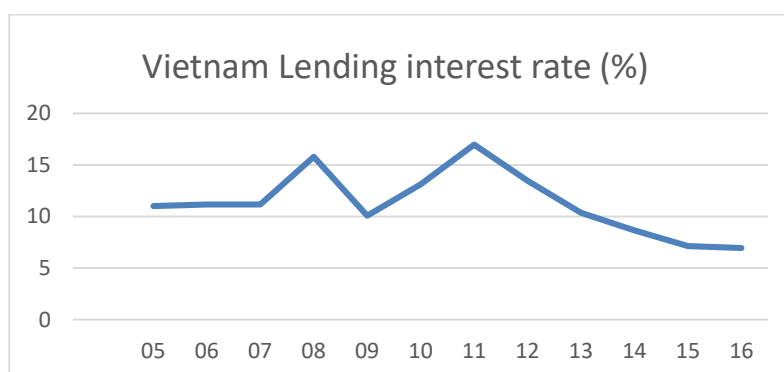
Vietnamese stock market grew from two listed firms in 2000 to 1020 listed firms in 2016. Moreover, the benchmark of VN-index increased sharply from 2006 which reached the peak in March 2007 and then the market fell quickly in 2008. In 2007, the VN Index rose by 281 percent compared to the end of the year 2005. Also, this strong growth has led to a rapid expansion in the number of listed firms, from 41 corporations at the end of the year 2005 to 150 in 2007 in HOSE. The total market capitalization of \$ 0.6 billion at the end of 2005, accounting for only 1 percent of GDP and achieved at \$ 23 billion with 34 percent of GDP in the year 2007. Besides that, the investors were very excited about the growth in the market although the analysts of the stock exchange indicated the unstable of the market as well as the symptom of a bubble. Another risk in the stock exchange during the period is the lack of transparency in information disclosure, and most investors follow the crowd. As a result, the burst comes after the bubble in the

stock market and caused many problems to investors due to the global financial crisis in 2008. The investors withdraw their investment in the market when the bubble burst. Thus, in 2008 the stock market competed acrimoniously with other investment channels.

Moreover, in 2007, more firms wanted to be listed on the stock exchange because the benefits of issuing stocks when the listed firms are evaluated higher than their real value (Nguyen et al., 2016). Therefore, during this period the businesses are not interested in holding cash because they can raise the capital by issuing shares easily because the government gives some priority policies for listing firms in that period. In particular, the listing firms get tax exemption when they are listing on the stock exchanges. Nevertheless, in the late year 2007, the market was in a difficult situation with the sharp decrease, then the firms began to increase the cash holding level. Additionally, resulting from some policies to monitor the burst of the stock and real estate market and the credit crunch, commercial banks were restricted to credit into the real estate and stock market, they suffered from low financial resources and had much liquidity problem. Consequently, the deposit interest rates rose to 17% per year and the policies for lending money of the banks has been tightened. As a result, it is difficult to borrowing money from the bank because of this issue. And, the stock exchange in 2007 and 2008 started to fell. Consequently, the capital markets lack funds to support the firms because the mobilization channels have been limited. Under these circumstances, the corporations should have strategies for capital and cash reserves effectively. Hence, the companies tend to balance the cash holdings to be more active in the operations of their businesses that are matters of concern, especially in the condition of the Vietnamese economy.

Besides the stock market, the bond market is considered as a channel for raising capital for Vietnamese firms. In recent years, Vietnamese bond market has developed stable since the government has made changes in policies to encourage this market development. In 2014, the bond market in Vietnam had increased significantly in the number of issuers, from 25 to 93 in both the primary and secondary markets which include securities companies, financial investment funds, and insurance companies. The government involvement in the bond market has strengthened the link between the government bond market and capital markets and money markets, contributing to managing interest rates and the economy. Although the bond market has developed into a stable market, however, the size of this market is small in comparison with the size of the stock market regarding the number of issuers and trading volume. And, the progress of issuing the bonds is very complicated (Nguyen et al., 2012). Moreover, the corporation's issue bonds which have been guaranteed by the government. This is because the government is the best underwriter for the Vietnamese corporations. Thus, the firms prefer borrowing from banks or issuing the shares on the stock market than issuing the bonds.

Vietnamese corporations can raise funds by issuing the shares on the stock market or issuing the bonds, but these markets are not favorable. Thus, Vietnamese firms prefer borrowing money from the banks than other channels to obtain more funds, but the interest rate had increased significantly from 2007 which caused the difficulty for the firms. The interest rate reached the peak at 16% in 2008 and 17% per year in 2011. That is the reason that the firms have increased the cash holding level in the firms.



*Fig. 3.1: Vietnam Lending Interest rate (%)*

*Source: International Financial Statistics (World Bank)*

After 30 years of *Doi Moi*, the number of corporations has rapidly developed, and the corporate governance in Vietnam issue has attracted the attention of the researchers and practitioners. Besides that, Vietnamese government support to improve the business environment, build corporate governance framework. And the corporate governance framework in Vietnam is considered to be in line with other countries. However, the concept of "corporate governance" in Vietnam is still new. According to Berglöf and Claessens (2006), only 23% of respondents of entrepreneurs in Vietnam understood the basic concepts and principles of corporate governance and the managers have convenient management style which decreases the competitiveness of firms. Moreover, the corporations are confused and slow to respond to the changes in business environment, especially in the context of financial crisis. Thus, Vietnamese corporations need to pay attention to improve the corporate governance. According to Nguyen et al. (2016), the main problems of corporate governance in Vietnam are ownership structure, the board of directors and legal conditions. Thus, Vietnamese firms need to consider these factors above in the study about the corporate governance mechanisms issue.

### **3.2. Research problem and the main objective of the research**

As an emerging country, Vietnam has many opportunities and challenges to develop its economy in which the number of new and young enterprises has increased dramatically after reforming the economy from centrally-planned to a

market-oriented economy. Those enterprises are facing many issues that the enterprises have not experienced to maximize shareholder value. Thus, they need capital as well as the management skills to manage the operations of enterprises efficiently. Furthermore, Vietnamese firms cope with a shortage of funds from banks, bubbles in real estate market and stock exchange as well as the financial crisis around the world. From the point of views of the investors, banks, and financial executives, the firms maintain enough cash for the firm's operation which plays a significant role in getting higher firm value in the current situation. This is because the Vietnamese corporation has more difficulties to borrow money or to raise capital. Then, holding more cash reserve increase the liquidity of Vietnamese corporations and their flexibility in doing businesses. The firms should have the suitable amount of cash which maintain their operations and take the good investment opportunities in this period.

Besides, there are two ways that the firms can raise their funds when they need more money for their activities. The first way, the bank is their consideration for borrowing money. However, in the period the interest rate is high with 17% per year as well as the shortage of lending funds (Nguyen et al., 2016). Consequently, the firms had to face the difficulties of raising fund. Secondly, the stock exchange is another channel that the firms can increase their capital. But in the year 2007 and 2008, the Vietnamese stock exchange is the same situation with other markets around the world. The market fell quickly, and the investors run out of the market. In this period, there is very difficult to raise funds from the stock exchange. As a result, cash is becoming more important in doing business in Vietnam. Currently, the Vietnamese corporations maintain the amount of cash reserve is almost based on the experience of the chief accountant or the other simple methods (Nguyen et al., 2015b). Thus, investigating the factors affect the cash holding level of Vietnamese firms is necessary, which can be a reference for the manager in making cash reserve decisions. This topic has been mainly implemented in developed countries for decades, but this has not been fully researched in the Vietnamese context. Over the period, Vietnamese enterprises have grown stronger in quantity, but the competitiveness is weak. One of the primary reasons is management skills, especially corporate governance which is very weak (Nguyen et al., 2016). Based on this issue, the dissertation analyses the current situations of corporate governance in Vietnamese enterprises in many aspects: legal framework, ownership structure, and board of directors of the enterprise to give general suggestions to be more effective in their management. In the emerging countries, the corporate governance mechanism is essential in managing the firms (Bhagat and Bolton, 2008, Klapper and Love, 2004). Good corporate governance enhances the firms to easily access external capital, increase corporate value, and sustainable development (Al-Najjar and Clark, 2017). However, Boubakri et al. (2005) observe that the operating performance of corporations in emerging economies is adversely affected by weak corporate governance

mechanisms. Thus, corporate governance mechanism is considered as an important factor which affects strongly on Vietnamese firms' operation.

Moreover, the corporate governance mechanism includes the connection between the managers and the outside investors such as banks, another creditor, and potential investors. They also may provide the capital with the different cost. And, the cost of raising capital is impacted by the agency cost. Moreover, the agency cost is the conflict between the managers and other investors so that the agency costs can influence cash holdings indirectly. The agency cost can be reduced when the firms are managed more useful owing to the better corporate governance mechanisms. Thus, there may be a connection between corporate governance mechanism and cash holding level; then the question is raised for this issue "Does the corporate governance mechanism have any effect on the corporate cash holding level?". In the development of the research, most of the studies that investigated the impact of corporate governance mechanisms on cash holding were concerned with corporations in the US, Western Europe and China (Megginson et al., 2014, Al-Najjar and Clark, 2017). This relationship needs to be conducted in more transition or emerging economies like Vietnam.

In particular, Agrawal and Knoeber (1996) argue that ownership structure plays an important role which influence on firm performance and the major shareholders can take advantages for their benefit the interests of small shareholders. In Vietnam, state ownership still holds a large proportion of the equitized firms after the economy is transformed from a centrally planned economy (Nguyen et al., 2016). State-owned corporations tend to have more advantages to access financial resources at lower costs than private firms due to the government protection. Therefore, state-owned corporations can access capital from state banks. As a result, the ownership structure of Vietnamese corporations influences the cash reserve level; especially capital structure is dominated by state ownership. Therefore, the ownership structure of Vietnamese firms should be considered when the dissertation investigates the corporate governance mechanisms.

Moreover, the corporate governance is still weak. Because the organized structure is very simple regarding family management and there is no clear distinction between the rights and obligations of the board of directors, managers, the board of supervisors and employees. The board of director of Vietnamese corporation has limitations and simple which affect the growth of the businesses (Nguyen et al., 2016). The theory of corporate governance suggests that board characteristics affect strategic choices, investment decisions (Campbell and Mínguez-Vera, 2008). Then, the characteristics of the board of directors need to consider in the study of the corporate governance mechanism in Vietnam.

Especially, in Vietnam the external control corporate governance mechanisms have not been developed and efficiently operated. The external governance mechanisms as legal requirements should be considered as important factors in studying of the corporate governance mechanisms issue. The listing regulation of

the stock exchange is chosen for research because the sample of the study focuses on the listed firms and the listing requirements of the Vietnamese stock exchange are important for the listed firms. The regulations can impact the firm operations as well as the firm's liquidity.

This dissertation examines whether the right level of cash stockpiling can help corporations to take advantage of having a quicker capital turnover and improve the firm value. Moreover, the corporate governance mechanisms including the ownership structure, the board of directors and legal requirements of the stock exchanges can influence the corporate cash holding level. The dissertation could inform the Vietnamese policymakers about paying attention to the corporate governance mechanisms to support the listed firms in managing cash holdings to improve the firm value. By examining the influence of corporate governance mechanisms on cash holding, the study highlights the agency problem and trade-off theory to contribute to the literature in the transition economy. The relationship between corporate governance mechanisms and cash holding are unexplored in Vietnamese listed firms.

The main aim of the research is *to find out the impact of corporate governance mechanisms on the corporate cash holding level in order to improve the firm value in the Vietnamese context*. The findings can be the references for Vietnamese firms to maintain the right level of cash in Vietnamese corporate governance conditions to improve their firm value.

## 4. RESEARCH METHODOLOGY

This chapter begins with the research design, the next part contains methodology and data collection techniques, and all main variables are defined. The thesis indicates the methods for data processing and final section explains all models to test hypotheses and answer research questions.

### 4.1. Research design

To be able to fulfill the main research objective, the key research questions, the corresponding objectives, and hypotheses are formulated.

#### ❖ **Research question 1: Does the corporate cash holding level impact the firm value in Vietnamese context?**

There are many discussions how to improve the firm value by keeping the level of cash reserve, and this issue is the central argument in many papers. According to the trade-off theory (Myers, 1977), the firms have the right amount of cash reserve can trade-off the cost of cash holding. In the Vietnamese context, the increase of the corporate cash holding has reported on the balance sheet of the corporation which attracts the attention of the researchers. Thus, the cash holding level is becoming the interesting issue for studying in the Vietnamese context. Besides, the Vietnamese economy is plagued with high information asymmetry which has effects on the firms (Nguyen and Truong, 2016). This can impact badly on investors' expectations, the confidence of the bank and suppliers. Therefore, Nguyen et al. (2015b) argue that businesses must pay attention to have effective cash management policies as well as planning financial strategies through the implementation of investment decisions, financial decisions, and pay dividends. The firms should consider making any financial decision related to cash to have the suitable amount of cash reserve in the firm which can improve the firm value. Moreover, the dissertation expects that this result reflects the characteristics of the Vietnamese context and this contributes to the overall study of the behavior of the firms in keeping the suitable amount of cash level to improve the firm value. Thus, the dissertation gives the objective and the hypothesis as follow:

*Objective 1: Examine the impact of the level of the corporate cash holding on the firm value in the Vietnamese context (ROI).*

*Hypothesis 1: The amount of corporate cash holding has an influence on the firm value in the Vietnamese context.*

#### ❖ **Research question 2: What are the important components of corporate governance mechanisms which affect corporate cash holding of Vietnamese listed firms?**



The earlier studies show that the corporate governance mechanisms are important in the development of the businesses. Particularly, the good corporate governance mechanism enhances the firms to access to external capital, contribute positively to corporate value, investment and sustainable development for businesses and vice versa (Kusnadi, 2011). The management capacity of Vietnamese corporations, especially corporate governance, is limited in many aspects: legal framework, capital structure, organizational structure (board of directors, board of supervision and board of managers) and protection of shareholder rights (Nguyen, 2010). These issues should be considered when the dissertation studies about corporate governance mechanisms in the Vietnamese context. Reviewing the previous studies find out the important components of corporate governance mechanism have impacts on the corporate cash holding level. To answer research question 2, the objective is formulated as follows:

*Objective 2: Identify the components of corporate governance mechanism which are important in relation to the corporate cash holding (RO2).*

**❖ Research question 3: Does the state ownership of Vietnamese listed corporations affect the corporate cash holding decisions?**

The equity of corporations which is owned by different shareholders with different ownership structures. Study on the influence of ownership structure on firm management is necessary. Accordingly, each type of ownership can have different effects on the firm operation, and this correlation has influenced differently in each country. Besides that, different ownership structure which impacts on the capacity for raising capital of firms (Megginson et al., 2014). Then, the relationship between ownership structure and cash holding is an important issue in the corporate finance literature. The dissertation has tended to focus on the state due to the reason as followed. After transforming from a centrally planned economy, the majority corporations in Vietnam also has a high rate of state-owned that represents the intervention of the state in the economy (Nguyen et al., 2015a). Thus, the state ownership plays an important role in the firm management in Vietnam. In this dissertation, the state ownership is discussed in order to find the relationship between these ownerships and corporate cash holding level

Most studies address that being the state-owned has an impact on the operations of the firms as well as the cash management in different ways in different countries in the previous studies from Le and Chizema (2011); Megginson et al. (2014) and Harford et al. (2008). Meanwhile, Megginson et al. (2014) infer that the state ownership has the opposite sign with the corporate cash holding level. The state ownership is presented by the governor who participates in the firm management, but the ultimate owner is the public (Wang et al., 2008). Thus, the separation between the owners and managers lead to high agency problem in the

firms with higher state-owned. Moreover, Yu (2013) argues that the firms can receive the support from the government to borrow money with cheaper cost. Moreover, Cull et al. (2015) confirm that the state corporations have the capacity to access the credit from state banks. Due to this reason, the firms do not need to keep cash in hand because they can receive the support from the state to raise their capital.

In developing countries such as China and Vietnam, the study of ownership structure should focus on the state ownership. The previous studies investigate different results across countries on the relationship between state ownership structure and cash holdings. This dissertation is an empirical study on this topic in the Vietnamese context. The previous studies in Vietnam conclude the firms with high state ownership leads to the lower the performance of firms (Le and Phan, 2015). Because of the low efficiency, Vietnamese corporations tend to pay out dividends (Nguyen and Truong, 2016), so the firm does not hold much cash on hand to reduce the agency problems. Moreover, the corporations with high state ownership can quickly receive the support from state banks to increase the capital or cash level when they need. As a result, the firms do not have the intention to keep cash, and they prefer to pay more dividend. Thus, the dissertation gives the hypothesis as follows:

*Objective 3: Examine how the state ownership affects the decisions of the corporate cash holding (RO3).*

*Hypothesis 2: The state ownership is negatively associated with the corporate cash holding level.*

**❖ Research question 4: Does the board of director (BOD) affect the corporate cash holding decisions of Vietnamese listed firms?**

The theory of corporate governance mechanisms suggests that BOD characteristics affect firm operations and investment decisions (Campbell and Mínguez-Vera, 2008). The lenders, investors, and shareholders have confidence in the BOD (Goh and Rasli, 2014). Likewise, Adams and Mehran (2012) suggest that the independent board helps to reduce the risk of fraudulent internal controls and fraudulent disclosure of accounting information. Thus, BOD should be included to research the impact of corporate governance mechanism on the firm management. Furthermore, BOD including the structure and the incentive of BOD are important components which impact all aspect of firm's operation (Gillan, 2006). In the BOD structure, the CEO duality is one of important factor which has an influence on the corporate cash holding level (Gill and Shah, 2012). Additionally, Gillan (2006) states that the incentive of BOD has ownership and compensation of board. Al-Malkawi et al. (2014) claim that the incentive of BOD is also important factor which impacts firm's management. The compensation and board ownership are considered in the link with the cash holding level of listed

firms. As the results, the question 4 can be separated into three hypotheses and objectives:

#### ❖ **The CEO duality and the corporate cash holding level**

Klein (2002) argues that the separation between managers and board are more effective in firm management because they are diversified experience in business leadership. Anderson et al. (2004) demonstrate that the creditor's concern about the board characteristics because they believe that the separation between CEO and chairman can ensure the credibility of the accounting information disclosure. In this case, the creditors consider CEO duality as a reference for the decision to make loans. Similarly, Kusnadi (2011) and Gill and Shah (2012) document that the same CEO duality leads to more difficulties to obtain the debt from external sources. Lee and Lee (2009) confirm that the independence between the board and the manager lead to reduce the excessive cash holding level. As a result, the CEO duality may have higher cash holding level.

In Vietnamese corporations, the firms do not divide the responsibility as well as power for managers lead to inefficiency and underperformance (Nguyen et al., 2016). In detail, the task of the majority shareholders and BOD is to develop the strategies for the firms while the manager is expected to manage the daily operation, but this separation in Vietnamese corporation is unclear. In addition, the CEO and chairman are the same people who are very busy with management, lack of capacity and time to consider the financial plans (Nguyen, 2010). Consequently, most businesses do not have a long-term strategy, and the firms focus on short-term activities to achieve high profit with unstable development which influences the firm value, then they need to keep more cash in the firms in order to take the short-term investment opportunities. As a result, the cash holding level may be impacted by their strategies, and the corporate cash holding level may increase when the CEO and chairman is the same person. Besides, the information is not convinced if the firms have CEOs duality because they are no cross-checking between CEO and chairman. Then, the firms are difficult to borrow money from the banks. Based on these reasons above, the research on the influence of CEO duality in Vietnam is very important when the dissertation conducts the study on the relationship between BOD and cash holding level. Hence, the objective and the hypothesis are formulated:

*Objective 4a: Test whether CEO duality influences the corporate cash holding decisions of Vietnamese listed corporations (RO4).*

*Hypothesis 3: The CEO duality is positively associated with the corporate cash holding level.*

#### ❖ **The board ownership and the corporate cash holding level**

Adams and Mehran (2012) argue that the board with higher ownership percentage lead to better the firm performance. Thus, the firms can easier finance the capital on the financial market (Lambert et al., 2007). Besides that, Kuan et al. (2011) point out the relationship between the board ownership and firm management, the effect of different board structure and incentive cause the different management strategies for the firm liquidity. Moreover, Bathala and Rao (1995) document that the firms pay more dividend when the BOD has the high share-owned. Consequently, the firms have less cash reserve because of the higher payment for dividend (Ozkan and Ozkan, 2004). There is a negative prediction for the connection between the corporate cash holding level and the board ownership. This relationship needs to be researched deeply and fully, especially in an emerging market such as Vietnam to help clarify the impact of board ownership on corporate cash holdings as well as to reconcile existing findings to different markets. The hypothesis, therefore, is created:

*Objective 4b: Test whether board ownership has an influence on the corporate cash holding decisions of Vietnamese listed corporations (RO5).*

*Hypothesis 4: Board ownership is negatively correlated with the corporate cash holding level.*

#### **❖ The board compensation and the corporate cash holding level**

Many papers explain how executive compensation outcomes are positively related to the firm performance (Jensen and Murphy, 1990, Frydman and Saks, 2010). Thus, the firms should consider the compensation of BOD is one factor which affects the management of the corporations when they intend to improve the firm performance. Jensen and Meckling (1976) suggest that the modern corporate governance mechanisms are to face agency problems. Moreover, the objectives of managers and the shareholders are not similar. This may lead to the conflict about the payment cash to the board or shareholders (Jensen and Murphy, 1990). The evidence supports that board compensation impacts the firm's operation. Lambert et al. (1991) document that a higher compensation leads to the larger amount of cash holding owing to the risk-averse and under-diversified of the board. In this situation, the firms keep more cash to take the all investment opportunities to increase the firm value. This evidence above supports that BOD compensation impact on the corporate cash holding level as they influence on the liquidity of the firms (Liu and Mauer, 2011). In Vietnam, BOD compensation is also a vital element which influences the firm operations (Vo and Phan, 2013). Hence, the hypothesis is given in the dissertation:

*Objective 4c: Test whether BOD compensation has an influence on the corporate cash holding decisions of Vietnamese listed corporations (RO6).*

*Hypothesis 5: BOD compensation is positively associated with the corporate cash holding level.*

❖ **Research question 5: Do the different listing requirements of the stock exchanges impact the level of the corporate cash holding of Vietnamese listed firms?**

Listing requirements in different stock exchanges have captured great attention from researchers and practitioners (Wintoki, 2007). The companies are listed in different stock exchanges which affect differently on their operations, especially, since it may impact on the ability to raise capital (Wintoki, 2007). Additionally, there are different standards for different stock exchanges which have significant influence on the growth of firms (Hassan et al., 2007). The stock exchanges have stricter listing conditions which can bring more challenges as well as the high reputation of the listing corporations (Shi et al., 2012).

Besides, the listed firms have to ensure all the standards of the stock exchange which may bring higher prestige for the firms (Subrahmanyam and Titman, 1999). Opler et al. (1999) indicate firms with a higher credit rating and reputation tend to hold less cash level because they can access the funds more accessible in the capital market. Peng and Su (2014) and Karolyi (2006) argue that the listed firms can have more opportunities to get lower cost of capital because firms have easier access to global investors. Furthermore, Avramov et al. (2006) suggest that there is the different cost of supplying liquidity for listed firms in the different stock exchanges.

Vietnamese stock market has been divided into two stock exchanges, namely the Hochiminh stock exchange (HOSE) and Hanoi stock exchange (HNX). Furthermore, some listing requirements are the same, and there are also different listing requirements in two stock exchanges. According to the latest listing regulations in stock exchange under Decision 202/2015/TT-BTC from Ministry of Finance. And, the main listing requirements between HNX and HOSE are presented below:

- Charter capital of listed firms: HNX requires to have charter capital at least 30 billion VND while HOSE requires listed firms to have at least 120 billion VND.
- Return on equity (ROE): both HNX and HOSE require that the listed firms have at least 5% for ROE in the previous year before they are listed.
- Debt: both stock exchanges require there is no overdue debt for the listing firms.
- Profit: HNX does not require the firms to have profit before listing while HOSE requires that the firms are profitability at least two years before listed.
- The percentage of the voting stocks of the company held by the numbers of shareholders: HNX requires at least 15% of shares held by at least 100

shareholders; HOSE requires at least 20% of shares held by at least 300 shareholders.

- Information disclosure: is required for all listed firms in HOSE and HNX. Besides that, HOSE requires the block shareholders, Board of Management, Supervisory Board, Managing Director (CEO), Deputy Director (Deputy CEO), and chief accountant to publish all information that directly or indirectly impact the listed firms while HNX does not require any information disclosures.

Given the listing requirements above, two Vietnamese stock exchanges require the same for ROE and no overdue debt, but there are some main different conditions between two stock exchanges as follows:

Table 4.1: The comparison of the listing requirements of HOSE and HNX

Requirements	HNX	HOSE
<ul style="list-style-type: none"> <li>▪ Charter capital of listed firms</li> <li>▪ Profitability</li> </ul>	<ul style="list-style-type: none"> <li>▪ <math>\geq 30</math> billion VND (4 mil USD)</li> <li>▪ No required</li> </ul>	<ul style="list-style-type: none"> <li>▪ <math>\geq 120</math> billion VND (6 mil USD)</li> <li>▪ At least two years have profit</li> </ul>
<ul style="list-style-type: none"> <li>▪ Information disclosure</li> <li>▪ The percentage of the voting stocks of the company held by the numbers of shareholders</li> </ul>	<ul style="list-style-type: none"> <li>▪ Required less</li> <li>▪ At least 15% hold by at least 100 shareholders</li> </ul>	<ul style="list-style-type: none"> <li>▪ Required more</li> <li>▪ At least 20% hold by at least 300 shareholders</li> </ul>

*Source: Listing regulations of HOSE and HNX*

From the table, the main listing requirements in both stock exchanges: minimum capital, profitability, information disclosure and shareholders. Geranio and Lazzari (2014) indicate the main conditions which are more stringent in the official stock exchange as the market has higher minimum capital, financial statement records and revenue of firms. They also confirm that the stock exchanges with more stringent conditions bring a higher reputation for the listed firms. Based on the requirements for two stock exchanges in Vietnam, HOSE has stricter listing requirements in comparison with the listing requirements of HNX. Consequently, the listed firms on HOSE may get higher reputation compared to the listed firms on HNX which can impact the capacity of listed firms to raise the capital from the stock exchanges.

In the Vietnamese stock market, the listed corporations need to disclose all information relating to their firms as the requirements of State Security Commission of Vietnam. In particular, the information is required to announce of HOSE which has more detail and is stricter for listed firms. Consequently, the listed firms on HOSE may get a higher reputation and the agency problem can be reduced in comparison with HNX which can help the firms easier raise funds from

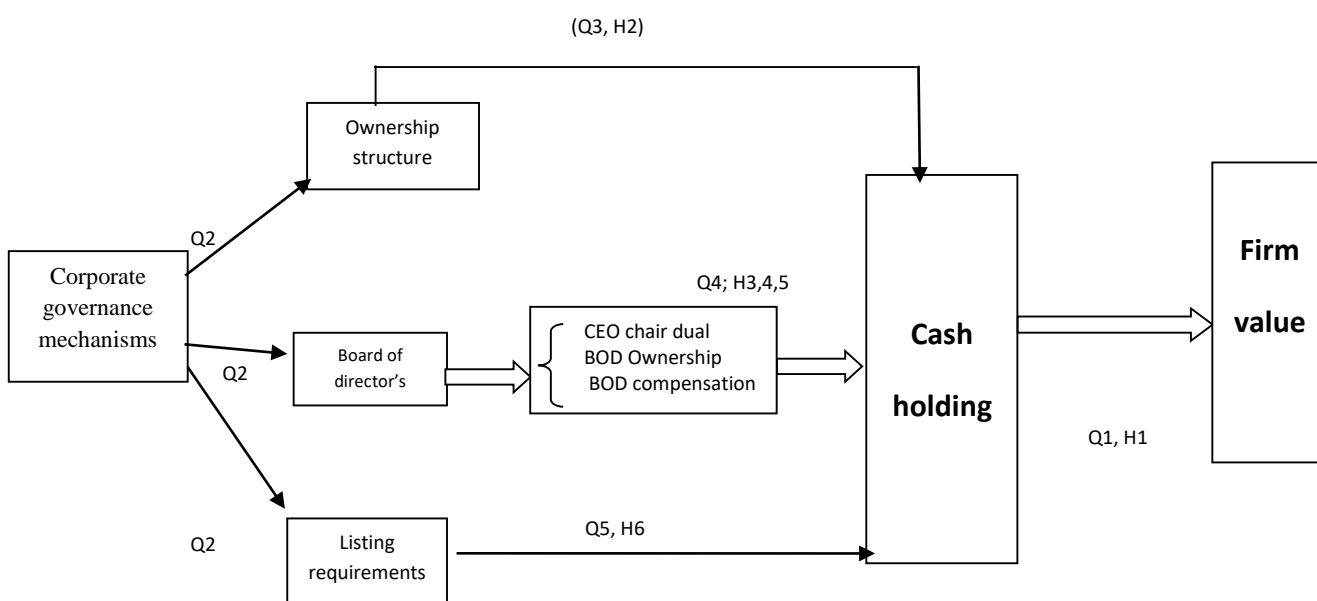
the market as well as borrow money from other financial institutions (Huang et al., 2013). These reasons above lead to the dissertation has the hypothesis:

*Objective 5: Verify whether the levels of the corporate cash holding differ under different listing requirements on the stock exchange (RO7).*

*Hypothesis 6: The stricter listing requirements on the stock exchanges leads to lower corporate cash holding level.*

## 4.2. Conceptual Framework

Based on the review of the literature, the conceptual framework of the relationship between corporate governance mechanisms, corporate cash holding and firm value is produced. The objective of this is to give the recommendations about the level of cash holding in different situations of corporate governance mechanism in order to increase the firm value. In further analysis, the study finds out how the important factors of corporate governance mechanisms affect the cash holding level. The conceptual framework is summarized in Fig. 4.1.

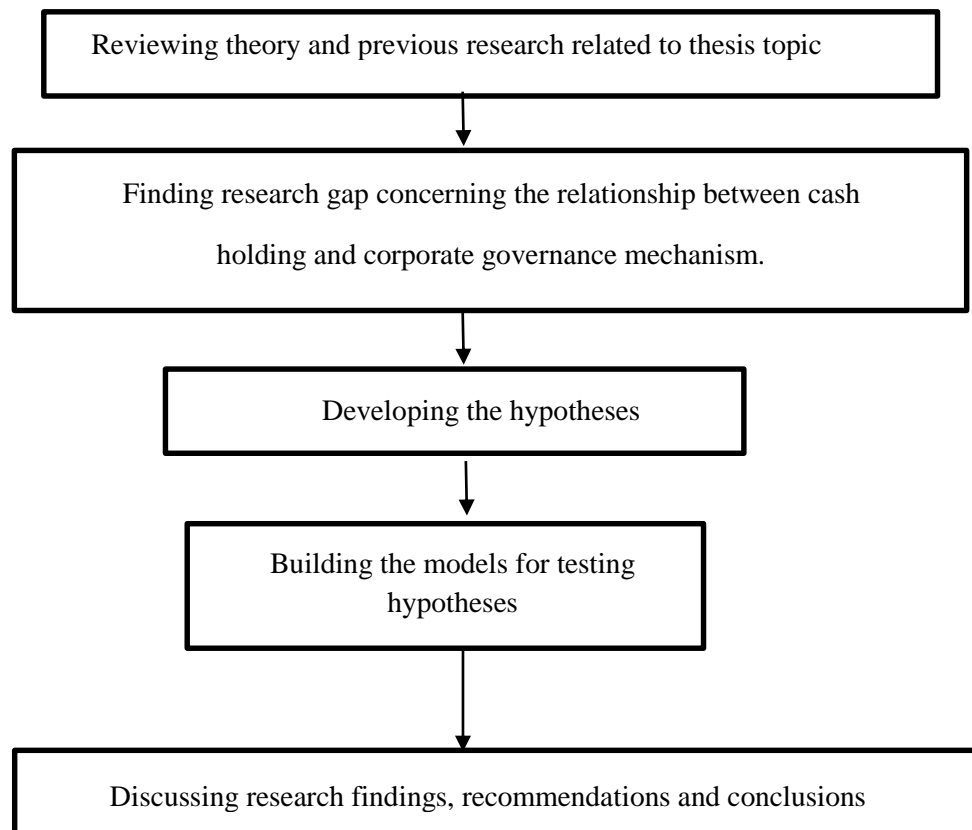


*Fig. 4.1: The research framework. Source: Own processing*

To answer the research questions and test the research hypotheses, the dissertation begins with testing whether cash holding impacts firm value to answer the first question and first hypothesis by applying the quantitative method. Next step, the dissertation focuses on the theories and current studies which relate to the topics and answer the second question. Then, the rest of hypotheses and questions relate to the impact of ownership structure, BOD and listing requirements on the corporate cash holding level by employing the quantitative method.

### 4.3. Research stages

To carry out the research, the research stages of the dissertation are shown in Fig. 4.2.



*Fig. 4.2: The stages of the research. Source: Own processing*

In the first stage, the study carries out the current studies and theories which relate to the topics. The literature review supplies to find out the research gap. Then, based on the theories and previous studies, the author develops the hypotheses as a result of this stage.

In the second stage, the quantitative method is employed to test whether exist the optimal level of cash holding which impacts firm value by using econometric techniques. Next step, the relationship between corporate governance mechanisms and cash holding by reviewing the literature is identified. Then, based on the related previous studies and theories, the models and the variables are defined to answer the hypotheses and research questions. The econometric methods are selected based on the characteristics of the data to be certain that the results of estimations are reliable and stable. Therefore, some basic techniques such as fixed and random effects (FEM and REM) are considered to know the signs of coefficients in each model. Besides that, the study also employs the generalized system method of moments (GMM) to deal with the dynamic



relationship of cash holding, unobserved heterogeneity, and heteroscedasticity and autocorrelation.

Based on the results obtained by analyzing the data and estimation based on the models proposed, the results of research are discussed and the recommendations for corporate executives, investors and the state are proposed.

#### **4.4. Sampling and data collection**

Vietnamese stock market has the official stock exchange and over the counter market. The official stock exchange includes Hochiminh stock exchange and Hanoi stock exchange. The over counter market (OTC) includes Up-Com which is established by the government to control OTC market. The firms are trading on two official stock exchanges which met all listing requirements of securities law. The firms which are trading on OTC do not need to qualify the listing conditions. Therefore, the OTC market is not standardized as the official stock exchange. Thus, in order to achieve scientific, practical and reliable results, the research uses the data from Ho Chi Minh (HOSE) and Hanoi stock exchange (HNX).

Ho Chi Minh stock exchange was established in 2000 and has currently developed quickly. Besides, Hanoi stock market was set up in 2005 and has also contributed to the development of Vietnamese economy as one channel for raising capital. The number of listed firms and total market capitalization has risen dramatically, from five firms listed on the Hochiminh Stock Exchange in 2000 to 390 in 2015; and Hanoi Stock Exchange had 5 listed firms in 2005 to 350 in 2015. Both stock exchanges have risen significantly in market capitalization and the number of listed firms. And, the law of stock exchange was issued in 2007 to strengthen the public information of listed firms, then the financial information is published is more accurate. Additionally, the number of listed corporations in the Vietnamese stock market in 2007 increase very fast because of the preferential exemptions, but at the same time, the economy was also experiencing an unstable situation as the interest rate increased. Consequently, the Vietnamese corporations intended to keep more cash to obtain all the opportunities as well as avoid the high cost of borrowing. Due to that, researchers of this study selected Vietnam stock exchanges including HOSE and HNX for the period 2007 to 2015.

The sample is the data from financial statements of listed firms of two stock exchanges in Vietnam, including HOSE and HNX. The data is collected from 2007 to 2015. The data includes financial information at the end of the year from financial reports including income statements, balance sheets, explanations for the financial statement, annual reports, market price and trading volume. The data is supplied by Stock plus corporations in Vietnam which has provided the data for analysts as information data services on Vietnamese stock exchange. This is the pioneer company in Vietnam which operates as authorized data vendor of HOSE and HNX. StoxPlus acquires trading data and information from the Stock Exchange, then they manage the data, recalculate the data, make an adjustment

and standardize the data to meet all requirements of the market, analysts and other investors.

According to data collected by Stoxplus, in 2015, the number of listed firms on HOSE is 390 companies, and 78 listed firms are finance companies, then 312 non-financial listed firms use in the dissertation. The number of listed firms on the HNX is 350 companies, and 52 listed firms are financial companies, remaining 298 non-financial listed firms. To ensure the results of research, the dissertation uses data of 610 non-financial listed firms on HOSE and HNX between 2007 and 2015. The companies selected for the sample must have the same financial year ending December 31<sup>st</sup>, and the financial statement of listed firms accounts for eight continuous years of study.

Based on the purposes of the research, the items will be collected from the financial statements or manually recorded from the firm's statements/disclosures, the series of each firm needs to re-check randomly to make sure they are reliable. Next, the raw data is winsorized to handle outlier variables with endogenous, exogenous and managing control variables. And, if an individual is missed some observations that could be dropped from the cleaning process. After all procedures, there causes an unbalanced data for each model in the dissertation.

#### **4.5. Data processing**

The dissertation employs econometric tools to estimate and applies some tests to answer the questions and hypotheses. The descriptive of data summarise the data and descriptive statistics for all variables which can help to recognize the data errors in all observation. The correlation analysis explores the connection between main variables and cash holding level, cash holding and firm value. The variables are checked for the existence of multicollinearity. In the next step, with the panel data, the study uses multiple regression, is undertaken to investigate the degree and direction of the variables' relationships, after controlling for firm characteristics. In general, the econometric tools are employed to test the models which are given according to the hypotheses. The stages for processing data are demonstrated in Fig. 4.3.

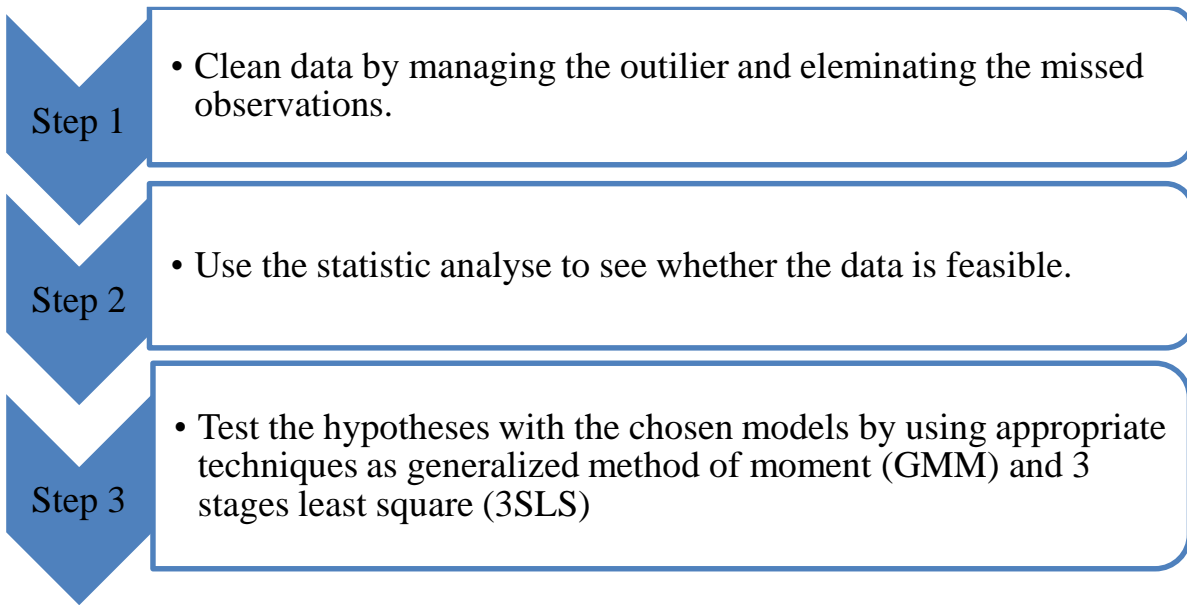


Fig. 4.3: The stages of processing data. Source: own processing

Due to the unbalanced data, the dissertation focuses on the different effects such the individual effects, time effect and external effects, so the general form of the estimation should be built as the model below:

$$y = \begin{bmatrix} y_1 \\ \vdots \\ y_i \\ \vdots \\ y_N \end{bmatrix}_{NT \times 1} \quad X = \begin{bmatrix} X_1 \\ \vdots \\ X_i \\ \vdots \\ X_N \end{bmatrix}_{NT \times K} \quad Z = \begin{bmatrix} Z_1 \\ \vdots \\ Z_i \\ \vdots \\ Z_N \end{bmatrix}_{NT \times M} \quad u = \begin{bmatrix} u_1 \\ \vdots \\ u_i \\ \vdots \\ u_N \end{bmatrix}_{NT \times 1} \quad (1)$$

where  $i = 1, 2, \dots, N$

$T = 1, 2, \dots, T$

$y_i$ : dependent variable,  $i$  and  $T$  denote firm  $i$  at the end of year  $T$

$x_i$ : explanatory variable,  $i$  and  $T$  denote firm  $i$  at the end of year  $T$

$Z_n$ : control variable

$\mu_i$ : the errors,  $i$  and  $T$  denote firm  $I$  at the end of year  $T$

First at all, the basic regression form could be considered pooled OLS (ordinary least square), as assuming that the regression coefficient (coefficient intercept and slope) is not changed between the firm as well as unchanged over time. Another important assumption, Gujarati (2009) state that the independent variables must be strictly exogenous. However, all firms with the same coefficient and constant time can be very unrealistic. OLS have ignored the difference characteristics

(uniqueness) of the firms. If the model includes all the characteristics of the random errors lead to highly correlated to some degree of the independent variables. This result can cause the violations of the assumptions of linear regression models. This may generate the estimates obtained to be biased and inconsistent. Moreover, the unobserved individual effects cannot be estimated reliable in OLS. Thus the other techniques can be applied to avoid the violence of BLUE (best linear unbiased estimator) of coefficients such random or fixed effects which are considered to the panel data.

Assuming each unit has its unique characteristics can affect the explanatory variables, FEM analyses the correlations between the residuals of each unit with the explanatory variables. Besides, FEM can control and separate the influence of each characteristic out of the explanatory variables. Therefore, FEM can estimate the net effects of the explanatory variables on the dependent variable. In this case, the model assumes  $\mu_{it} = v_i + \varepsilon_{it}$  with  $v_i$  individual error and  $\varepsilon_{it}$  idiosyncratic error. Hence, the model 2 becomes:

$$y_{it} = \beta_0 + \beta_1 X_{it} + v_i + \varepsilon_{it} \quad (2)$$

where  $i = 1, 2, \dots, N$

$t = 1, 2, \dots, T$

where  $i$  is the accumulation of firms;  $t$  is time for the end of the year

$y_{it}$ : the dependent variable,  $i$  and  $t$  denote firm  $i$  at the end of year  $t$

$x_{it}$ : explanatory variables,  $i$  and  $t$  denote firm  $i$  at the end of year  $t$

$v_i$  represents the unobserved elements with different objects constant over time.

$\varepsilon_{it}$  presents the unobserved elements different between objects change over time,  $i$  and  $t$  denote firm  $i$  at the end of year  $t$

The disadvantage of FEM is that it has too many dummies which can reduce the degrees of freedom of the model. In this situation, REM is suggested to increase the efficiency of the model. REM differs from FEM such that the coefficient  $\mu_{it}$  is fixed, now it is set as a function has a random element is epsilon  $\mu_{it} = v_i + \varepsilon_{it}$ . This means that the change of each is random does not correlate with the independent variables. In other words, in REM the error of the individual does not correspond to the independent variables, so the time-invariant variable is as the explanatory variable. The question is to choose FEM or REM which model is better. Hansen test will be used to select the appropriate estimation method between fixed and random effects estimation methods (Baltagi, 2013 and Gujarati, 2009).

In addition, there exists a problem of endogenous variables in the model. It means that there is two ways correlation between explanatory variables and variables is explained, then FEM and REM estimates are no longer effective. With such problems, the variable instrumental technique could be implemented to solve. This technique is 3 stage least square (3SLS) which can be employed to control the endogenous problem as well as the simultaneity between variables.

As the unbalanced panel data, Arellano and Bover (1995) discuss the heterogeneity issues and the autocorrelation in the series can be existed and caused many problems to the regression results, then the instrumental variables are used to avoid such problems in which the dynamics GMM could be a flexible and qualified method to answer the research questions. Hansen test is employed to confirm the appropriateness of the models. GMM method for dynamic panel data uses an appropriate lag of the variables tool (instrumented variables) to create instrumental variables (instruments). In addition, GMM also exploits aggregate panel data, and the model does not constrain the length of time series of panel data which considers as dynamic characteristic of the data. Even in conditions endogenous assumption, GMM method can supply the coefficients in reliable, unbiased and normal distribution.

## **The variables**

### ***Measure cash holding (CASH)***

Cash holding (CASH) variable is the most important variable. The dissertation defines CASH as cash and cash equivalent is divided by total assets. There has been substantiated by previous works in determining cash (Martínez-Sola et al., 2013; Kim et al., 2011; Ferreira and Vilela, 2004; Pinkowitz and Williamson, 2001)

### ***Measure firm value (TOBINQ)***

Tobin's Q equal a firm's market value to total book value. The Tobin's Q is adapted by many authors in corporate finance as a measure of firm value (Martínez-Sola et al., 2013; Dahya et al., 2008; Saddour, 2006 and Bai et al., 2004).

### ***Measure state ownership (STATE)***

State ownership (STATE) is represented the percentages of a total number of shares that the state hold. This variable is confirmed in previous papers from Shleifer and Vishny (1997); Megginson and Netter (2001); Borisova et al. (2012); Najid and Rahman (2011); Megginson et al. (2014); Le and Buck (2011); Le and Chizema (2011).

### ***Measure BOD variables***

### ***Measure CEO duality (CEODUAL)***

Kusnadi (2011) defines CEO duality that chairman of the Board and the CEO are the same person. Lee and Lee (2009) have the same opinion to confirm the CEO duality variable. This variable is a dummy variable that equals one if the CEO is also the chairman of the board and zero otherwise.

### ***Measure BOD compensation (COMP)***

Faulkender and Yang (2010), Persons (2006) and Core et al. (1999) measure the different level of compensation by cash, salary other payments for BOD. Likewise, Core et al. (1999) affirm that the compensation including cash, salary and bonus shares. Similarly, Faulkender and Yang (2010) assess the total compensation as all of the items that BOD received. In this study, the author defines BOD compensation which includes the sum of salary, bonus and all other payments for BOD

### ***A measure of board ownership (MAN)***

Board ownership is defined as the percentage of share held by BOD (Chen and Chuang, 2009). This variable is affirmed in the same in some other papers from Akhtaruddin and Haron (2010); Lambert et al. (2007); Kuan et al. (2011); Opler et al. (1999) and Crutchley et al. (1999)

### ***Measure the listing requirements variable (LISTED)***

**LISTED** is one of the main explanatory variables. It is used as a dummy variable. A dummy variable with a value of 0 if the firms are listed in HOSE; number 1 for listed firms in HNX and the listed firms were canceled is number 2. This variable is employed to distinguish the different listing requirements. This variable represents for listing requirements which are required for the listed firms by State Securities Commission of Vietnam.

### ***Measure of control variables***

The control variables are employed for the research which is used in previous studies from Ferreira and Vilela (2004); Ozkan and Ozkan (2004); Megginson et al. (2014); Harford et al. (2008); Kusnadi (2011); Oler and Picconi (2014); Opler et al. (1999). The detail of control variables used in the dissertation in the table below:

Table 4.2: The control variables using for the study

Control variables	Definitions
LEV	Total debt/total assets
GROWTH	Ln (Total assets/Total assets t-1)
PROF	(Net profit + depreciation)/Total assets
DIV	1 means the firm pays dividend, zero otherwise
CF	Pre-tax profit plus depreciation to gross sales
SIZE	The logarithm of total assets
DEBT	Sum of interest-bearing short-term debt and long-term debt, scaled by total assets
AGE	The number of years since a firm is listed
NWC	(Current assets - current liabilities)/ Total assets
ROE	Equity/Net profit
MB	1 means the listed firms announce the information on time according to the regulations and otherwise is 0.
BANKD	Total bank borrowings/total debt
CAPEX	Capital expenditures scaled by total assets
LIQ	(Current asset – Current liability- total cash)/ Total assets
LIQSX	A proxy variable for a turnover rate which is measured by the trading volume and the outstanding number of shares
NDL	Non-debt liabilities (Total liabilities - the short-term and long-term debts)/ Total assets

*Source: own research*

#### 4.6. Models for testing the hypotheses

This part focuses on the models which are applied to test the hypotheses of the dissertation.

➤ ***Hypothesis 1: The amount of corporate cash holding has an influence on the firm value in the Vietnamese context.***

The first stage, the dissertation test whether the corporate cash holding can impact the firm value or not. To test the nonlinear relationship between the corporate cash holding level and the firm value, the model uses quadratic functions of CASH as the study of Martínez-Sola et al. (2013). TOBINQ is presented for the firm value which is employed by the studies (Cooper and

Ejarque, 2003; Bai et al., 2004; Bolton et al., 2011; Erickson and Whited, 2012). Based on previous studies and theories from Oler and Picconi (2014); Martínez-Sola et al. (2013); trade-off theory (Myers, 1977), the model is used to test the nonlinear relationship between the cash holding level and firm value in Vietnamese context is used as follows:

$$TOBINQ(V_{it}) = \beta_0 + \beta_1(CASH_{it}) + \beta_2(CASH2_{it}) + \alpha_i Z_{it} + \eta_i + \lambda_t + \varepsilon_{it} \quad (3)$$

where  $i$  is the accumulation of firms;  $t$  is time; TOBINQ represents the firm value that is equal market value divided by book value; CASH is the cash and cash equivalent to total assets, CASH2 is the square of CASH, Z is other control variables including PROF, LEV, GROWTH. Particular, PROF is equal net profit plus depreciation and divides by total assets; LEV is total debt divided by total assets; GROWTH is natural logarithm of growth of total assets;  $\eta$  is individual effect;  $\lambda$  is dummy variable with the time effect and equal for all firms which eliminate the macro factors;  $\varepsilon$  is the error term.

To avoid the problem of bias due to the missing variables, control variables are added to the model. The variables as growth opportunities, liquidity, leverage, cash flow, profits are factors that affect firm value (Martínez-Sola et al., 2013, Ferreira and Vilela, 2004, Kim et al., 1998). Meanwhile, Opler et al. (1999), Kim et al. (1998), Ozkan and Ozkan (2004) indicate that cash flow and liquidity impact on the cash holding level. Therefore, to control the endogenous problem, the growth (GROWTH), leverage (LEV) and profit (PROF) are control variables of the model. To test the stability of the model, the robustness test is employed cash flow (CF) as another variable which impacts on the firm value.

In addition, Martínez-Sola et al. (2013) show that TOBINQ can be explained partly by its last information, then it needs to include the lag of TOBINQ. Besides that, the transfer of differential level of TOBINQ variable which can control unobserved heterogeneity and reduce the potential endogenous problem. Therefore, based on the methods of Arellano and Bond (1991), generalized method of moments (GMM) is used. The technique helps to model to avoid some possible shocks and unobservable factors which have impacts on firm value as well as other independent variables. Moreover, the estimation of regression coefficients by normal cross-sectional regression leads to deviation due to the correlation between variables and errors. Then, dynamic GMM should be applied to solve this problem.

Furthermore, according to Nickell (1981), using panel data with a large number of firms (557 companies) may lead to bias. Therefore, using estimate by GMM method can control this deviation (Arellano and Bond, 1991). Also, Arellano and Bond (1991) propose two main tests to examine the effectiveness of GMM model. The first test was the Hansen test for the overidentification of the model. And, the second test is the Arellano-Bond test for self-correlation with AR (1) <0.1 and AR



(2)> 0.1. To examine the first hypothesis, two-step GMM model is used by command `xtabond2` which is introduced by Roodman (2009). After testing a quadratic relation between firm cash holdings and firm value, the next step is to analyze two contrary effects of this relation. This section aims to test whether the corporate cash holding influences the firm value. For this reason, the dissertation follows Martínez-Sola et al. (2013) methodology to analyze the relationship between the corporate cash holdings and firm value by using GMM.

The main dependent variables are CASH and CASH2. The dissertation expects the positive sign for CASH and a negative sign for CASH2. In order to test the influence of corporate cash holding level on firm value, the dissertation is based on the paper from Martínez-Sola et al. (2013) to find the optimal level can improve the firm value. If there is an existing level of cash holding which can increase the firm value, the first hypothesis can be concluded that the corporate cash holding level affects the firm value. Furthermore, the dissertation reviews from previous papers to choose the control variables as below to examine the correlation between corporate cash holding level and firm value.

**CASH** is the most important independent variable. **CASH** is equal cash and cash equivalent to total assets. **CASH** and its square (**CASH2**) are included to test the existence of a non-linear model. It is expected the positive sign is expected for variable **CASH** and a negative for **CASH2**. Meanwhile, **CASH** generates a quadratic function to determine whether an influence of the corporate cash holding level on the firm value. It is expected that there is a U-shaped relationship between corporate cash holding level and firm value. It means that there exists the right level of cash holding increases the value of the firm. In other words, the corporate cash holding level is one of important factor which impacts the firm value.

**LEV** is measured as total debt is divided by shareholder equity. There are mixed results between leverage and firm value in the theory and previous papers. According to the trade-off theory (Myer, 1977), the structure of debt (financial leverage) is related to the firm value. In detail, the theory states that the optimal level of debt structure can balance the cost and improve the firm performance (Myers, 1977). Moreover, Dessí and Robertson (2003) investigate the positive effect of financial leverage on firm value. This means that the firms with higher level of leverage can create more profit and improve the firm value. But, some studies argue that leverage is counterproductive to firm value (McConnell and Servaes, 1990, Pouraghajan and Emamgholipourarchi, 2012). In fact, the leverage can help the firms increase the market value of the business. However, the Vietnamese corporations suffer from the high-interest rate for borrowing cost, then the leverage may reduce the firm value. In sum, the relationship between leverage and firm value can be negative for Vietnamese context.

**GROWTH** is natural logarithm of growth of total assets. Most paper state the positive connection between growth and firm value or firm performance. In particular, the firms with high growth can earn more profit in order to improve the firm value which is measured by TOBINQ (King and Santor, 2008). Likewise, Martínez-Sola et al. (2013) posit that the firm with higher sustainable rates of growth can create more profit in long-term to improve the firm performance or value. And, Core et al. (1999), Bhagat and Bolton (2008) confirm that the firms with higher growth rate are more effective in their operations to get better firm value. Furthermore, Gillan and Starks (2000) signal the correlation between good corporate governance and the firm growth are positive which can increase the firm value. Thus, there is a positive connection between firm growth and firm value which is estimated.

**PROF** is the net profit plus depreciation which is and then divided by total assets. The previous papers show the positive correlation between profit and firm value or firm performance. Likewise, Opler et al. (1999) assert that the firms with high profit are considered as a cushion for future needs or other investment opportunities to improve the firm value. This is because the firms do not need to borrow money from outside source with expensive cost. Besides that, Maury and Pajuste (2005) investigate the high correlation between profit and high firm value in the corporation with multiple block holders. Additionally, Firth (1998) also confirms that there is a positive connection between profitability and market value of the firm. As a result, the positive relationship between profit and firm value is expected in the study.

**CF** is the cash flow. **CF** is equal earnings after tax plus depreciation, and then it is divided by gross sales. Hafzalla et al. (2011) represent the cash flow have influences on the firm value. Larrain and Yogo (2008) confirm that the changes in cash flow cause the differences in the corporate value because of the effect of valuation in the firms. Based on the cash flow theory (Jensen, 1986), the firms should have the right cash flow to take all investment opportunities to improve their value. The firms do not need to raise the capital from an external source with high cost when the firms have enough amount of cash for their operations as well as investment. However, the firms have a higher level of cash flow can reduce the firm value because the firms could take all investment without considering the risk. The study expect a negative influence of cash flow on the firm value.

➤ ***Hypothesis 2: The state ownership is negatively associated with the corporate cash holding level.***

According to the previous studies from Megginson et al. (2014) and Harford et al. (2008), the model is conducted to test the second hypothesis. Based on previous studies, the dissertation is given the model to examine the influence of state ownership on the corporate cash holding level in the Vietnamese context.

The model 4 is presented as follows:

$$CASH_{it} = \beta_1(STATE_{it}) + \alpha_i Z_{it} + \eta_i + \lambda_t + \varepsilon_{it} \quad (4)$$

Where  $i$  is the accumulation of firms;  $t$  is time for the end of the year;  $CASH_{it}$  is the dependent variable equal cash plus cash equivalent divided by the total asset. The main explanatory variable is the state ownership ( $STATE$ ).  $STATE$  represents the percentages of a total number of shares that the government owns.  $\eta$  is an individual effect;  $\lambda$  is a dummy variable with the time effect and equal for all firms which eliminate the macro factors;  $\varepsilon$  is the error term.  $Z_{it}$  is other control variables including INST, CF, AGE, NWC, SIZE, DEBT, DIV, GROWTH, NDL, BANKD, CAPEX;  $\alpha_i$  are coefficients of the control variables.

This model is applied to test the second hypothesis. The results are expected is that the state ownership is negatively related to the corporate cash holding level. Thus, based on the hypothesis and model 4, the study expects the negative sign on  $\beta_1$ . In this model, difference GMM (D-GMM) method is applied to test whether the state ownership impacts the cash holding level is owing to the dynamic of the model. Additionally, the dissertation employs the difference GMM method to avoid the results of regression coefficients are wrong because the lack of important factors significant impact on the firm value and cash holding level. And, D-GMM is applied to consider whether the change in the state ownership influences the cash holding level. Besides that, the lag of the dependent variable and some explanatory variables may be endogenous. These issues may cause the OLS method to be inconsistent and can be biased. Therefore, D-GMM regression was developed by Arellano and Bover (1995) dealt with these problems. It uses the latitude difference of predictions as tool variables and the variances of exogenous variables.

**STATE** is the state ownership. The dissertation is forecasted that there is the negative relationship between corporate cash holding and state ownership. This expectation is similar to Borisova et al. (2012), Megginson et al. (2014), Dittmar and Mahrt-Smith (2007) which is in line with the agency theory. Consequently, being state-owned may cause the poor corporate governance mechanisms and agency problems. Since the listed firms should hold less cash in order to avoid the agency problem.

Based on the previous related studies and theory, the dissertation adds the control variables to control the deviation problem. And, the control variables are given in the model to perform the test of the correlation between the ownership structure and corporate cash holding level which represent below.

**SIZE** is the logarithm of total assets. There is a mixed result about the relationship between corporate cash holding and firm size. On the one hand, Ozkan and Ozkan (2004) indicate the positive relation between cash holding and

firm size which is line with pecking order and free cash flow theory. On the other hand, the smaller firms have higher cash level which is in line with the trade-off theory (Ferreira and Vilela, 2004, Saddour, 2006). Likewise, the younger and smaller firms will hold more cash in order to decrease the cost of raising external capital. In this model, the negative sign is expected for this relationship because the firms are a smaller size which is difficult to borrow money from others.

**INST** is the institutional ownership which is the percentage of share of institutions owned. This variable is predicted that there is a negative correlation with the corporate cash holding level. This prediction is the same with Shleifer and Vishny (1992), Megginson et al. (2014). Moreover, the firms with institutional ownership have less cash excess level because the institutional shareholders reduce the managerial opportunism and free rider problems.

**DEBT** is the sum of interest-bearing short-term debt and long-term debt, scaled by total assets. In the previous papers, the relationship between cash holding and debt is mixed. On the one hand, Megginson and Wei (2010) argue that the corporate cash holding negatively related to debt. Because the firms usually have to face with the lack of internal funds, so the firms have a deficit the cash reserve, and then the firms have to raise debt to deal with the issue (Opler et al., 1999). In this dissertation, the negative correlation between corporate cash holding level and DEBT.

**NDL** is nondebt liabilities which equal total liabilities minus short and long-term debts, then it is divided by total assets. Chen et al. (2012) document that the total liabilities connect negatively with the cash holding level. Then, this is interesting to test whether the corporate cash holding level correlates with the non-debt liabilities. This variable is predicted that have the same finding as for the DEBT variable.

**DIV** is dividend payment in the year of the firms. There is a mixed result for the relationship between cash holding and dividend payment. On the one hand, the firms tend to keep more cash to pay the dividend (Saddour, 2006). In detail, Mirza and Afza (2014) investigate the connection between cash holding and dividend policy and the study confirm that liquidity plays a vital role in dividend policy and the firm with high free cash flow tend to increase dividend payout ratio. On the other hand, Megginson et al. (2014) point out a negative association between cash and dividend payment in Chinese firms due to the asymmetric information situation and the agency costs in the country. The firms with higher level of cash reserve lead to use money inefficiently. Hence, in this case, the firms tend to limit their investments by implementing a dividend policy with a high dividend payout ratio to control excess cash (Rozeff, 1982). In this dissertation, Vietnamese firms also exist the asymmetric information as well the corporate

governance is still weak, then the negative connection between corporate cash holding level and dividend payment is predicted.

**AGE** is firm age as the number of years since the firms are listed. Megginson et al. (2014) identify the relationship between firm age, and corporate cash holdings are the same trend. Because the firms are a longer listed period is perform better than the new one (Bates et al., 2009). Therefore, the firm with higher performance requires a high level of cash reserve to gain more profit in the period (Saddour, 2006). Likewise, the firms stay longer in the market that has more experience to access more investment opportunities to earn better profits to increase the firm value. Then, the dissertation is predicted the positive sign for this variable.

**CF** is the ratio of pre-tax profit plus depreciation to total assets. The previous papers and theory show the different findings. Based on the trade-off theory, the negative correlation between cash flow and cash holding is supported by Kim et al. (2011) which state the free cash flow may cause the agency problem for firms. Likewise, the firms with higher cash flow do not need to keep cash because the cash flow can consider as cash substitute (Kim et al., 1998). However, the firms should keep a higher amount of cash during the growing periods in order to take all investment opportunities; then there is a positive relationship between two variables (Al-Najjar and Clark, 2017). Opler et al. (1999), similarly, investigate the positive correlation between cash flow and corporate cash holding level owing to the fact is that when the firms experience with high cash flow, then the firms increase the cash reserve to earn more profit to get back more profit in the period. The dissertation is expected the positive sign which is the same results from studies of Ozkan and Ozkan (2004), Ferreira and Vilela (2004).

**CAPEX** means capital expenditure. This uses to upgrade the assets. In the research from Opler et al. (1999) the capital expenditure has a negative sign with the cash holding level. Similarly, the trade-off theory states there is a positive correlation owing to the fact is that the firms with high capital expenditure hold cash as a shield against transaction costs. Nevertheless, the pecking order theory expects the negative correlation between capital expenditures and corporate cash holdings because capital expenditures directly reduce the company's cash flow. Likewise, Bates et al. (2009) argue that capital expenditures can help the firms easier to borrow money. Thus the firms do not keep a high level of cash due to the fact is that the firms can use assets to guarantee debts. Furthermore, Song and Lee (2012) find out a negative correlation between capital costs and cash holdings level after the Asian financial crisis to confirm the theory. Therefore, the dissertation expects capital expenditures to be negatively correlated with cash holdings because capital expenditure reduces cash.

**GROWTH** is natural logarithm of growth of total assets. According to agency theory, Jensen (1986) suggests that there is a negative correlation between cash holdings and the firm growing because the firm in expanding period tends to invest more money to earn a profit (Opler et al., 1999). Moreover, Shleifer and Vishny (1992) indicate that the probability of bankruptcy of the growing firms is higher in comparison with others. Thus, the firms should keep a higher level of cash. However, based on the trade-off theory, Myers (1977) shows that firms with more investment opportunities or growing time may face higher costs of external financing due to higher costs from inefficient investment costs and financial exhaustion. Especially, Vietnamese firms have to pay high borrowing cost. Then, to reduce the financial cost, these companies hold larger amounts of cash to prevent risk which leads to a positive connection between cash holdings and the growth of firms. Similarly, Ferreira and Vilela (2004), Lee and Lee (2009), Bates et al. (2009) point out that the firms with faster growth hold a higher level of cash reserve. The dissertation is expected a positive connection between cash holding level and growth.

**BANKD** is the ratio of total bank borrowings to total debt (Ozkan and Ozkan, 2004). Previous papers on the relationship between BANKD and corporate cash holding provide mixed results. On the one hand, Ferreira and Vilela (2004) conclude that the firms can borrow money from the bank easier because of their close connection. When the banks lend money to the firms, they always connect closely for precautionary reasons. Moreover, the banks can access the information with greater from these corporations than from other lenders or investors. Moreover, the firms are screened carefully by the bank in the lending process; then the firms have to satisfy all requirements to obtain the loans. Therefore, the external investors increase their trust with the financial health of firms with high bank debt than others which leads to the firms can get money from external easier (Ozkan and Ozkan, 2004). Another reason for the negative impact of bank debt on cash holding is that the firms can more easily renew the bank loans regarding their needs (Chemmanur and Fulghieri, 1994). Hence, the paper predicts that the BANKD is negatively associated with the corporate cash holding level because the bank debt can be considered as the substitute for cash.

**NWC** is net working capital which is calculated the difference between current assets and current liabilities. The firms with less cash reserve have higher net working capital due to the fact is that the firms invest by using capital expenditure (Harford et al., 2008). This is in line with the results from Bates et al. (2009), Ferreira & Vilela (2004) and Opler et al. (1999).

- **Hypothesis 3: *The CEO duality is positively associated with the corporate cash holding level.***
- **Hypothesis 4: *BOD ownership is negatively correlated with the corporate cash holding level.***

➤ **Hypothesis 5: BOD compensation is positively associated with the corporate cash holding level.**

The objective of this part is to examine the hypotheses 3, 4 and 5 to analyze the relationship between the board of director and corporate cash holding level, the dissertation develops the model for testing this hypothesis which is based on the previous studies from Ozkan and Ozkan (2004) and Kusnadi (2011). The model is given for analyzing the impact of BOD on the corporate cash holding level in Vietnamese context:

$$CASH_{it} = \beta_1 CASH_{it-1} + \beta_2 (CEODUAL_{it}) + \beta_3 (COMP_{it}) + \beta_4 (MAN_{it}) + \alpha_j Z_{it} + \eta_i + \lambda_t + \varepsilon_{it} \quad (5)$$

where  $i$  is the accumulation of firms;  $t$  is time for the end of the year;  $CASH$  is the dependent variable equal cash plus cash equivalent divided by the total asset.  $CEODUAL$  is a chairman duality, and this is represented as a dummy variable which takes a value of 1 if the positions of CEO and the chairman are held by the same individual and 0 otherwise,  $MAN$  is the variable which is the percentage of equity ownership by BOD,  $COMP$  is the compensation for BOD such as the sum of salary, bonus, and all other payments.  $\eta$  is an individual effect;  $\lambda$  is a dummy variable with the time effect and equal for all firms which eliminate the macro factors;  $\varepsilon$  is the error term;  $\alpha_j$  are coefficients of the explanatory variables.  $Z$  is other control variables including CAPEX, SIZE, LEV, CF, BANKD, LIQ.

To analyze the influence of the BOD on the corporate cash holding level of listed firms on the stock market, a regression analysis model is used. This is a method that has been used by the authors to examine the influence of factors. It is noticeable that the endogenous problem may lead to the bias in the results. In order to solve this problem, Arellano and Bover (1995) introduced GMM method. Hence, the paper uses GMM test these hypotheses with the model as a dynamic model. All independent variables are considered endogenous which are added latency to the model as tool variables, with latency equal to 2 or higher to eliminate individual effects. The Hansen test is applied to test the suitability of the model. Next, AR (1) and AR (2) has to satisfy the requirements to confirm the accuracy of the model. Finally, the robustness testing to check the stable of the model.

**CEODUAL** (CEO duality) is the dummy variable which is number 1 for the chief executive officer (CEO) and chairman are the same. The mixed results are confirmed in other previous papers. Ozkan and Ozkan (2004) assert there is an insignificant relationship between corporate cash holding level and **CEODUAL**. However, having a chairman and CEO as the same individual can lead to the high level of cash holding. This is because the agency problem may be mitigated when the chairman also operates the firms as CEO, then the conflict between managers and shareholders can be controlled. This finding is supported by a study from

Dahya and Travlos (2000), the paper expresses that chairman supports for CEO to serve their interest, protect their position and maintain their power in the firms by increasing the cash reserve level. Moreover, the CEO and chairman are the same people leads to reduce the credibility of the public information (Anderson et al., 2004). Thus, the firms with a large amount of cash lead to CEO or chairman can be more initiative in their investment or decision without any borrowing from an external source with a high cost. The corporate cash holding level is high for firms with the same person holding CEO and chairman position (Gill and Shah, 2012). Consequently, the paper expects the positive result between CEO duality and the corporate cash holding.

**COMP** is the compensation of BOD which includes the sum of salary, bonus and all other payments for BOD. Core et al. (1999a) find that the firms pay higher compensation for BOD and CEO when the firms have higher stock return as well as market value. The firms can make easier raise capital from the market when the firms are a high market value (Pinkowitz and Williamson, 2003). To support the argument that there is a negative connection between corporate cash holding and COMP, the high board compensation is positively connected with the firm performance; then they do not need to hold cash because they can get money from external source easily (Fernandes, 2008). Besides that, Brick et al. (2006) argue that the firms pay higher compensation for CEO and board of directors which leads to increases in agency cost; consequently, the firms cannot keep a high level of cash in this situation (Lee and Lee, 2009). As a result, the paper predicts COMP has a negative sign with the corporate cash holding level.

**MAN** is the dependent variable which measures the percentage of equity ownership by the BOD (Ozkan and Ozkan, 2004). The board ownership leads to higher firm value because they own the corporations, then they try their best to generate higher profit (Morck et al., 1988), (Dwivedi and Jain, 2005). The firms with high value hold less cash reserve due to the fact is that they can easier borrow money from other sources (Lee and Lee, 2009). Meanwhile, M. and Hasnah (2010) argue that board ownership leads to increase the dividend pay-out. According to the free cash flow theory (Jensen, 1986), the high agency cost leads to lower level of cash holding. Consequently, the paper is expected a negative connection between MAN and corporate cash holding level.

Furthermore, to implement these hypotheses testing and control the problem of variance due to lack of variables, then the control variables are added to the model based on the study of Saddour (2006), Ozkan and Ozkan (2004), Kusnadi (2011) and Harford et al. (2008).

**LIQ** is the ratio of current assets minus current liabilities and total cash to total assets. Firstly, there is no relationship between liquidity and cash holdings in the pecking order theory (Opler et al., 1999) while the trade-off theory



discovers a negative correlation between cash holdings and liquidity because they can easily be converted into cash. Therefore, the firm with high liquidity do not hold high level of cash (Ferreira and Vilela, 2004). And, Ozkan and Ozkan (2004) point out a negative correlation between liquidity and cash holdings and the firms prefer keeping the liquidity asset with lower holding cost in comparison with holding cash. The paper predicts that the corporate cash holding level is connected negatively with liquidity as alternative liquid assets can be converted into cash easily. Thus the firm can reduce the amount of cash reserve.

**LEV** (leverage) equal total debt divides total assets. This variable is expected to have a negative sign in connection with bank debt. This prediction is in line with both the trade-off and pecking order theory. According to trade-off theory, Ozkan and Ozkan (2004) argue that debt can be a substitute for cash holdings because of its flexibility. Opler et al. (1999) state that firms use excess cash to pay off outstanding debt, then the accumulate cash holding level decreases. Moreover, the free cash flow theory also predicts a negative correlation between leverage and cash holdings, as the firms with fewer loans may suffer less external supervision and thus the firms keep the high cash amount which may cause the agency cost (Ferreira and Vilela, 2004).

**SIZE** is the logarithm of total assets, and the dissertation is expected the same results in the model 4. The smaller size of firms has a higher level of cash holding (Ferreira and Vilela, 2004; Saddour, 2006). And, **CAPEX** is expected similar to the previous model with the negative sign with the corporate cash holding level. **CF** is the cash flow of the firms which predicts a positive sign. This prediction is in line with the previous model. And, **BANKD** expects a negative connection with the corporate cash holding level as the previous model (Ozkan and Ozkan, 2004).

➤ ***Hypothesis 6: The stricter listing requirements on the stock exchanges leads to lower corporate cash holding level.***

The hypothesis 6 is that whether the stricter listing requirements of the stock exchange has a negative impact the corporate cash holding level. LISTED represents the listing requirements in the stock exchange. Besides, the other control variables are given in the model to control the lack of variables. These variables are added to a model which is based on the previous studies such as the factors affecting the cash holding level (Martínez-Sola et al., 2013; Ozkan and Ozkan, 2004; Ferreira and Vilela, 2004)the . Some of control variables are also related to the listing requirements in Vietnamese stock exchanges. Besides that, to make the estimated results more reliable, the dissertation uses the IV process. The model is in equation six below:

$$CASH_{it} = \beta_0 + \beta_1 LISTED_{it} + \alpha_i Z_{it} + \mu_{it} \quad (6)$$

where  $i$  is the accumulation of firms;  $t$  is time; CASH is the dependent variable equal cash plus cash equivalent divided by total asset; LISTED is a dummy variable;  $Z$  is the control vector of model including ROE, SIZE, LIQSX, MB, DIV, PROF, AGE, CAPEX;  $\mu$  is the error;  $\alpha$  are coefficients of the control variables.

Because the model has some variables that affect the cash holding level as well as the listing requirements on the stock exchange, the interaction between variables is called simultaneousness. Zellner and Theil (1962) mention about the general approach to solving the simultaneous problem is the 2-stage least square method and 3-stage least square. These two methods use the same equation structure and have certain similarities. However, to help provide the best estimation of the correlation coefficients in the model, according to Zellner and Theil (1962), the dissertation uses 3-stage least square method. This approach can solve endogenous problems that occur in regression of independent variables in the model.

According to Martínez-Sola et al. (2013), cash is dependent variable is the quotient of cash and cash equivalent out of total assets. In this model, LISTED is the listing requirements of stock exchanges is the independent variable. Besides that, other independent variables such as profitability (PROF), return on equity (ROE), firm size (SIZE), dividend (DIV), information disclosure (MB), liquidity of the stocks on the market (LIQSX), firm age (AGE), capital expenditure (CAPEX) affect the ability of listing on the stock exchanges as well as the corporate cash holding (Ozkan and Ozkan, 2004, Kusnadi, 2011). The data processing may cause the endogenous problems in the model. Therefore, the dissertation needs to use 3 stage least square to reduce this issue. After that, the robustness testing is applied to check the stable of the model.

**LISTED** is the main explanatory variable. It is used as a dummy variable with a value of 0 for the listed firms in HOSE; number 1 for listed firms in HNX and 2 for the listed firms was canceled. This variable is employed to distinguish the different listing requirements. This variable represents for listing requirements which are required for the listed firms by State Securities Commission of Vietnam. In Vietnam, there are two stock exchanges which are different listing requirements. In particular, the corporations must fulfill all the requirements as representing above when they want to be listed. HOSE requires stricter for listed firms in comparison with the firm that is listed in Hanoi (HASTC). Moreover, firms are listed in HOSE seems to maintain their performance better because the requirements are stricter and the reputation of those firms is better to banks and investors to invest into since they have a very observation from the regulators and HOSE. Resulting from the good performance and high reputation, firms on this exchange are expected to hold lower cash holding levels and vice versa.

**PROF** is the net profit plus depreciation which is and then divided by total assets. The corporations have more profit which creates large cash flow so that the firms can reduce the cash reserve (Kim et al., 1998). And, the company decreases to mobilize capital when they have higher profit (Opler et al., 1999; Ferreira and Vilela, 2004). Nevertheless, some companies intend to keep more cash as they can get more profit in growing periods (Ogundipe et al., 2012). In this paper, it is used as a variable to meet one of important requirement for listed firms in holding cash. The positive connection between profit and the corporate cash holding is predicted.

**LIQSX** is the proxy variable measure the ratio between the trading volume and the outstanding number of shares. This variable presents the relation between liquidity and stock return (Datar et al., 1998). Furthermore, the stock return has an impact on the capital investment as well as the capacity for raising funds of firms (Titman et al., 2004). This variable is necessary for the listed firms to be aware of the ability in raising funds in the stock market. Notably, the turnover rate is high, and the firms can keep more shares in compared to cash reserve. Thus, the opposite relationship between cash holding and this variable is expected.

**MB** is dummy variable for information disclosure in the stock market. This variable informs if the listed firms are following the listing requirement for announcing the information at the right time or not. In particular, the information disclosure has the influence on the firm performance and the ability to raise the capital (Lambert et al., 2007). The dissertation expects there is a positive sign of the information disclosure and cash holding level. Because the firms with high level of information disclosure lead to decrease the agency cost, then the firms can keep more cash in order to obtain more investment opportunities to get higher firm value.

**ROE** (return on equity) is the ratio between firm equity and net profit. Thomas et al. (2011) and Abushammala and Sulaiman (2014) express that the corporation holds more cash when the profit of the firms is higher. Because the firms get more investment opportunities in the profitability period (Megginson and Wei, 2010). However, Opler et al. (1999); Ferreira and Vilela (2004) argue that the firms with ROE are higher keep more cash due to the fact is that the firms can obtain all investment opportunities.

**SIZE** is the logarithm of total assets. Similar to the previous models, the model has predicted the negative sign between the size and corporate cash holding. This expectation is in line with the trade-off theory and the previous papers form Ferreira and Vilela (2004), and Megginson and Wei (2010). **DIV** is the dividend pays out in a given year. And, the dividend represents one of the vital conditions for listed firms. The variable has an expectation the negative sign with the corporate cash holding level which is the same prediction with the previous

models. **AGE** is firm age as the number of years since the firms are listed. Similar the expectation from the previous model, the positive sign for this variable is predicted. **CAPEX** means the capital expenditure that is the fund of firms to upgrade the physical assets. This variable is expected a negative correlation with cash holdings which is in the same prediction in the previous model.

## 5. FINDINGS AND DISCUSSIONS

The chapter presents the findings as well as discussions about the results of the research. In the first section, the results of testing the influence of the corporate cash holding level on the firm value are described. Then, the impact of state ownership on the corporate cash holding level is indicated. Next, the influence of board of directors' characteristics including the board ownership, board compensation, and CEO duality on the corporate cash holding level is presented. Finally, the relationship between the listing requirements on the stock exchanges in Vietnam and the corporate cash holding level is examined. It is noticeable that the different methods are applied to process the data to deal with the econometric problems such as unobserved heterogeneity or endogenous issues.

### 5.1 The influence of corporate cash holding on the firm value in the Vietnamese context

Table 5.1 represents the summary statistics for all variables used in the model for testing the first hypothesis.

Table 5.1: Descriptive Statistic for cash holding and firm value

Variables	Observation	Mean	Std. Dev.	Min	Max
TOBINQ	3973	0.7317	0.5526	0.1384	3.7266
CASH	3973	0.0969	0.1062	0.0007	0.5053
CASH2	3973	0.0206	0.0429	0.0000	0.2489
LEV	3973	0.6790	1.7222	0.0020	9.4741
GROWTH	3973	0.1101	0.2271	-0.4239	1.0626
PROF	3973	0.0877	0.0843	-0.1432	0.3731
CF	3973	0.1100	0.1968	-0.8461	0.9255

*Note: TOBINQ = market value / book value; CASH= (cash + cash equivalent)/total asset; CASH2= Cash square; LEV= Total debt/total assets; GROWTH= Ln (Total assets/Total assets t-1); PROF= (Net profit + depreciation)/Total assets; CF= (earnings after tax+ depreciation)/ gross sales.*

*Source: own processing*

As can be seen from the table, TOBINQ values range from 0.138 to 3.72 with a standard deviation of 55%. The average TOBINQ value of Vietnamese listed corporations is 0.73 times the book value, with the company having the lowest rate at 0.1 and the highest level at 3.72 times of the book value. The average leverage rate of Vietnamese listed firms is 0.67 times of total assets. The average growth is 11% of total assets which is high compared to another firm in different

countries (Ferreira and Vilela, 2004). Moreover, the profit rate has different ranges from -1.4% to 37.31% of total assets.

The main variable is the cash ratio of total assets of Vietnamese listed firms is from 0% to 50.53%. The ratio of cash to total assets of 9.78% of Vietnamese listed firms is similar to other countries, such as the average cash level in the UK is 9.9% from Ozkan and Ozkan (2004). However, the average of cash holding is 9.78% which is higher than some markets. Likewise, this rate is higher in comparison with others such as García-Teruel and Martínez-Solano (2008) indicate that the average cash holding is 6.57% in Spain; Martínez-Sola et al. (2013) in United State with the cash average ratio 7.9%; Gill and Shah (2012) in Canada with 3.87% cash holding level and 7% of the research from Ogundipe et al. (2012) in Nigeria. Thus, the cash holding level of Vietnamese listed corporation is higher in comparison with others which need to study to find out the impact of corporate cash holding level on the firm value.

Table 5.2 shows the correlation matrix with all variables used in the model. The correlation coefficient between the variables is shown in the table below with no correlation more than 0.6. Then, there are no high correlations between variables which can avoid the phenomenon of multicollinearity between variables

Table 5.2: Correlation Matrix for cash holding and firm value

<b>Variable</b>	<b>TOBINQ</b>	<b>CASH</b>	<b>LEV</b>	<b>GROWTH</b>	<b>PROF</b>	<b>CF</b>	<b>DIV</b>
TOBINQ	1.0000						
CASH	0.1834	1.0000					
LEV	-0.0713	-0.2290	1.0000				
GROWTH	0.1422	0.0748	0.0707	1.0000			
PROF	0.2590	0.3472	-0.3266	0.1446	1.0000		
CF	0.1526	0.1270	-0.2126	0.1977	0.5240	1.0000	

*Note: TOBINQ = market value / book value; CASH= (cash + cash equivalent)/total asset; CASH2= Cash square; LEV= Total debt/total assets; GROWTH= Ln (Total assets/Total assets t-1); PROF= (Net profit + depreciation)/Total assets; CF= (earnings after tax+ depreciation)/ gross sales.*

*Source: own processing*

Table 5.2 presents the correlation between dependent and independent variables as well as the control variables in the model. The results show that the independent variables and control variables have a linear relationship with the dependent variable. However, this relationship is not strong (the correlation <0.6). In particular, the leverage of firms is negatively associated with the dependent variable (CASH). The remaining independent and control variables have the positive relationship with CASH. The degree of correlation between independent variables, control variables and the dependent variable in the model is not high.

Table 5.3 shows the result of the effect of cash holding level on firm value after managing for unobserved heterogeneity. According to the findings, there exist the level of the corporate cash holding which can maximize the firm value based on using a quadratic equation of cash. This means that the corporate cash holding level influences the firm value.

Table 5.3: The results of cash holding and firm value

<b>TOBINQ</b>	<b>Model 3 for testing CASH and TOBINQ</b>	<b>Robustness testing for CASH and TOBINQ</b>
CASH	28.26407*** (3.40)	22.4675*** (2.61)
CASH2	-59.5209* (-1.72)	-41.3419** (-2.23)
PROF	14.76374** (2.79)	11.5284** (1.85)
GROWTH	2.294532** (2.09)	
CF		3.74015 (1.01)
LEV	-1.126536 (-1.25)	-0.98613 (-1.07)
Hansen	8.42	15.05
<i>p-value</i>	0.209	0.135
AR (1)	-3.60	-3.28
<i>p-value</i>	0.000	0.001
AR(2)	-0.93	-1.46
<i>p-value</i>	0.351	0.144
N	3335	3335

Note: TOBINQ = market value / book value; CASH = (cash + cash equivalent)/total asset; CASH2 = Cash square; LEV = Total debt/total assets; GROWTH = Ln (Total assets/Total assets t-1); PROF = (Net profit + depreciation)/Total assets; CF = (earnings after tax + depreciation)/ gross sales. AR (#): autocorrelation tests in 1 and 2 order, Standard errors in italics. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Source: own processing



Table 5.3 presents the results of the regression of the relationship between the corporate cash holding level and firm value which is based on the quadratic equation of CASH using the GMM estimation method. The result shows that there exists a nonlinear relationship between the corporate cash holding level and firm value. The result indicates that the CASH coefficient is positive and statistically significant at 1%, while the CASH2 is negative and statistically significant at 1%. This result implies that there exists an inverted U-shaped form to conclude a nonlinear relationship between the corporate cash holding level and firm value. The finding of U-shape form is similar to Martínez-Sola et al. (2013) in the US. As a result, the paper concludes that there is an influence of cash holding level on the firm value.

From the table 5.3, test the serial correlation quadratic reveals that AR (1)  $<0.1$  and AR (2)  $>0.1$ , the results of Hansen test confirms dynamic two-step GMM estimation is appropriate. The finding shows that the firm value is affected by corporate cash holding level in the present and the past. The invert U-shaped relationship between cash holding and firm value implies that keeping the right level of cash holding leads to the rising of corporate value but at the turning point the firm value will decrease if the firms hold too much cash. Besides that, the invert U-shaped between the corporate cash holding level and firm value suggests that the businesses need to balance between the cost and benefits of holding cash to maximize their businesses value. According to the finding, when the firms hold a low level of cash, the cost of holding cash prevails, then the firm value is not maximized. Therefore, in this case, the company should increase the cash holding level to optimize their liquidity, profit or firm value. On the contrary, when the cash holding level passes above the optimal level, the higher level of cash holding leads to decrease the firm value because of the excess of the opportunities cost of keeping the cash. This finding is also consistent with the results of Love and Zicchino (2006) and Martínez-Sola et al. (2013).

The result specifies that the cash holding of Vietnamese corporation has an influence on the firm value. Particularly, this finding is in line with the transaction, precautionary and speculative motives. In particular, Vietnamese corporations need to keep more money due to the fact is that the interest rate is high. When the corporation does not have enough money for daily activities (transaction motive) as well as unexpected issues (precautionary motive), they have to borrow money with a high cost. Furthermore, the interest rate in Vietnam is high fluctuation as the reason of speculative motive for the corporation to keep more cash to avoid the high cost of borrowing.

The results state that there exists the right level of corporate cash holding level to improve the firm value. This finding is support for the trade-off theory (Myers, 1977), the result confirms the firm value can increase when the firms

keep the right amount of cash reserve, or the cash holding is one of important factor which impacts the Vietnamese firm value. Notably, the cost and benefits of keeping cash can be balanced at the optimal level which is the same finding with the paper from Martínez-Sola et al. (2013). Furthermore, the result finds out that Vietnamese listed firms should keep the suitable level of cash holding level to increase the firm value. And, the firms have to be considered owing to the free cash flow theory (Jensen, 1986) when they decide the level of cash reserve. The agency cost or agency problems can be increased when the firms keep too much cash; then the firms need to consider their situations in holding the cash reserve. According to the pecking order theory (Myers and Majluf, 1984), the firms should keep more cash to reduce the cost of borrowing because the firms may pay a high cost when they do not keep enough money. Therefore, Vietnamese corporation should increase the level of cash holdings to grow their firm value because the interest rate in Vietnam is high in comparisons with other countries. Moreover, the process of borrowing money in Vietnam cost too long and complicated; then the firm should keep a high level of cash to be initiated in their activities (Nguyen and Truong, 2016).

Besides, the result of the model indicates GROWTH and PROF variables are related positively to the firm value. The positive connection between growth and firm value is the same as the expectation which is in line with the papers from Bhagat and Bolton (2008), Core et al. (1999b) and Gillan (2006). This is because of the firms with a higher growth rate that can create more investment opportunities to improve their profit, their performance as well as the firm value. In addition, the higher profit leads to higher firm value which is the same results with previous studies from Firth (1998), Opler et al. (1999) and Maury and Pajuste (2005). The firms with higher profit can be imitative in their decisions in investments or daily activities without borrowing money from an external source. Meanwhile, LEV is insignificant with the firm value in the Vietnamese context. This can be explained that the firms try to avoid borrowing money from an external source because of the high cost.

Furthermore, the robustness testing for model 3 is applied to check the stability of the results. The result points out that there is no change of signs in all variables. There exists the relationship between the corporate cash holding and firm value which confirmed by the positive sign of CASH variable and the negative sign of CASH2 at the significant level of 1% and 5%, respectively. And, the stability of the estimated coefficients for two different specifications of dependent variable demonstrates the robustness of our findings regarding the non-linear relationship between cash holdings and firm value. By control variables, all variables are significant at 5%, and 10% level expect leverage variable when the thesis uses proxy firm value as TOBINQ. In detail, CF (cash

flow) is insignificant. However, the relation between PROF (profitability) and the firm value are a positive sign as the same result.

## 5.2 The impact of the state ownership on the corporate cash holding level

Table 5.4 represents the summary statistics for all variables used in the model 4 after being excluded the outliers. As can be seen from the table, the average cash holding is 9.4% out of total asset which is higher than some markets (García-Teruel and Martínez-Solano, 2008; Gill and Shah, 2012 and Ogundipe et al., 2012). The reason is that the cost of borrowing capital rose quickly during the period due to the financial crisis. Hence the firms intend to hoard more cash to increase the liquidity and flexible finance. Besides, the state ownership is 23.8% on average and higher than the average of the institutional ownership (8 %). The results confirm the state ownership is dominant in Vietnamese economy. The finding is similar to the paper from Megginson et al. (2014).

Table 5.4: Descriptive Statistic of cash holding and state ownership

Variables	Observation	Mean	Std. Dev.	Min	Max
CASH	4132	0.0940	0.1037	0.0001	0.6867
STATE	4132	23.857	23.790	0.0000	87.867
INST	4132	8.0371	12.260	0.0000	49.000
SIZE	4132	5.1765	0.6212	2.8203	7.4744
AGE	4132	0.5958	0.2935	0.0000	1.2041
DEBT	4132	0.2335	0.1917	0.0000	0.7338
NDL	4132	0.2645	0.1645	0.0019	0.8584
CAPEX	4132	-0.0535	0.0771	-0.7234	0.0644
GROWTH	4132	0.2975	1.7045	-0.9348	40.763
DIV	4132	0.7548	0.4302	0.0000	1.0000
CF	4132	0.0555	0.1615	-0.6958	1.9026
NWC	4132	0.1229	0.1948	-0.4571	0.8270

Note: CASH= (cash + cash equivalent)/total asset. STATE is the fraction of shares owned by the. STATE is the fraction of shares owned by the state. INST is the fraction of shares owned by the institutions. SIZE is the logarithm of total assets. DIV is 1 if the firm pays dividend, zero otherwise. CF= (EBITDA - interests, taxes, and dividends)/ total assets. DEBT is the sum of interest-bearing short-term debt and long-term debt, scaled by net assets. NWC = (current assets - current liabilities)/ total assets. AGE is the number of years since a firm is listed. NDL = (total liabilities - short and long-term debts)/ total assets. CAPEX is ratio of capital expenditures to total assets. GRO= Ln (Total assets/Total assets t-1).

Source: own processing

From Table 5.5, the correlation between the state ownership (STATE) variables is unclear with the corporate cash holding level because correlation coefficient is ranged 0.1 and 0.23, respectively. For other explanatory variables, the correlation coefficient between variables is smaller than 0.6, which eliminates the possibility of multicollinearity in the regression analysis of the proposed study models.

Table 5.5: Correlation Matrix for cash holding and state ownership

Variable	CASH	STATE	INST	SIZE	AGE	DEBT	NDL	CAPEX	GROW	DIV	CF	NWC
CASH	1.0000											
STATE	0.1090	1.0000										
INST	0.1491	-0.0985	1.0000									
SIZE	-0.1927	-0.0660	0.4000	1.0000								
AGE	0.0393	0.1072	0.2598	0.1328	1.0000							
DEBT	-0.3724	-0.000	-0.099	0.1972	0.0058	1.0000						
NDL	-0.0090	0.1333	-0.150	-0.303	-0.053	-0.252	1.0000					
CAPEX	0.0307	-0.036	-0.048	-0.066	0.1250	-0.165	0.1441	1.0000				
GROW	-0.0264	-0.091	-0.009	0.0467	-0.074	-0.033	0.0071	0.0008	1.0000			
DIV	0.1600	0.2205	0.1011	0.0228	0.1035	0.0005	0.0152	-0.068	-0.108	1.0000		
CF	0.2114	0.1067	0.0472	-0.0471	0.0176	-0.137	-0.028	-0.123	-0.016	0.0908	1.0000	
NWC	-0.0747	-0.129	0.0877	0.0489	0.0038	-0.377	-0.160	0.2204	0.0413	-0.048	-0.113	1.0000

Note: CASH= (cash + cash equivalent)/total asset. STATE is the fraction of shares owned by the. STATE is the fraction of shares owned by the state. INST is the fraction of shares owned by the institutions. SIZE is the logarithm of total assets. DIV is 1 if the firm pays dividend, zero otherwise. CF= (EBITDA - interests, taxes, and dividends)/ total assets. DEBT is the sum of interest-bearing short-term debt and long-term debt, scaled by net assets. NWC = (current assets - current liabilities)/ total assets. AGE is the number of years since a firm is listed. NDL = (total liabilities - short and long-term debts)/ total assets. CAPEX is ratio of capital expenditures to total assets. GRO= Ln (Total assets/Total assets t-1).

Source: own processing

Table 5.6 presents the result of the effect of the state ownership on the corporate cash holding level after managing for unobserved heterogeneity:

Table 5.6: The results of cash holding and state ownership

<b>CASH</b>	<b>Model for CASH and STATE</b>	<b>Robustness for CASH and STATE</b>
STATE	-0.0033*** (-3.18)	-0.003*** (-3.17)
INST	-0.0041** (-2.43)	-0.0041** (-2.43)
SIZE	-.1454*** (-8.67)	-.1454*** (-8.67)
AGE	0.0369*** (3.68)	0.0370*** (3.68)
DEBT	-0.2973*** (-8.17)	-0.2953*** (-8.16)
NDL	-0.3459*** (-11.08)	-0.3468*** (-11.08)
CAPEX	0.1670*** (5.71)	0.1657*** (5.62)
GROW	0.0080 (1.32)	0.0080 (1.32)
DIV	-0.0025 (-0.78)	-0.0025 (-0.79)
CF	0.0638*** (4.22)	0.0629*** (4.14)
NWC	-0.2876*** (-11.19)	-0.2877*** (-11.20)
BANKD		-0.037*** (-0.87)
_Cons	0.9999*** (11.25)	1.001*** (11.25)
N	3484	3484
AR(1)	-8.8017	-8.7998
<i>p-value</i>	0.000	0.000
AR(2)	0.2917	0.2954
<i>p-value</i>	0.7705	0.7677

Note: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Note: CASH= (cash + cash equivalent)/total asset. STATE is the fraction of shares owned by the. STATE is the fraction of shares owned by the state. INST is the fraction of shares owned by the institutions. SIZE is the logarithm of total assets. DIV is 1 if the firm pays dividend, zero otherwise. CF= (EBITDA - interests, taxes, and dividends)/ total assets. DEBT is the sum of interest-bearing short-term debt and long-term debt, scaled by net assets. NWC = (current assets - current liabilities)/ total assets. AGE is the number of years since a firm is listed. NDL = (total liabilities - short and long-term debts)/ total assets. CAPEX is ratio of capital expenditures to total assets. GRO=  $\ln$  (Total assets/Total assets  $t-1$ ). AR (#): autocorrelation tests in 1 and 2 order, Standard errors in italics.

From the table 5.6, the state ownership has a negative sign with the cash holding at 1%. The clear inference is that the higher level of the state ownership leads to hoard less cash reserve in the listed firms. This finding is consistent with the paper from Megginson et al. (2014) for Chinese context where the government supports the raising capital process. In detail, the stated-owned firms can easier borrow money from the state bank or private bank with lower interest rate because of the political connection (Sapienza, 2004; Kusnadi et al., 2015). Besides that, Sapienza (2004) point outs that the firms with higher stated-owned are usually big, then they have high ability to cover the interest payment. These arguments conform to the current situations in Vietnam. Furthermore, the negative connection between state-owned and corporate cash holding owing to the fact is that the firms with high state ownership easily access the debt because of the government guarantees for them (Shleifer and Vishny, 1997; Huang et al., 2011 and Li et al., 2009). Likewise, the traditional relationship between the state ownership and the state banks is very closed which the state banks can support strongly for the firm's businesses (Sapienza, 2004). And, according to IMF (2015), the state shareholders in the bank still dominate in Vietnamese economy, then the firms with majority state ownership have the high opportunities to access the loans (Okuda and Nhung, 2010). The state ownership is one of the most common types of ownership in the transitional economy as Vietnam (Phung and Mishra, 2016). Although the state-owned enterprises equitize their firms to the joint-stock companies, in Vietnam the state ownership is still high with 23 % in average which can impact the firm operation such as the capital policies (Le and Phan, 2015). The support of the government for the stated-firms is still high in Vietnam as other developing countries. To demonstrate this argument, Le and Phan (2015) indicate that the firms with higher stated-owned easier borrow money from Vietnamese state bank as well as other commercial banks. Furthermore, the state-owned firms can finance their capital with debt with cheaper cost in comparison with the others in general because the State bank is passive in seeking the customer, they usually lend money which is based on their connection, then the firms with high stated-owned is their priority (Sapienza, 2004). The result also can be explained that the state-owned firms can take advantage of their political connections that support the government to get more investment opportunities (Megginson et al., 2014). Consequently, the firms spend much money on their investment which reduces the corporate cash holding level. As above reasons, the money on hand of the firms with higher state ownership can be decreased.

Reference to the variation in the state ownership, the study finds that the state ownership interacts oppositely with cash holding because of the several reasons due to the umbrella of the government to access the low capital cost. Besides, the problem of representation between the owner and the manager usually appear in companies with high stated-ownership because of the separation between the owner's power and the firm operation which can cause the personal incentive (Nikolov and Whited, 2014). Moreover, while the ultimate owner of state-owned

firms is the public, the government has the highest power. However, the person who receives salaries from the government is not directly related to the business results. Consequently, these managers have no pressure or motivation to make the business work. In addition, to reduce the cost of keeping cash, state-owned firms tend to use debt as a tool to manage the problem (Li et al., 2009). This means that the firms will borrow money for their investment when they need instead of holding a high level of cash reserve in the firms.

The institution-owned variable (INST) is a negative correlation with cash holding. It is reasonable because the institutions offer benefits from managerial skills and experience (Li et al., 2009). Besides, the firms can easier borrow money with the high reputation or good firm performance (Yu, 2013). In addition, the firms with higher institution-owned have more experience in operating and information disclosure is more accuracy from these firms because they have to follow the international standard (Bai et al., 2004). Equal important, Black et al. (2015) infer that the institutions have the capacity to support the firms when they need cash, then the firms with a higher proportion of institutional ownership do not need to hold a high level of cash.

The experimental results provide the size, age, net working capital, cash flow, capital expenditure are the factors to determine the cash holding. In more details, size, debt, non-debt liabilities and networking capital negatively impact cash holding. This finding is similar to the outcomes from Bates et al. (2009), Ogundipe et al. (2012), Ferreira and Vilela (2004). When the firms have more debt or non-debt liabilities, they have to pay more interest to the borrower, then the cash on hand decreases. In this case, they focus on the payment than keeping the cash in the firms (Megginson and Wei, 2010). It follows that the net working capital has an inverse association with the cash holding. Obviously, networking capital majorly consists of the liquid asset cash substitutes (Harford et al., 2008). Because of this, during the specific period in Vietnam the firm should maintain the high level of cash or liquid assets.

On the other hand, age, capital expenditure, and cash flow have opposite effect on the stockpiling cash. A positive correlation between cash holding and capital expenditure is consistent with the trade-off theory because the firms with higher capital expenditure should keep more cash to against the transaction cost (Opler et al., 1999). Furthermore, the interest rate is fluctuation in recent years, so the firms have the incentive to hold more cash to be more active in their businesses. Turning to the age variable, as firm age increases the cash holding also rise because they have experienced the interest racing period in Vietnam. Because of that, they tend to keep more cash to alert the difficulties in getting cash for their operations (Bates et al., 2009). Lastly, the firm expected to keep more cash when the cash flow more volatile in an attempt to mitigate the expected costs of liquidity constraints (Ozkan and Ozkan, 2004).



In order to check the stability of the results, the dissertation has the robustness test by adding one variable (BANKD). After running the model with one added variable, the results of all variables stay the same signs. This means that the variables are employed in the model are suitable for this model.

### 5.3 The influence of BOD on the corporate cash holding level

Table 5.7 describes the descriptive statistics for the variables used in the model to test the influence of the BOD on the corporate cash holding level:

Table 5.7: Descriptive Statistics of cash holding and BOD

Variables	Obs	Mean	Std. Dev.	Min	Max
CASH	3985	0.0981	0.1101	0.0001	0.6563
CEODUAL	3985	0.3161	0.4650	0.0000	1.0000
MAN	3985	0.1476	0.1797	0.0000	0.7800
COMP	3985	0.0530	0.3187	0.0000	5.4060
LIQ	3985	0.1159	0.1970	-0.5522	0.7721
BANKD	3985	0.4690	0.2839	0.0000	0.9650
SIZE	3985	13.060	1.4520	9.2110	18.790
CF	3985	0.1033	0.1036	-0.6272	0.5837
LEV	3985	0.4797	0.2220	0.0000	0.9409
CAPEX	3985	0.0537	0.0781	0.0000	0.7234

*CASH* equal cash and cash equivalent out of total asset. *CEODUAL* is a chairman duality and this is represented as a dummy variable which takes a value of 1 if the positions of CEO and the chairman are held by the same individual and 0 otherwise, *MAN* is the variable which is the percentage of equity ownership by the BOD, *COMP* is the compensation for the BOD such as the sum of salary, bonus and all other payments. *CF* is the ratio of pre-tax profit plus depreciation to total assets. *LIQ* is the ratio of current assets minus current liabilities and total cash to total assets. *BANKD* is the ratio of total bank borrowings to total debt. *SIZE* is the logarithm of total assets. *LEV* is measured as total debt is divided by shareholder equity. *CAPEX* is the ratio of capital expenditures to total assets.

*Source: own processing*

According to table above, the results show that the main dependent variable which is cash holding level (CASH) is similar to the previous models. Besides that, other main independent variables such as the chairman and CEO position are the same person (CEODUAL), the ownership of BOD (MAN), compensation for BOD (COMP). In detail, CEODUAL is a dummy variable, and the compensation of BOD (COMP) is a big difference between the firms from 0 to 5.4 times. In addition, MAN has the average at 14.76% while the highest ownership is 78%

and the lowest value was 0% in 3985 observations with a standard deviation of 17.97%.

Tables 5.8 shows the coefficients of correlation between all variables in the model. The results indicate that there is a linear relationship between independent variables and control variables, the dependent variable. Nevertheless, these correlations are not strong ( $r < 0.4$ ). Particularly, the main independent variables including CEODUAL, MAN, COMP have negative correlations with CASH. The remaining control variables have a linear relationship with dependent variables. The degree of correlation between independent variables and control variables to the dependent variable in the model is not high.

Table 5.8: Correlation Matrix of cash holding and BOD

<b>Variable</b>	<b>CASH</b>	<b>CEODUAL</b>	<b>MAN</b>	<b>COMP</b>	<b>LIQ</b>	<b>BANKD</b>	<b>SIZE</b>	<b>CF</b>	<b>LEV</b>	<b>CAPEX</b>
CASH	1.0000									
CEODUAL	-0.0438	1.0000								
MAN	-0.1013	0.2334	1.0000							
COMP	-0.0726	0.0337	0.0045	1.0000						
LIQ	-0.1344	0.0697	0.0110	-0.0112	1.0000					
BANKD	-0.3522	0.0312	0.0917	0.0262	-0.2009	1.0000				
SIZE	-0.0890	-0.0412	-0.1345	-0.0298	-0.1663	0.3958	1.0000			
CF	0.3615	-0.1224	-0.1092	-0.0883	0.0658	-0.2449	-0.0579	1.0000		
LEV	-0.2886	0.0264	0.1243	0.0588	-0.3967	0.3539	0.2678	-0.3680	1.0000	
CAPEX	-0.0384	-0.0777	-0.0044	-0.0540	-0.2082	0.1456	0.0715	0.2024	-0.0915	1.0000

*CASH* equal cash and cash equivalent out of total asset. *CEODUAL* is a chairman duality and this is represented as a dummy variable which takes a value of 1 if the positions of CEO and the chairman are held by the same individual and 0 otherwise, *MAN* is the variable which is the percentage of equity ownership by BOD, *COMP* is the compensation for the BOD such as the sum of salary, bonus and all other payments. *CF* is the ratio of pre-tax profit plus depreciation to total assets. *LIQ* is the ratio of current assets minus current liabilities and total cash to total assets. *BANKD* is the ratio of total bank borrowings to total debt. *SIZE* is the logarithm of total assets. *LEV* is measured as total debt is divided by shareholder equity. *CAPEX* is ratio of capital expenditures to total assets.

Source: own processing

As discussed in the methodology section, the results show the impact of the BOD on the corporate cash holding by using GMM method as follows:

Table 5.9: The results of cash holding and BOD

<b>CASH</b>	<b>Model for testing CASH and BOD</b>	<b>Robustness testing CASH and BOD</b>
CASH <sub>t-1</sub>	0.5622*** (7.01)	0.658*** (8.49)
CEODUAL	0.0322* (1.73)	0.0386** (2.04)
MAN	-0.1769** (-2.18)	-0.2326** (-2.43)
COMP	-0.0316 (-0.39)	-0.0057 (0.07)
LIQ	-0.2151*** (-12.49)	-0.2086*** (-11.58)
BANKD	-.0225** (-2.07)	
SIZE	-0.0031 (-1.25)	-0.0048*** (-1.70)
CF	0.1513*** (5.91)	0.1422*** (5.14)
LEV	-0.0939*** (-5.78)	-0.0852*** (-4.69)
CAPEX	-0.2903*** (-9.98)	-0.3034*** (-9.90)
Cons	0.1809*** (3.59)	0.1850*** (3.39)
Hansen test	12.49	14.81
<i>p-value</i>	0.641	0.539
AR (1)	-6.99	-6.87
<i>p-value</i>	0.000	0.000
AR(2)	0.94	0.98
<i>p-value</i>	0.348	0.317
N	3349	3349

Note: \*\*\* $p < 0.01$ ; \*\*  $p < 0.05$ ; \* $p < 0.1$ . CASH equal cash and cash equivalent out of total asset. CEODUAL is a chairman duality and this is represented as a dummy variable which takes a value of 1 if the positions of CEO and the chairman are held by the same individual and 0 otherwise, MAN is the variable which is the percentage of equity ownership by the BOD, COMP is the compensation for the BOD such as the sum of salary, bonus and all other payments. CF is the ratio of pre-tax profit plus depreciation to total assets. LIQ is the ratio of current assets minus current liabilities and total cash to total assets. BANKD is the ratio of total bank borrowings to total debt. SIZE is the logarithm of total assets. LEV is measured as total debt is divided by shareholder equity. CAPEX is the ratio of capital expenditures to total assets.

Source: own processing

As mentioned above, GMM method is conducted to analyze the relationship between BOD and corporate cash holdings level. The GMM approach is employed to solve the endogenous problem that occurs in the research model with the tool variable exogenous variables. It can be explained that all variables are used as exogenous as well as endogenous in the model except the variable which is lagged CASH. Furthermore, table 5.9 reports the results of the Hansen test for the effectiveness of the model and the Abond test. Hansen's test has the p-value with greater than 0.1, meaning that the original hypothesis is rejected. And, AR (1) correlation is statistically significant at 1%, and AR (2) is not statistically significant as expected when the model uses GMM for dynamic model. This means that, in general, this model is suitable to explain the effect of the BOD on cash holdings. Therefore, all results of the model which is applied by GMM systems are meaningful. From the model, the changes of corporate cash holding can be explained by the deviation of the target level of the current amount. The history of corporate cash level is considered as a proxy. Likewise, the results point out that there is a significant and positive sign of  $CASH_{t-1}$  at 1%. This supports the argument that the corporations can adjust the target cash holding level based on the historical data. Moreover, the findings show that some factors of BOD have a significant impact on cash holdings. Particularly, the coefficient correlation of CEODUAL variable is a positive sign. Furthermore, the MAN variable has a negative correlation. However, the COMP variable is not statistically significant in the model.

As regards the first, CEODUAL has a positive impact on the corporate cash holding level at 10%. This result confirms hypothesis 3<sup>rd</sup> that the CEO duality leads to the different corporate cash holding level in a positive way. This means that the corporate cash holding is higher level when the duality exists. This finding is in line with the paper from Boubaker et al. (2015). Having a firm with the same person for the chairman and CEO position can cause the increase of asymmetric information because the information is not crossing check by the board and managers (Anderson et al., 2004). As a result, minority shareholders cannot rely on the information that is supplied by CEO duality. Thus, the separation of CEO and chairman leads to increase in the trust of external borrowers on the financial information; then the firms can more easily borrow money from external source (Kusnadi, 2011). Otherwise, the cost of borrowing will be more expensive from the external source. Besides, Nguyen (2010) argues that the BOD and CEO have less experience in firm management in Vietnam. Thus, Vietnamese corporations try to hold a high level of cash reserve to be more safe and independent in making the decision. Additionally, withholding two positions, they become very busy with management who do not have enough time for developing the long-term strategy or seeking the investment chances. As the results, the firms need to keep more cash reserve for precautionary reasons, that is, in case of emergencies with which the firms require to address (Nguyen, 2010).

From the results of the model using the GMM approach, the negative impact of board ownership (MAN) on the corporate cash holding is significant at 5%. It can be explained that the higher ownership of the BOD leads to the lower level of holding. The fourth hypothesis is confirmed. This is similar to the expectation and the previous studies from Kuan et al. (2011) and Kusnadi (2011). Likewise, the sign of board ownership to the corporate cash holding level is negative, which supports the agency theory. By reducing the cash holding level, the firms can mitigate the agency problems due to the fact is that the managers want to keep a high level of cash reserve to obtain more power as well as their benefits. While the shareholders want to receive more dividend. Then, the firms with higher board ownership tend to pay more dividend which has less level of cash reserve (Opler et al., 1999). In Vietnam, the managers have less managing experience. Thus, the shareholders do not have trust in the managers. In this case, to mitigate the agency problem, Vietnamese corporations keep a lower level of cash. Therefore, Vietnamese firms with higher ownership of the BOD keep a lower level of cash reserve.

The results illustrate that the compensation of the BOD (COMP) is positively related to the dependent variable (CASH), but it is not statistically significant which is inconsistent with the fifth hypothesis. This finding is dissimilar to the previous studies as the higher BOD compensation leads to the higher level of cash reserve due to the increase of agency problem (Dittmar and Mahrt-Smith, 2007). The difference of the result because the BOD of Vietnamese corporations lack management skills so that the compensation of BOD does not impact the firm performance (Nguyen, 2010). The finding is similar to the previous papers which state that there is no connection between the BOD compensation and firm performance (Ozkan and Ozkan, 2004). Besides, the Vietnamese corporations have not paid attention to the compensation of BOD (Nguyen et al., 2016). Consequently, the BOD receives not much compensation. Thus, the BOD compensation could not affect the level of corporate cash holding. This result confirms that there is no connection between the compensation of BOD and the corporate cash holding level.

Liquidity (LIQ), bank debt (BANKD), cash flow (CF), leverage (LV), capital expenditure (CAPEX) are significantly related with the corporate cash holding level, while the size of firms is not connected with the corporate cash holding level. The size of the firm is insignificantly connected with the corporate cash holding level which is not in line with the expectation and previous studies (Ferreira and Vilela, 2004). Secondly, LIQ is negatively correlated with the corporate cash holding owing to the fact is that net liquid assets can replace cash. This connection is explained by trade-off theory because of the firm with high liquidity which can quickly get cash for their needs (Ozkan and Ozkan, 2004). Thirdly, cash flow (CF) is also a negative sign in the regression results. The results

show that the cash flow is positively correlated with the amount of cash held by the company. The higher the cash flow is the greater the cash reserve which is in line with the expectation as well as the previous studies from Ozkan and Ozkan (2004), Ferreira and Vilela (2004). Next is financial leverage (LEV) and bank debt (BANKD) which are negatively correlated to the cash holdings level. The impact of debt level is significant which is in line with pecking order theory. This means that the firms prefer using the cash on hand than borrowing money and debt which is considered as the second sources after cash. Consequently, the firms with high level of cash have a lower level of leverage as well as the bank debt. Lastly, capital expenditure (CAPEX) has a negative sign with the corporate cash holding level which is the same with the prediction. This is because the firms increase to buy fixed assets leads to the lower level of cash reserve (Bates et al., 2009).

Table 5.9 presents the results of the robustness check to check the stability of the model using the difference GMM approach in which control variables include SIZE, LIQ, CF, LEV, and CAPEX. This shows the influence of CEODUAL, MAN, and COMP on the corporate cash holding level. The findings derived from the robustness testing model provide the same results on the main independent variables. This confirms that the model is stability. In detail, CEODUAL and the corporate cash holding level has a positive connection while the BOD ownership has a negative correlation with the corporate cash holding level. Lastly, the BOD compensation is still insignificant with the corporate cash holding level.

#### **5.4 The impact of the stricter listing requirements of Vietnamese stock exchanges on the corporate cash holding level**

The table 5.10 represents the summary of descriptive statistics of all variables are used in the models over the period from 2007 to 2015. The descriptive statistics provide a general view of all data.

Table 5.10: Descriptive Statistics of cash holding and listing requirements

Variables	Obs	Mean	Std. Dev.	Min	Max
CASH	3841	0.101	0.108	0.000	0.669
AGE	3841	0.595	0.295	0.000	12.04
CAPEX	3841	0.235	0.533	0.000	7.25
LISTED	3841	0.495	0.528	0.000	2.000
PROF	3841	9.816	1.818	2.326	16.46
SIZE	3841	5.080	0.570	3.698	7.277
LIQSX	3841	0.004	0.007	0.000	0.209
ROE	3841	0.139	0.104	0.000	0.601
DIV	3841	0.771	0.419	0.000	1.000
MB	3841	0.972	0.163	0.000	1.000

*CASH equal cash and cash equivalent out of total asset; LISTED is a dummy variable with a value of 0 if the firms are listed in HOSE, number 1 for listed firms in HNX and the listed firms were cancelled is number 2; PROF equal net profit plus depreciation then divided total assets; SIZE is the logarithm of total assets; DIV is 1 if the firm pays dividend, zero otherwise; LIQSX equal to the trading volume and the outstanding number of shares; ROE is the ratio of equity by the net profit; MB is dummy variable 1 means the listed firms announce the information on time according to the regulations and otherwise is 0; AGE is the number of years since a firm is listed; CAPEX is ratio of capital expenditures to total assets.*

*Source: own processing*

As can be seen from the above table, the cash holding level of listed firms in Vietnam with the average value is 10 % which is similar in previous papers (Opler et al., 1999; Ozkan and Ozkan, 2004). However, this ratio is higher than the average cash holding in Spain with 6.57% (García-Teruel and Martínez-Solano, 2008), in United State with 7.9% (Martínez-Sola et al., 2013), in Canada with 3.87% (Gill and Shah, 2012), in Nigeria with 7.18% (Ogundipe et al., 2012). As the cash holding level in Vietnam stock exchange is higher in comparison with others due to the fact that the stock market had the bubble bursting during the global financial crisis in 2008. And, borrowing money from the bank has become a more difficult issue. Under these circumstances, the corporations should have strategies for keeping cash reserves effectively.

Table 5.11 presents the matrix of correlations between variables according to data collected on two Vietnamese stock exchanges. Analysis of the regression coefficient matrix to determine the relationship between the cash holding level and LISTED variables as well as others used in the model:



Table 5.11: Correlation Matrix of cash holding and listing requirements

Variable	CASH	AGE	CAPEX	LISTED	PROF	SIZE	LIQSX	ROE	DIV	MB
CASH	1.0000									
AGE	0.0272	1.0000								
CAPEX	0.0681	-0.1120	1.000							
LISTED	-0.2460	0.1320	-0.0516	1.0000						
PROF	0.1800	0.0246	0.1133	0.3907	1.0000					
SIZE	-0.0521	0.1348	0.0234	0.4732	0.6582	1.0000				
LIQSX	-0.0778	-0.1520	-0.0110	-0.0033	0.0016	0.0710	1.0000			
ROE	0.2667	-0.2091	0.1503	0.0354	0.5395	-0.0745	-0.0370	1.0000		
DIV	0.1497	0.1047	0.0547	0.0481	0.2004	-0.0362	-0.1469	0.1802	1.0000	
MB	0.0356	-0.0381	-0.0172	0.1278	0.0627	0.0395	-0.0155	0.0421	0.0107	1.0000

*CASH* equal cash and cash equivalent out of total asset; *LISTED* is a dummy variable with a value of 0 if the firms are listed in HOSE, number 1 for listed firms in HNX and the listed firms were cancelled is number 2; *PROF* equal net profit plus depreciation then divided total assets; *SIZE* is the logarithm of total assets; *DIV* is 1 if the firm pays dividend, zero otherwise; *LIQSX* equal to the trading volume and the outstanding number of shares; *ROE* is the ratio of equity by the net profit; *MB* is dummy variable 1 means the listed firms announce the information on time according to the regulations and otherwise is 0; *AGE* is the number of years since a firm is listed; *CAPEX* is ratio of capital expenditures to total assets.

*Source: own processing*

The statistics in the table show that corporate cash holding and LISTED variable is correlated and the correlation coefficient is negative. Hence, the question is that there is a connection between listing requirements of stock exchanges and corporate cash holding level is reasonable for testing.

Since some characteristics affect cash also influence the listed conditions of firms, so that there will be biased if the study estimates the main model. To avoid that, as mentioned above, the three-stage least-squares regression is employed to analyze the impact of the listing requirements of the stock exchange on the cash reserve level by using dummy variable LISTED. The results of the model are given below in table 5.12:

Table 5.12: The results of cash holding and listing requirements

<b>Dependent variable: CASH</b>	<b>Model for testing CASH and LISTED</b>	<b>Robustness testing CASH and LISTED</b>
LISTED	-0.1000 *** (-6.09)	-0.1000 *** (-6.15)
DIV	0.0176*** (4.27)	0.0156*** (3.78)
CAPEX	0.0055* (1.65)	0.0069** (2.02)
PROF	0.0173*** (6.39)	0.0166*** (6.07)
AGE		0.0250*** (4.10)
LIQSX	-0.7218*** (-3.18)	-0.572** (-2.49)
ROE	0.1171*** (4.38)	0.1390*** (4.98)
MB	0.0110 (1.12)	0.0159 (1.38)
_CONS	-0.0597** (-2.58)	-0.0738** (-3.24)
LISTED		
SIZE	0.3550*** (2.49)	0.3531*** (2.34)
PROF	0.0400*** (7.45)	0.0406*** (7.45)
_CONS	-1.697** (-2.47)	-1.6978*** (-2.34)

*CASH equal cash and cash equivalent out of total asset; LISTED is a dummy variable with a value of 0 if the firms are listed in HOSE, number 1 for listed firms in HNX and the listed firms were cancelled is number 2; PROF equal net profit plus depreciation then divided total assets; SIZE is the logarithm of total assets; DIV is 1 if the firm pays dividend, zero otherwise; LIQSX equal to the trading volume and the outstanding number of shares; ROE is the ratio of equity by the net profit; MB is dummy variable 1 means the listed firms announce the information on time according to the regulations and otherwise is 0; AGE is the number of years since a firm is listed; CAPEX is ratio of capital expenditures to total assets. Note: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . AR (#): autocorrelation tests in 1 and 2 order, Standard errors in italics.*

*Source: own processing*

The results indicate the coefficients of the cash holding level and listing conditions are significantly negative. Moreover, to support for the results, the empirical evidence suggests that cash has a connection with the listing standards of stock exchanges. Hence, the dissimilar policies or regulations lead to the different decisions in managing the firms. The results from the model indicate the

negative impact of the LISTED variable is as expected. The corporate cash holding in the stock exchange with stricter requirements has less cash reserve level. Huang et al. (2013) suggest the cross-listing correlates enhancing the firm value because the cross-listed firms have to adopt more requirements such as the analyst coverage and forecast accuracy. Additionally, Cetorelli and Peristiani (2015) argue that the listed firms have to accept more demanding, information disclosure and accounting principles. Consequently, these requirements lead the listed firm has higher performance or more investment opportunities. Therefore, the listed firms on HOSE have higher performance or healthier finance which help them to raise capital easily, then they do not need to have high cash level.

The negative sign between the corporate cash holding level and the listing requirements of HOSE. This is because HOSE has stricter requirements which can bring a higher reputation for listed firms. This finding is similar to Opler et al. (1999). It confirms that the firms with a higher credit rating and reputation tend to hold less cash level because they can access the funds more accessible in the capital market. Beck et al. (2016) posit that the firms' reputation impact in an important factor in bank loan market. The firms easier access the funds with lower cost. Besides, the listed corporations need to publish all information relating to their firms as the requirements of State Security Commission of Vietnam. Hence, the information asymmetry will be reduced. Martinelli (1997) suggests that the new corporation is more difficult to borrow money because they are riskier and not enough information is collected to evaluate them. Nevertheless, the companies that are listed on the stock exchanges have to satisfy all the conditions. Consequently, the riskiness of listed firms will be reduced. Consequently, the firms can get the capital with the cheaper cost. Additionally, the listed firms on HOSE have required the larger capitalization than HNX. The result indicates that the listed firm on HOSE with the larger size of firms in capitalization, then they do not hold the high level of cash. This is because the firms can receive support from their shareholders when they need more funds.

The experimental results provide the profit (PROF), dividend (DIV), capital expenditure (CAPEX) and return on equity (ROE) which impact the cash holding level positively. In detail, the profit is a positive sign to the cash holding level which uses as the tool variable. This finding indicates that the listed firms with higher profit keep more cash in order to obtain more opportunities in the growing period of the economy. This is similar to the results from Megginson and Wei (2010). And, return on equity significant positively connects with the cash holding level. The firm keeps more cash to take all advantages of the investment which is similar results with the previous papers (Megginson and Wei, 2010; Ogundipe et al., 2012). The dividend payment is high leads to the larger amount of cash reserve; this finding is in line with the research from Megginson et al. (2014) and. Additionally, the information disclosure (MB) is not related to the corporate cash

holding level. The information asymmetric on Vietnamese stock exchanges still exists, then the investors may not trust the information is announced (Nguyen et al., 2016). This can be explained with no correlation between the information disclosure and the firm operation as well as the cash management. Besides that, the liquidity of listed shares (LIQSX) in the stock exchange negatively impacts cash holding which is consistent with results from Opler et al. (1999). This means the higher liquidity on the Vietnamese stock market of listed firms leads to lower cash holding level because the listed firms can easier sell their shares to get money.

The robustness testing is applied to check how stable in the model is as well the change in results are. In this part, firm age (AGE) variable is modified as tool variables in order to test the stability of the results. The result points out that there is no change of signs in all variables. The main variable is LISTED which has the same sign. Other variables such as ROE, DIV, AGE, CAPEX, and PROF positively relate to the cash holding level of listed firms on the stock exchange. Only the liquidity of the stock on the market (LIQSX) is the negative sign with the corporate cash holding level. These results in the robust test which is the same as the first one. The robust test confirms that the firms are listed on different stock exchanges with different listing requirements keep different cash holding level. Particularly, the listed firms on HOSE with stricter requirements have a smaller level of cash reserve than HNX. With the regression result from the modification of the dependent variables as firm age but the results of main variable LISTED do not change which indicate strength or stability of the model.

## **6. LIMITATIONS OF RESEARCH**

The dissertation has achieved to answer all research questions. The research provides enough evidence to conclude that the corporate governance mechanisms impact the corporate cash holding level in the typical transition economy. However, the study still has some limitations as followed.

Firstly, the data is collected within 2007-2015 which does not include the period before the global economic crisis. Therefore, the results do not reflect whether there is any difference between before and after the crisis about the impact of corporate governance mechanisms and the corporate cash holding level. The first reason, the majority of firms started to be listed on the Vietnamese stock exchange in 2007. The second reason is that before 2007, it was hard to collect the financial statements of these firms, and the accuracy of the information was not high for studying. Thus, there is difficult to research the period before the financial crisis of 2007-2008. Then, the study could be done when Vietnamese financial market repeats the crisis circle in the future. At that time, the data is enough for applying the models for testing the difference between the periods.

Secondly, the sample includes all listed corporations excluding the financial institutions. The sample does not separate the industry. However, the different sectors may have a different characteristic of the corporate governance mechanisms which are interesting issues for future studies. Furthermore, the models of this dissertation can be adjusted and applied for testing the determinants which can impact the corporate cash holding in the different industries.

Thirdly, the research explores the firm-specific factor and the information used to study is the accounting information provided in the financial statements. The research does not include macroeconomic factors such as exchange rates, inflation rates, interest rate, etc. This information may affect the cash reserve level from business activities of businesses.

Finally, the research concentrates only on Vietnamese listed firms which cannot be representative of all transition economies. The next research can study in other countries to have a general conclusion for the transition economies. Moreover, this dissertation only centralizes and research deeply about Vietnamese economy. Thus, it cannot generalize these findings to other countries. However, the models can be adjusted to test this relationship in the different contexts.

## **7. CONTRIBUTIONS**

This part indicates the contribution to theory and practice of the study as follows.

### **7.1. Contribution to theory**

The important contribution is to fulfill the contextual gap. The study enriches the literature in exploring the relationship between the corporate governance mechanisms and the corporate cash holding in the Vietnamese context which can represent one of the cases of the transition economy. According to Cull et al. (2015), the earlier papers focus on the developed countries like the United State, the U.K, and European countries. Moreover, the article from Megginson et al. (2014) study about the fast-growing economy that confirms the connection between some component of corporate governance mechanisms and the corporate cash holding level in the Chinese context, but there is not any study about this issue in Vietnam. Then, the dissertation is complementary to the corporate governance mechanism issue in the transition economy.

The trade-off theory (Myers, 1977) suggest the right level of cash holding can balance the cost and benefit of keeping cash to improve the firm value. The paper from Martínez-Sola et al. (2013) confirms this theory in US context which represents the developed economy. In this research, the findings conclude that the firms can increase their value withholding the right level of cash. This result supports the trade-off theory in Vietnamese context which is representative of the transition economy.

The study expands the literature on the external component of the corporate governance mechanisms. In the prior studies, the papers concentrate on the internal factors of corporate governance mechanisms as the CEO, board of director, ownership (Megginson et al., 2014, Ghouma et al., 2018). This dissertation studies about the listing requirements which are considered as an external component of the corporate governance mechanisms. Furthermore, the sample of the dissertation is the listed corporation, then the listing requirements of the stock exchange conceive as the external factor of the corporate governance mechanism. The result confirms that the external corporate governance mechanism influences the ability to raise funds for the firms. This finding complements for the research or extends the literature on the corporate governance mechanism issue.

### **7.2. Contribution to practice**

The findings of this study guide the managers to keep suitable the amount of cash which improves the firm value of the corporate governance mechanisms situation. In detail, the study gives some implementations for the listed corporations in Vietnam that they should consider the components of the

corporate governance mechanisms as ownership structure, the characteristics of the board of directors, the listing regulations of the stock exchanges are important references to keep suitable the amount of cash which improves the firm value.

The findings address the political influences which can be the reference for the managers or the BOD in making financial decisions. In detail, the connection between the state ownership with the support for lending capital because of the political connection. This explains more the role of political connection in the Vietnamese context and Vietnamese firms are still high percentage owned by the State. Based on the finding, the firms with higher state ownership do not keep the high level of cash because the firms can take their advantages of the political connections to borrow money with cheaper cost. The Vietnamese government still support the firms with high state ownership in their business (Nguyen et al., 2015a).

The findings give the reference for the firm's managers in keeping cash which depend on the characteristics of BOD. Particular, when the chairman and CEO are the same people, they want to take all advantages for themselves by making their own decision and power which may cause more agency problem (Liu et al., 2013). In the case of CEO duality, the firms intend to keep more cash as the findings of this research, but the firms should consider the agency problem in this case. Moreover, the firms can manage to reduce the cash holding level in a suitable amount to balance the agency cost. Besides, when BOD owns too many shares of the firms, they incentive to pay more dividend for themselves (Kuan et al., 2011). Therefore, the firms do not have a high level of cash. In the case of high BOD ownership, the firms should consider not paying too much dividend. They should hold more cash as the precautionary motivation. Consequently, the firms should balance the amount of cash to reduce these issues.

The requirements of listed firms on the stock exchange are considered as the important external of corporate governance mechanisms. In this case, the listed firms should consider the different level of cash reserve when they are listed in different stock exchanges. In detail, the firms listed on the stock exchange with stricter listing requirements do not keep the high level of cash reserve because they can raise capital from the investors with cheaper cost because of their prestige as well as their financial healthier. Based on the findings of the different regulations on two stock exchanges, the policymakers should take this issue into the regulation considerations. Besides, the managers of firms can consider not keeping too much cash when the firms are listed on the stock exchange with stricter requirements because they can easier raise their capital from the market.



## 8. CONCLUSION

Cash management plays the vital role in the firm operations as well as daily activities for doing businesses. Especially, the financial crisis in 2008 cause the difficulties for the firms to raise their funds. Likewise, the interest rate is high at 17%, and the marketability of the securities on the stock exchange is low. Thus, cash holding has become an important issue which needs to be considered by the managers. In this case, having enough cash reserve helps the firms to maintain and grow their businesses. Moreover, understanding the determinants influencing the corporate cash holding helps the firms keep the suitable amount of cash to improve their value.

The first finding confirms an impact of the corporate cash holding level on the firm value. This means that the corporate cash holding is one important factor to determine the firm value. The results indicate that there is a U-shaped between the corporate cash holding level and the firm value in the Vietnamese context. Then, keeping the suitable level of cash, the Vietnamese firms can increase the firm value. However, keeping too much cash cause the agency cost lead to the decrease in the firm value. The agency cost increases because of the conflict between the managers and shareholders. And, the shareholders do not believe in the managers because they think that the managers keep money for their benefits not improve the shareholder wealth. But if the firms do not keep much money they have low liquidity, and lack of money for future activities. As a result, based on the trade-off theory (Myers, 1977), the firms need to hold the cash level which can balance the cost and benefits. Besides, the firms need to consider the determinants which can affect the corporate cash holding level to keep the right level of cash reserve.

Moreover, this study indicates the corporate governance mechanism as the one of a vital factor which influences the corporate cash holding level. Then, some components of corporate governance mechanism as the ownership structure, the CEO duality, the ownership of BOD and the listing requirements which confirm their impact on the corporate cash holding level. The firms should consider them as the reference factors for keeping the amount of cash in the firms.

In particular, the results indicate that the increase in the share of the state ownership has linkage with the lower level of cash holding in listed firms. This can be explained that the state shareholders can take advantage of their political connections to get the capital with lower cost because they receive the support from the government. Nevertheless, the firms need to consider the state ownership because of their impact on the firm performance. Moreover, the chairman and managers are the same people affects the corporate cash holding level. For CEO duality, the same person as chairman and CEO leads to the higher level of corporate cash holding because the asymmetric information may increase. This

leads to the suspicion for the accounting information; then the firms are difficult to borrow money from an external source. Thus, then firms need to have a high level of cash holding. Besides, the board ownership is negatively related to the corporate cash holding level. This is because the separation between the owners (public) and the representative for the shareholders leads to the agency problems, then the firms should keep less level of cash reserve. These are the internal components of the corporate governance mechanisms which are the reference tools for the firms to consider in maintaining the suitable level of cash.

One of the interesting findings is that the listing requirements of the stock exchanges impact the corporate cash reserve level. In particular, the stricter listing requirements of the stock exchange leads to the lower level of cash holding because the listed firms with more listing requirements have a higher reputation and they can get the capital easier. Therefore, the firms are listed on different stock exchanges that consider keeping the right amount of cash reserve.

This research still has some limitation as mentioned above and the future research can expand investigation in some other aspects. The study can develop the observation and sample with non-listed firms and time periods. However, the data collection is the issue need to be considered. Furthermore, the next research can study this topic by sectors because they may be the different results of each industry for the determinants impact the corporate cash holding level. However, the models of the research can be adjusted and employed to examine in the different industries. The next study also can apply to other countries to compare and derive the unique determinants of the impact on the corporate cash holding level in different economies. Besides that, more characteristics of BOD as the genders, the experience, the age, the education, etc... can be modified to fill the gap for this topic. Additionally, the study can add more macroeconomics factors as interest rate, inflation, etc. to expand the literature on the issue of the corporate governance mechanisms and the corporate cash holding level.

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## LIST OF PUBLICATIONS

- [1] DO, Thi Thanh Nhan, NGO, Minh Vu, PHAM, Ha and DRAHOMIRA, Pavelková. The prestige of stock exchanges and corporate cash holding in transitional economies: A study on Vietnamese listed firms. *Investment Management and Financial Innovations*, 2017, vol.14, no. 3, pp. 199-209. ISBN 1812-9358.
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#### **Ton Duc Thang University; Hoa Sen University; FPT university; NTT International College**

- Be responsible for teaching some subjects in English: Financial market; International finance; Multinational corporation; Corporate finance; Money and banking; Intermediate Accounting 1 and 2 for FTMS program; Analyse financial report and Commercial banking.
- Developed and implemented various lesson plans and successfully achieved student participation by connecting the lesson with practical.
- Support English and Financial Club.
- Precept students, facilitating small-group case discussions.

### **March 2010 to Oct 2013**

#### **An Internal auditor in the Board for Tuy Hoa sugar company**

- Work with other Business Analysts to ensure consistent and accurate information.
- To carry out the internal audit plans to identify internal control weaknesses and recommend improvement where appropriate.
- To perform detailed checks on key transactions to assure that key performance measurement and reporting are reliable.

- To ensure compliance with Company Policies and Procedures, Tax regulations and Generally Accepted Accounting Principles

**Jan 2010 to October 2010**

**Viet Kingdom Investment Corporation**

- Coordinate with Finance Management the monthly Financial close process.
- Conduct research, covering industry & market trends, competitor analysis, regulatory developments;
- Gather information from a variety of internal and external sources;
- Analyze, interpret and present company, sector and market data;
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