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**THE IMPACT OF CORPORATE GOVERNANCE FACTORS AND CASH
HOLDINGS ON FIRM VALUE OF NON-FINANCIAL COMPANIES LISTED
ON THE VIETNAMESE STOCK MARKET**

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INTRODUCTION

1. Rationale for the study

Firm value is an important indicator that shows the market's expectations about a company's ability to create economic benefits in the future. For listed companies, firm value is affected not only by business performance but also by corporate governance, financial decisions, and the way companies manage and use their resources. Among these factors, corporate governance and cash holdings have received much attention in corporate finance research.

From a theoretical perspective, corporate governance may affect firm value by improving the monitoring of managers, reducing agency costs, improving the use of resources, and increasing investor confidence. Corporate governance may also affect financial decisions, including decisions on cash holdings. Holding cash helps companies maintain liquidity, take advantage of investment opportunities, and reduce the risk of a shortage of funds. However, holding more cash than necessary may increase opportunity costs and agency costs. Therefore, the impact of cash holdings on firm value may not always be linear.

Previous studies have widely examined the relationship between corporate governance and firm value, between corporate governance and cash holdings, and between cash holdings and firm value. However, empirical results are still different across research settings. In particular, there is still limited evidence on how corporate governance factors affect firm value through cash holdings. In addition, the nonlinear relationship between cash holdings and firm value needs further examination in different market conditions.

In Vietnam, listed non-financial companies operate in a developing capital market, with differences in ownership structure, board characteristics, and access to financing. This provides a suitable context for examining the relationships among corporate governance, cash holdings, and firm value.

Based on these issues, the dissertation selects the topic “*The Impact of Corporate Governance Factors and Cash Holdings on Firm Value of Non-Financial Companies Listed on the Vietnamese Stock Market.*” The study aims to provide further empirical evidence on the direct impact of corporate governance factors and cash holdings on firm value. It also examines the mediating role of cash holdings and tests the possible nonlinear relationship between cash holdings and firm value in the Vietnamese context.

2. Research objectives and research questions

2.1. Research objectives

The research objectives include a general objective and specific objectives as follows:
General objective:

The general objective of this study is to examine the impact of corporate governance factors and cash holdings on firm value of non-financial companies listed on the Vietnamese stock market. The study also examines the mediating role of cash holdings and the possible nonlinear relationship between cash holdings and firm value.

Specific objectives:

The study focuses on the following objectives:

- (i) to examine the impact of corporate governance factors on firm value;
- (ii) to examine the impact of cash holdings on firm value and test the possible nonlinear relationship between them;
- (iii) to examine the impact of corporate governance factors on cash holdings; and
- (iv) to test the mediating role of cash holdings in the relationship between corporate governance factors and firm value.

2.2. Research Questions

Based on the research objectives, the study addresses the following research questions:

Research Question 1: How do corporate governance factors affect the firm value of non-financial companies listed on the Vietnamese stock market?

Research Question 2: How do cash holdings affect firm value, and is the relationship between cash holdings and firm value nonlinear?

Research Question 3: How do corporate governance factors affect corporate cash holdings?

Research Question 4: Do cash holdings play a mediating role in the relationship between corporate governance factors and firm value of non-financial companies listed on the Vietnamese stock market?

3. Research Subject and Scope

Research subject: The study examines the relationships among corporate governance factors, cash holdings, and firm value. These include the direct impact of corporate governance factors on firm value and cash holdings, the impact of cash holdings on firm value, and the mediating role of cash holdings

Scope of the study:

- In terms of research setting: The study focuses on non-financial companies listed on the Vietnamese stock market, including companies in the industrial, consumer goods, materials, real estate, and service sectors.

- In terms of time: The research data were collected for the period from 2019 to 2024.

4. Research Methods

The dissertation mainly uses quantitative research methods. Qualitative research is used as a supporting method in the literature review, development of the theoretical background, identification of the research model, and explanation of the research results.

For the quantitative analysis, the dissertation uses panel data from non-financial companies listed on the HOSE and HNX during the 2019-2024 period. Pooled OLS, FEM, and REM models are estimated, and the appropriate model is selected based on relevant tests. Model problems are also tested, and FGLS is used when necessary to improve the reliability of the estimation results. In addition, path analysis with observed variables is used as a supporting method to examine the mediating role of cash holdings.

To examine the robustness of the results, the dissertation uses alternative measures of firm value and conducts additional analyses. For the nonlinear relationship between cash holdings and firm value, both CL and CL² are included in the model to test the form of this relationship.

5. Novel Contributions of the Dissertation

5.1. Theoretical Contributions

First, the dissertation develops an integrated research framework that examines the relationships between corporate governance factors and firm value, between corporate governance factors and cash holdings, between cash holdings and firm value, and the mediating role of cash holdings in the relationship between corporate governance factors and firm value. This framework allows corporate governance and cash holdings to be examined within the same analytical framework rather than as separate relationships.

Second, the dissertation provides additional empirical evidence on the mediating role of cash holdings in some relationships between corporate governance factors and firm value among non-financial companies listed on the Vietnamese stock market.

Third, the dissertation tests the possible nonlinear relationship between cash holdings and firm value. The results show that evidence of a nonlinear relationship is not consistent across the models. Therefore, there is not enough evidence to confirm a common optimal level of cash holdings for the companies in the sample. In particular, CL² is no longer statistically significant in the main multivariate model.

5.2. Practical Contributions

The findings provide additional empirical evidence for listed companies to consider the relationship among corporate governance mechanisms, cash-holding decisions, and firm value. The practical implications focus on corporate governance factors that are supported by the empirical results and on maintaining an appropriate level of cash holdings based on firms' liquidity needs, investment opportunities, and efficient use of resources.

For investors, the findings suggest that corporate governance characteristics and cash-holding policies should be considered together when evaluating firms rather than being treated as separate factors.

6. Significance of the Dissertation

- Theoretical significance:

+ The dissertation helps organize and connect theoretical arguments to explain the relationships among corporate governance factors, cash holdings, and firm value.

+ Examining cash holdings as a mediating variable provides a broader explanation of the relationship between corporate governance and firm value. Accordingly, the impact of corporate governance on firm value is considered not only through direct monitoring and control mechanisms but also through financial resource allocation decisions, particularly firms' cash-holding decisions.

+ Examining both the linear and nonlinear effects of cash holdings on firm value also helps provide a better understanding of the two-sided nature of cash-holding decisions.

- *Practical significance*

+ The empirical findings can be used as a reference for companies when considering corporate governance characteristics related to firm value and determining an appropriate level of cash holdings based on liquidity needs, investment opportunities, and the efficient use of resources.

+ Considering corporate governance characteristics, cash holdings, and firm value together may provide additional information beyond traditional financial indicators in firm analysis and investment decision-making.

+ The dissertation may also serve as a reference for research and teaching in corporate governance, corporate finance, cash holdings, and firm value, as well as for future studies in the Vietnamese context.

7. Structure of the Dissertation

In addition to the cover pages, table of contents, lists of tables, figures and diagrams, list of abbreviations, introduction, conclusion, appendices, and references, the dissertation is structured into five chapters:

Chapter 1 - Literature Review

Chapter 2 - Theoretical Background

Chapter 3 - Research Model and Methods

Chapter 4 - Research Results

Chapter 5 - Conclusions and Policy Implications

CHAPTER 1. RESEARCH OVERVIEW

1.1. Literature review on corporate governance factors, cash holdings, and firm value

In this dissertation, the author reviews both international and Vietnamese studies based on the relationships among corporate governance (CG) factors, cash holdings, and firm value. The studies are grouped by each relationship to identify previous findings, differences in empirical results, and the research gaps addressed by the dissertation.

1.1.1. Studies on the impact of corporate governance factors on firm value

Studies on corporate governance and firm value mainly focus on two groups of factors: board characteristics and ownership structure. In this dissertation, the corporate governance factors include board size, the leadership structure between the Chairperson of the Board and the Chief Executive Officer (CEO), female participation on the board, foreign ownership, and institutional ownership.

Previous studies show that corporate governance may affect firm value through monitoring mechanisms, reducing agency conflicts, improving access to resources, and supporting better corporate decisions. However, empirical findings on the direction and level of the impact of each corporate governance factor on firm value are not fully consistent. These differences may be related to market conditions, ownership structures, sample characteristics, and measurement methods. Therefore, this dissertation further examines the impact of corporate governance factors on firm value in the context of non-financial companies listed on the Vietnamese stock market.

1.1.2. Studies on the impact of corporate governance factors on cash holdings

Another research area focuses on the relationship between corporate governance and corporate cash-holding policies. Previous studies suggest that corporate governance mechanisms may affect decisions on holding and using cash by monitoring managers, reducing agency costs, and controlling the allocation of corporate resources.

Studies such as Dittmar and Mahrt-Smith (2007), Harford et al. (2008), Lee and Lee (2009), and Nikolov and Whited (2014) show the relationships among governance mechanisms, managerial behavior, and corporate decisions on holding or using cash. However, the impact of individual corporate governance characteristics on cash holdings is not consistent across studies.

Based on these findings, the dissertation examines the impact of corporate governance factors related to board characteristics and ownership structure on cash holdings. This also provides a basis for further examining the role of cash holdings in the relationship between corporate governance and firm value.

1.1.3. Studies on the Impact of cash holdings on Firm Value

Cash holdings can bring both benefits and costs to firms. On the positive side, cash helps firms maintain liquidity, meet transaction needs, manage risks, and take advantage of investment opportunities without depending entirely on external financing. On the other hand, large cash holdings may create opportunity costs and increase agency problems because managers have more free resources to use.

Studies such as Faulkender and Wang (2006), Dittmar and Mahrt-Smith (2007), Pinkowitz and Williamson (2007), and Harford et al. (2008) provide evidence on the value of cash and the role of corporate governance in determining the value that firms obtain from their cash holdings.

In addition to the linear relationship, some studies examine a nonlinear relationship. They suggest that the marginal benefit of cash may be high when firms hold relatively low levels of cash but may decrease as cash holdings increase. At the same time, opportunity costs and agency costs may increase when firms hold too much cash. Martínez-Sola et al. (2013) and several later studies provide evidence of a possible nonlinear relationship between cash holdings and firm value.

This relationship has also been examined in Vietnam. Therefore, the dissertation does not consider the nonlinear relationship between cash holdings and firm value as a completely unexplored issue. Instead, it further examines the existence and stability of this relationship using a sample of non-financial listed companies during the 2019-2024 period.

1.1.4. Studies on the Mediating Role of cash holdings

Previous studies provide evidence for each part of the relationship between corporate governance, cash holdings, and firm value. On the one hand, corporate governance mechanisms may affect firms' decisions on holding and using cash. On the other hand, cash holdings may affect firm value through the ability to finance investments, maintain liquidity, manage risks, and through agency costs arising from free cash resources.

Studies such as Dittmar and Mahrt-Smith (2007), Harford et al. (2008), and Nikolov and Whited (2014) help explain the relationships among corporate governance, cash policies, and firm value. However, most previous studies focus on these relationships separately. Direct empirical evidence on the mediating role of cash holdings in the relationship between corporate governance factors and firm value remains limited, particularly in Vietnam. Therefore, the dissertation builds on evidence from each relationship and further examines the mediating role of cash holdings within an integrated research framework.

1.2. Summary of Previous Research Findings

Based on the review of international and Vietnamese studies, three relationships corporate governance and firm value, corporate governance and cash holdings, and cash holdings and firm value have received considerable research attention. However, empirical findings on the direction and level of these effects are not fully consistent across studies.

For corporate governance, the impact of board characteristics and ownership structure depends on the research setting, firm characteristics, and measurement methods. For cash holdings, previous studies show that cash provides benefits related to liquidity, precautionary needs, and investment financing, but may also create opportunity costs and agency costs. Therefore, the impact of cash holdings on firm value may change depending on the level of cash held by a firm.

In particular, although previous studies provide evidence on each separate relationship, there is still limited research that examines the direct impact of corporate governance on firm value, the impact of corporate governance on cash holdings, and the

indirect impact of corporate governance on firm value through cash holdings within the same research framework.

1.3. Research Gaps

Based on the literature review and comparison of previous studies, the dissertation identifies three main research gaps.

First, there is a gap in the integrated research approach. The relationships among corporate governance, cash holdings, and firm value have been examined in previous studies, but they have mainly been studied separately. Examining the relationships between corporate governance and firm value, corporate governance and cash holdings, and cash holdings and firm value within the same research framework provides a more complete view of the links among governance mechanisms, financial decisions, and firm value.

Second, there is a gap in understanding the mediating role of cash holdings. Previous studies provide evidence on the individual relationships among corporate governance, cash holdings, and firm value. However, direct evidence on the mediating role of cash holdings remains limited, particularly for non-financial companies listed on the Vietnamese stock market. Therefore, the dissertation examines the mediating role of cash holdings in the relationship between corporate governance and firm value to better explain how corporate governance factors may affect firm value.

Third, there is a gap in the empirical evidence on the relationship between cash holdings and firm value. Previous studies show that cash holdings have both benefits and costs, suggesting that their impact on firm value may not be fully linear. Although the nonlinear relationship has been examined in previous studies, including studies in Vietnam, the empirical findings are not fully consistent. Therefore, the dissertation further examines this relationship using a sample of non-financial companies listed on the HOSE and HNX during the 2019-2024 period. It also examines the stability of the results when corporate governance factors and control variables are included in the model.

These three research gaps provide the basis for developing the research framework and hypotheses and for examining direct effects, indirect effects through cash holdings, and the possible nonlinear relationship between cash holdings and firm value.

Chapter 1 Summary

Chapter 1 reviews international and Vietnamese studies on the relationships among corporate governance factors, cash holdings, and firm value. The literature review shows that these individual relationships have been widely examined, but empirical findings differ across research settings. Evidence on the mediating role of cash holdings remains limited, while findings on the nonlinear relationship between cash holdings and firm value are not fully consistent.

Based on the literature review, the dissertation identifies three research gaps related to the integrated research approach, the mediating role of cash holdings, and empirical evidence on the relationship between cash holdings and firm value. These gaps provide the basis for developing the theoretical background, research model, and hypotheses in the following chapters.

CHAPTER 2. THEORETICAL BACKGROUND

2.1. Concepts and Measurement of Research Variables

2.1.1. Corporate Governance

- Corporate governance (CG) refers to a system of mechanisms, principles, and relationships used to direct, monitor, and control a company's activities, thereby helping to protect the interests of shareholders and other stakeholders. Corporate governance can be examined from different aspects, such as ownership structure, board characteristics, monitoring mechanisms, and leadership structure.

- Based on the theoretical review, previous studies, and the availability of data from non-financial listed companies in Vietnam, the dissertation focuses on two groups of corporate governance characteristics: ownership structure and board characteristics. The corporate governance factors include foreign ownership, institutional ownership, board size, the leadership structure between the Chairperson of the Board and the Chief Executive Officer (CEO), and female participation on the board.

- These factors are selected to reflect different aspects of monitoring mechanisms, power structure, access to resources, and board diversity, which may affect cash-holding decisions and firm value.

2.1.2. Cash Holdings

- Cash holdings refer to the cash and cash equivalents maintained by a firm to support its business activities, meet liquidity needs, manage risks, and take advantage of investment opportunities.

- Firms hold cash for transaction and precautionary needs, to finance investment opportunities, and to reduce their dependence on external financing. However, cash holdings also create opportunity costs and may increase agency costs if cash resources are not used efficiently.

- In this dissertation, cash holdings are measured as the ratio of cash and cash equivalents to total assets. This measure is expressed as a ratio. For example, $CL = 0,05$ means that cash and cash equivalents account for 5% of total assets.

- Cash holdings have different roles depending on the relationship being examined. They are a dependent variable when examining the impact of corporate governance factors on cash holdings; an explanatory variable when examining the impact of cash holdings on firm value; and a mediating variable when examining the impact of corporate governance factors on firm value through cash holdings.

2.1.3. Firm Value

Firm value can be examined from different perspectives. The dissertation reviews the main valuation approaches, including the Discounted Cash Flow (DCF) method, Residual Income Model, real options approach, and relative valuation method.

In empirical research, firm value can be reflected by market-based measures. The dissertation uses Tobin's Q as the main measure because it reflects the market's assessment of firm value in relation to the resources used by the firm. In empirical studies, Tobin's Q is often measured using different approximations because the replacement cost of assets is difficult to determine directly.

The dissertation uses TQ2 as the main measure of firm value, while TQ1 and TQ3 are used as alternative measures to examine the robustness of the results. TQ3 has the characteristics of a Market-to-Book ratio and is used as an alternative market-based measure; therefore, it is not considered fully equivalent to the original Tobin's Q. In addition, ROA and ROE are accounting-based measures of firm performance and are not considered direct measures of firm value in this dissertation.

2.2. Theoretical Foundations

The dissertation uses five main theories to explain the relationships among corporate governance, cash holdings, and firm value. These include Agency Theory, Free Cash Flow Theory, Trade-off Theory, Pecking Order Theory, and Signaling Theory.

- Agency Theory, developed by Jensen and Meckling (1976), explains conflicts of interest between managers and owners when ownership and control are separated. Corporate governance mechanisms help monitor managers and reduce opportunistic behavior. Therefore, they may affect financial decisions, the use of resources, and firm value.

- Free Cash Flow Theory, proposed by Jensen (1986), suggests that when firms have large amounts of free cash flow, managers may use these resources for projects that do not maximize shareholder value. Therefore, the quality of corporate governance mechanisms may affect how firms hold and use cash, which may in turn affect firm value.

- Trade-off Theory explains cash-holding decisions based on the balance between benefits and costs. Cash helps firms reduce liquidity risk, lower the costs of external financing, and maintain their ability to invest. However, holding too much cash may increase opportunity costs and agency costs. This theory provides a basis for examining the possible nonlinear relationship between cash holdings and firm value.

- Pecking Order Theory, developed by Myers and Majluf (1984), suggests that because of information asymmetry, firms tend to prefer internal financing before using debt and issuing equity. Therefore, cash may be accumulated as an internal source of finance to meet investment needs and reduce dependence on external capital markets.

- Signaling Theory, developed by Spence (1973), explains how the market receives and responds to information provided by firms. Corporate governance characteristics and financial decisions, including cash-holding policies, may provide information about governance quality, firm prospects, and risks. This information may affect investors' assessments and the market value of firms.

These theories are not used separately but complement each other. Agency Theory and Free Cash Flow Theory mainly explain monitoring mechanisms, managerial behavior, and the use of cash resources. Trade-off Theory explains the benefits and costs of holding cash. Pecking Order Theory explains the need to maintain internal financing, while Signaling Theory explains how the market responds to corporate governance and financial decisions. This combination of theories provides the theoretical basis for the relationships examined in the dissertation.

2.3. Theoretical Framework

Based on the theoretical foundations, the dissertation develops a theoretical framework with five main relationships.

2.3.1. Corporate Governance and Firm Value

Corporate governance factors may affect firm value by monitoring managers, reducing agency costs, improving the quality of decisions, increasing access to resources, and providing signals to the market. However, the direction and level of the impact of each corporate governance factor may differ depending on firm characteristics and the institutional environment.

2.3.2. Corporate Governance and Cash Holdings

Corporate governance may affect cash-holding policies by controlling managerial behavior and the allocation of resources. Effective governance mechanisms may limit the accumulation or use of cash for managers' personal interests. At the same time, the level of cash holdings also depends on liquidity needs, financing needs, and firm characteristics.

2.3.3. Cash Holdings and Firm Value

Cash holdings may have a positive impact on firm value by maintaining liquidity, increasing the ability to finance investments, and reducing the costs of external financing. However, large cash holdings may also create opportunity costs and increase agency problems. Therefore, the impact of cash holdings on firm value should be considered in terms of both benefits and costs.

2.3.4. The Mediating Role of Cash Holdings in the Relationship between Corporate Governance Factors and Firm Value

The theoretical framework identifies cash holdings as a channel through which corporate governance factors may affect firm value. Under this mechanism, corporate governance may first affect firms' decisions on holding and using cash. Cash holdings may then affect investment capacity, liquidity, financing costs, agency costs, and ultimately firm value.

2.3.5. Nonlinear Relationship between Cash Holdings and Firm Value

- Trade-off Theory and Free Cash Flow Theory suggest that the impact of cash holdings on firm value may change depending on the level of cash held by a firm. When cash holdings are low, an increase in cash may provide benefits by improving liquidity, supporting

precautionary needs, and financing investment opportunities. However, when cash holdings become high, the marginal benefits may decrease, while opportunity costs and agency costs may increase.

- Based on these arguments, the dissertation examines the possible inverted U-shaped relationship between cash holdings and firm value. Whether this relationship actually exists is determined by the empirical results rather than by assuming that there is an optimal level of cash holdings.

- Therefore, the theoretical framework suggests that corporate governance factors may affect firm value and cash-holding decisions; cash holdings may affect firm value, and this impact may be nonlinear; at the same time, cash holdings may serve as a channel through which corporate governance factors affect firm value.

Chapter 2 Summary

Chapter 2 presents the theoretical background and theoretical framework of the study. First, the chapter explains the concepts and measurement of corporate governance factors, cash holdings, and firm value. It then presents five main theories: Agency Theory, Free Cash Flow Theory, Trade-off Theory, Pecking Order Theory, and Signaling Theory which complement each other in explaining the relationships among the research variables.

Based on these theories, the theoretical framework is developed to explain the relationships between corporate governance and firm value, corporate governance and cash holdings, and cash holdings and firm value. The framework also examines the impact of corporate governance on firm value through the mediating role of cash holdings and the possible nonlinear relationship between cash holdings and firm value. This theoretical framework provides the basis for developing the research model and hypotheses in Chapter 3.

CHAPTER 3. RESEARCH MODEL AND METHODOLOGY

3.1. Research Process

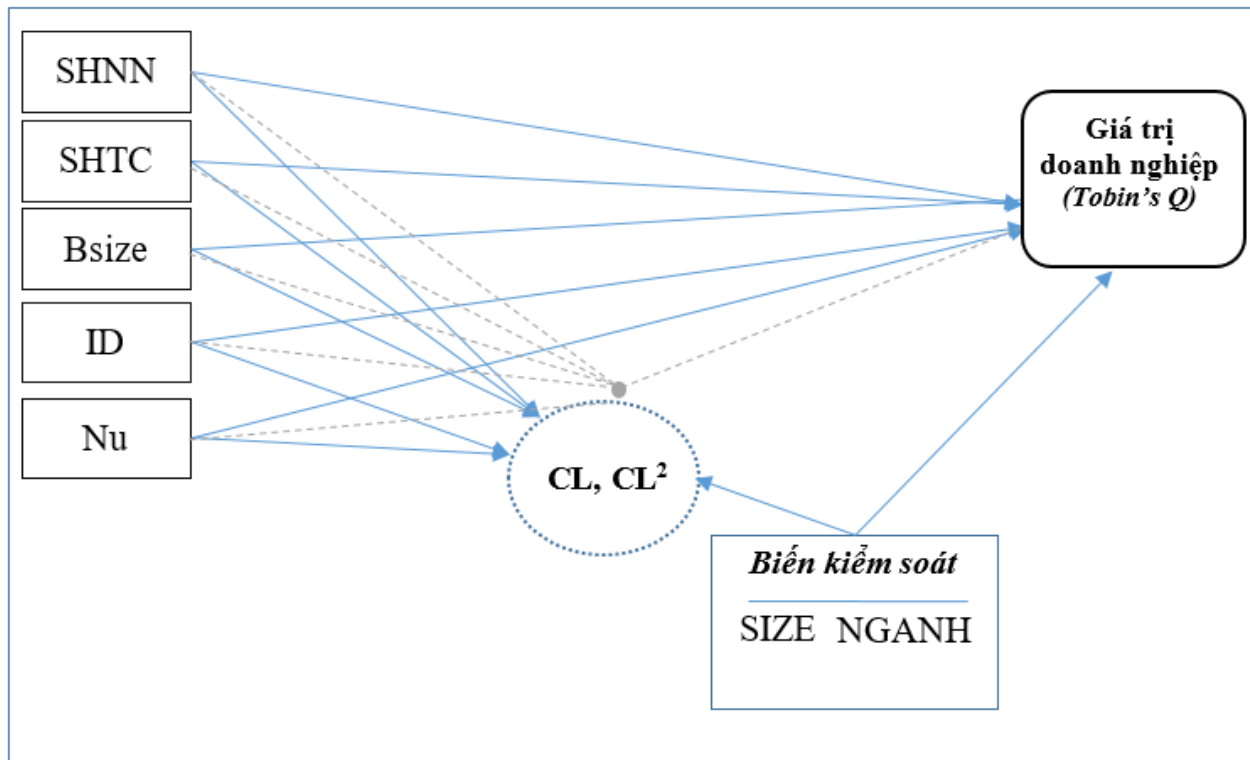


Figure 3.1. Research Process

Source: Developed by the author

Note:

(—→) represents the direct effect on TQ.

(---→) represents the indirect effect on TQ through CL.

CL represents cash holdings and is used as a dependent variable, an explanatory variable, or a mediating variable depending on the model being tested.

CL² represents the squared term of cash holdings and is used as an explanatory variable to test the nonlinear relationship.

3.1.2. Research Hypotheses

Based on the theoretical foundations and the literature review, the dissertation develops a set of hypotheses to examine four main relationships among corporate governance factors, cash holdings, and firm value. Previous studies suggest that corporate governance may affect firm value by improving monitoring, reducing conflicts of interest, and improving the use of resources. Corporate governance factors may also affect firms' cash-holding policies. Cash holdings provide benefits in terms of liquidity and financial flexibility, but may also create opportunity costs and agency costs when firms hold high levels of cash.

First, regarding the impact of corporate governance factors on firm value, the dissertation examines five factors: foreign ownership, institutional ownership, board size, the leadership structure between the Chairperson of the Board and the Chief Executive Officer

(CEO), and the proportion of female board members. Based on Agency Theory, Signaling Theory, and previous empirical evidence, hypotheses H1 to H5 are developed. Foreign ownership, institutional ownership, the separation of the Chairperson and CEO positions, and the proportion of female board members are expected to have a positive impact on firm value, while board size is expected to affect firm value.

Second, regarding the impact of corporate governance factors on cash holdings, the dissertation suggests that ownership structure and board characteristics may affect decisions on holding and using cash through monitoring mechanisms and financial decision-making. Since previous empirical findings are not consistent regarding the direction of these effects, the dissertation does not specify an expected direction for this group of relationships. Hypotheses H6a to H6e examine the effects of foreign ownership, institutional ownership, board size, the leadership structure between the Chairperson and CEO, and the proportion of female board members on cash holdings.

Third, regarding the impact of cash holdings on firm value, Trade-off Theory suggests that firms need to balance the benefits and costs of holding cash. At an appropriate level, cash can reduce liquidity risk, increase financial flexibility, and support investment opportunities. However, when cash holdings become too high, opportunity costs and agency costs may increase, reducing the benefits of holding cash. Based on this argument, hypothesis H7 proposes an inverted U-shaped relationship between cash holdings and firm value.

Fourth, regarding the mediating role of cash holdings, the dissertation suggests that corporate governance factors may not only have a direct impact on firm value but may also affect decisions on holding and using cash, which may then affect firm value. Therefore, cash holdings are considered a channel through which corporate governance may affect firm value. Based on this argument, hypothesis H8 proposes that cash holdings play a mediating role in the relationship between corporate governance factors and firm value. The research hypotheses are summarized as follows:

Table 3.1. Summary of Research Hypotheses

Hypothesis	Hypothesis statement	Supporting theory	Impact mechanism	Expected sign
H1	Foreign ownership (SHNN) affects firm value.	Agency Theory; Signaling Theory	Strengthens monitoring and information transparency and reduces agency costs	(+)
H2	Institutional ownership (SHTC) affects firm value.	Agency Theory	Strengthens monitoring by institutional shareholders and limits opportunistic managerial behavior	(+)

H3	Board size (Bsize) affects firm value.	Agency Theory	Affects the board's monitoring ability and resources, as well as coordination costs	(-)
H4	The separation of the Chairperson and CEO positions (ID) affects firm value.	Agency Theory	Limits the concentration of power and strengthens the monitoring role of the board	(-)
H5	The proportion of female board members (Nu) affects firm value.	Signaling Theory	Increases diversity, supports monitoring, and improves decision-making quality	(+)
H6a	Foreign ownership (SHNN) affects cash holdings (CL).	Agency Theory; Free Cash Flow Theory	Affects cash-holding policies through monitoring mechanisms	(±)
H6b	Institutional ownership (SHTC) affects cash holdings (CL).	Agency Theory; Free Cash Flow Theory	Monitors firms' decisions on holding and using cash	(±)
H6c	Board size (Bsize) affects cash holdings (CL).	Agency Theory	Affects financial decision-making and liquidity management	(±)
H6d	The separation of the Chairperson and CEO positions (ID) affects cash holdings (CL).	Agency Theory	Affects the monitoring of decisions on holding and using cash	(±)
H6e	The proportion of female board members (Nu) affects cash holdings (CL).	Signaling Theory; Agency Theory	Affects monitoring, managerial caution, and cash-holding decisions	(±)
H7	Cash holdings have a nonlinear impact on firm value.	Trade-off Theory	Liquidity benefits dominate at low levels of cash holdings, while opportunity costs and agency costs increase at high levels of cash holdings	CL (+), CL ² (-)
H8	Cash holdings play a mediating role in the relationship between corporate governance and firm value.	Agency Theory; Free Cash Flow Theory	Corporate governance factors affect cash-holding decisions, which in turn affect firm value	Mediation

Source: Developed by the author

3.2. Research Datas

3.2.1. Research Sample

The study focuses on non-financial companies listed on the Ho Chi Minh Stock Exchange (HOSE) and the Hanoi Stock Exchange (HNX) during the 2019-2024 period. Companies in the financial sector, such as banks, securities companies, insurance companies, and finance companies, are excluded from the sample because of differences in financial characteristics, capital management, and liquidity requirements. Companies listed on the UPCoM market are also excluded from the study.

The sample is selected using purposive sampling. Companies are required to have sufficient financial data, market data, and corporate governance information to measure the research variables. After data collection and screening, the final sample includes 200 companies with 1,139 observations during the 2019-2024 period, covering five industry groups: industrials, real estate, consumer goods, materials, and services. Since some companies do not have complete data for all years, the dataset is organized as an unbalanced panel.

3.2.2. Research Data Sources

The research data are collected from publicly available secondary sources, including audited financial statements, annual reports, corporate governance reports, market data, and information disclosed by HOSE, HNX, and the State Securities Commission of Vietnam. Information on foreign ownership (SHNN), institutional ownership (SHTC), board size (Bsize), the leadership structure between the Chairperson of the Board and the Chief Executive Officer (ID), and the proportion of female board members (Nu) is manually collected from annual reports and corporate governance reports.

The 2019-2024 period is selected to ensure that the data are recent and provide a sufficient number of years for panel data analysis. This period also includes changes in the legal framework for corporate governance and information disclosure in the Vietnamese stock market, particularly the 2019 Vietnam Corporate Governance Code of Best Practices for Public Companies (State Securities Commission of Vietnam and IFC, 2019) and the Law on Securities No. 54/2019/QH14, which took effect on January 1, 2021 (National Assembly, 2019). The research period also covers the Covid-19 pandemic and the post-pandemic years. The dissertation considers Covid-19 as part of the research context and does not separately examine its impact in the empirical models.

3.2.3. Data Collection Method

The study uses secondary data combined with manual collection and standardization. Financial data are collected from audited financial statements; corporate governance data are collected from annual reports and corporate governance reports; and market data are used to calculate firm value measures.

After collection, the data are checked and cleaned, and observations with insufficient information for calculating the research variables are removed. The final dataset is organized as an unbalanced panel and analyzed using Stata 17

Table 3.2. Distribution of Observations by Industry

Industry	Number of observations	Percentage (%)
Industrials (CN)	228	20,02
Real estate (BDS)	210	18,44
Consumer goods (HTD)	233	20,46
Materials (NVL)	240	21,07
Services (DV)	228	20,02
Total	1,139	100,00

Source: Compiled by the author from the research data.

3.3. Summary of Research Variables

The corporate governance variables used in the dissertation are selected based on international and Vietnamese empirical studies and the availability of information disclosed by listed companies in Vietnam. The selected variables include foreign ownership (SHNN), institutional ownership (SHTC), board size (Bsize), the leadership structure between the Chairperson of the Board and the Chief Executive Officer (ID), and the proportion of female board members (Nu).

These variables represent two main groups of corporate governance mechanisms: (i) monitoring through ownership structure (SHNN and SHTC) and (ii) internal monitoring through board characteristics (Bsize, ID, and Nu). These measures are commonly used in corporate governance studies in emerging markets (Claessens & Yurtoglu, 2013; Guizani, 2017; Batten & Vo, 2019) and can be collected from annual reports and corporate governance reports of listed companies in Vietnam. Detailed measurements of the variables are presented in Section 2.1 of Chapter 2. Table 3.3 summarizes the research variables, their measurements, and the basis for their selection.

Table 3.3. Summary of Research Variables and Basis for Variable Selection

Variable group	Symbol	Measurement	Basis for selection
Dependent variables			
Firm value	TQ1	Market value of the firm	Alternative measure used to test the robustness of the results
Firm value	TQ2	Market value of the firm	Main measure used in the dissertation
Firm value	TQ3	Market value of the firm	Alternative measure used to test the robustness of the results
Independent variables (CG)			
Foreign	SHNN	Percentage of shares	Represents external monitoring

ownership		held by foreign investors	and reflects international participation and information transparency (Agency Theory and Signaling Theory)
Institutional ownership	SHTC	Percentage of shares held by institutional investors	Represents the monitoring role of institutional shareholders (Agency Theory)
Board size	Bsize	Total number of board members	Represents the monitoring capacity and governance resources of the board (Agency Theory)
Leadership structure between the Chairperson and CEO	ID	Dummy variable: 1 if the Chairperson is also the CEO and 0 if the two positions are separated	Represents the level of independence in governance and monitoring (Agency Theory)
Proportion of female board members	Nu	Number of female board members / Total number of board members	Represents board diversity and governance quality (Signaling Theory)
Mediating variable			
Cash holdings	CL	Cash and cash equivalents / Total assets	Used as a dependent, independent, or mediating variable depending on the model
Squared cash holdings	CL ²	Square of CL	Independent variable used to test the nonlinear relationship between cash holdings and firm value
Control variables			
Firm size	SIZE	Natural logarithm of total assets	Controls for the effect of firm size on firm value and cash holdings
Industry	IND	Industry dummy variables	Controls for differences across industries

Source: Compiled by the author.

3.4. Analysis and Testing Procedures

3.4.1. Descriptive Statistics and Correlation Analysis

The dissertation uses descriptive statistics to describe the research variables through the mean, standard deviation, minimum, and maximum values. Frequencies and percentages are also used for categorical variables. One-way analysis of variance (ANOVA) is used to examine differences in cash holdings and firm value across industries. Pearson correlation coefficients are used to provide an initial assessment of the direction and strength of the relationships among the variables. Multicollinearity is tested using the variance inflation factor (VIF), where a VIF below 5 indicates no serious multicollinearity problem (Kutner et al., 2005; Wooldridge, 2010). These analyses are used for initial data examination and are not used to establish causal relationships.

3.4.2. Regression Equations and Hypothesis Testing

Based on the research model and hypotheses, the dissertation develops regression equations to examine the impact of corporate governance factors on firm value, the impact of corporate governance factors on cash holdings, the impact of cash holdings on firm value, the mediating role of cash holdings, and the possible nonlinear relationship between cash holdings and firm value (Wooldridge, 2010; Hair et al., 2019). The equation used to examine the impact of corporate governance factors on firm value is:

$$TQ_{it} = \beta_0 + \beta_1 SHNN_{it} + \beta_2 SHTC_{it} + \beta_3 Bsize_{it} + \beta_4 ID_{it} + \beta_5 Nu_{it} + \beta_6 SIZE_{it} + \beta_7 CN_{it} + \beta_8 BDS_{it} + \beta_9 DV_{it} + \beta_{10} HTD_{it} + \epsilon_{it}$$

Firm value is measured by TQ1, TQ2, and TQ3, with TQ2 used as the main measure.

The equation used to examine the impact of corporate governance factors on cash holdings is:

$$CL_{it} = \alpha_0 + \alpha_1 SHNN_{it} + \alpha_2 SHTC_{it} + \alpha_3 Bsize_{it} + \alpha_4 ID_{it} + \alpha_5 Nu_{it} + \alpha_6 SIZE_{it} + \alpha_7 CN_{it} + \alpha_8 BDS_{it} + \alpha_9 DV_{it} + \alpha_{10} HTD_{it} + \epsilon_{it}$$

In this equation, cash holdings (CL) are the dependent variable and also serve as the mediating variable in the overall research framework.

To examine the impact of cash holdings and the possible nonlinear relationship with firm value, the dissertation uses the following equation:

$$TQ_{it} = \beta_0 + \beta_1 CL_{it} + \beta_2 CL_{it}^2 + \beta_3 SIZE_{it} + \beta_4 CN_{it} + \beta_5 BDS_{it} + \beta_6 DV_{it} + \beta_7 HTD_{it} + \epsilon_{it}$$

CL^2 is used to test the nonlinear relationship. Evidence of an inverted U-shaped relationship is identified when the coefficient of CL is positive and the coefficient of CL^2 is negative and statistically significant. The turning point is also compared with the actual observed range of CL.

For the mediating role, the dissertation examines both the direct impact of corporate governance factors on firm value and the indirect impact through cash holdings. CL^2 is used only to test the nonlinear relationship and is not treated as a mediating variable.

3.4.3. Model Estimation Methods

The panel data models are estimated using Pooled OLS, the Fixed Effects Model (FEM), and the Random Effects Model (REM). Appropriate tests are used to select the model. Model problems are then examined. When heteroskedasticity or autocorrelation is detected, FGLS is used to address these problems, and the FGLS results are used as the main basis for hypothesis testing (Baltagi, 2008; Wooldridge, 2010).

In addition, SEM is used as a supporting analysis to examine direct and indirect effects when testing the mediating role of cash holdings.

3.4.4. Model Tests

The dissertation uses the Hausman test to select between FEM and REM and also tests for heteroskedasticity and autocorrelation. When these problems are detected, FGLS is used to improve estimation efficiency (Baltagi, 2008; Wooldridge, 2010).

The mediating role of cash holdings is tested by examining the impact of corporate governance factors on cash holdings, the impact of cash holdings on firm value, and the indirect impact of corporate governance factors on firm value through cash holdings. SEM is used as an additional method to compare the direct and indirect effects.

The nonlinear relationship is tested using CL and CL². When the required conditions for the signs and statistical significance of the coefficients are satisfied, the turning point is calculated and compared with the observed range of CL before concluding whether there is evidence of an inverted U-shaped relationship.

The robustness of the results is examined by using alternative measures of firm value. TQ2 is used as the main measure, while TQ1 and TQ3 are used as alternative measures to examine the stability of the direction of the effects and the main conclusions of the study.

Chapter 3 Summary

Chapter 3 presents the research model and methods used to examine the relationships among corporate governance, cash holdings, and firm value of non-financial companies listed on the Vietnamese stock market. Based on the theoretical arguments and previous empirical studies, the chapter develops the research model, explains the relationships among the variables, and presents the research hypotheses related to direct effects, the mediating effect, and the possible nonlinear relationship between cash holdings and firm value.

CHAPTER 4. RESEARCH RESULTS AND DISCUSSION

4.1. Descriptive Statistics and Correlation Analysis

4.1.1. Descriptive Statistics of Research Variables

After data collection and cleaning, the final dataset includes 1,139 observations, of which 586 observations are from companies listed on HOSE (51,45%) and 553 observations are from companies listed on HNX (48,55%) (Table 4.1). The companies are classified into five main industry groups: industrials, real estate, consumer goods, materials, and services. The distribution across industries is relatively balanced, ranging from 18,44% to 21,07%. This distribution provides appropriate coverage for examining differences across industries. Regarding the type of financial statements, the dataset includes 671 observations from companies preparing consolidated financial statements (58,91%), reflecting the characteristics of corporate groups, and 468 observations from companies preparing separate financial statements (41,09%).

Table 4.1. Distribution of observations in the research sample by selected characteristics

Number	Group	Number of observations	Percentage (%)
1	By industry		
1.1	Industrials	228	20,02
1.2	Real estate	210	18,44
1.3	Consumer goods	233	20,46
1.4	Materials	240	21,07
1,5	Services	228	20,02
2	By leadership structure		
2.1	Chairperson and CEO positions separated	906	79,54
2.2	Chairperson also serves as CEO	233	20,46
3	By type of financial statements		
3.1	Separate financial statements	468	41,09
3.2	Consolidated financial statements	671	58,91
4	By stock exchange		
4.1	HNX	553	48,55
4.2	HOSE	586	51,45

Source: Results from Stata 17

Table 4.2 presents the descriptive statistics of the variables used in the research model. The results show relatively large differences in firm value measured by TQ1, TQ2, and TQ3 across the companies in the research sample, as shown by the wide ranges between their minimum and maximum values.

Table 4.2. Descriptive Statistics of Research Variables (N = 1,139)

Variable	N	Mean	Standard deviation	Minimum	Maximum
TQ1	1,139	9,12	12.02	0,03	59,80
TQ2	1,139	1,29	1,04	0,07	13.17
TQ3	1,139	1,50	1,69	0,02	25,30
CL	1,139	0,08	0,10	0,00	0,98
SHNN	1,139	0,08	0,13	0,00	0,85
SHTC	1,139	0,29	0,31	0,00	1,00
Bsize	1,139	5,81	1,52	3.00	14.00
ID	1,139	0,20	0,40	0,00	1,00
Nu	1,139	0,18	0,19	0,00	1,00
SIZE	1,139	27,77	1,77	23.34	33.04

Source: Results from Stata 17

Table 4.3 presents firm value and cash holdings of the listed non-financial companies across the five industry groups in the research sample.

Table 4.3. Firm Value and Cash Holdings by Industry

Industry	TQ1	TQ2	TQ3	CL
	<i>Mean (SD)</i>	<i>Mean (SD)</i>	<i>Mean (SD)</i>	<i>Mean (SD)</i>
Industrials	7,34 (8,91)	1,29 (1,25)	1,47 (2.16)	0,07 (0,07)
Real estate	18,68 (16,38)	1,12 (0,55)	1,42 (1,42)	0,06 (0,09)
Consumer goods	6,69 (9,83)	1,49 (1,06)	1,78 (1,54)	0,08 (0,09)
Materials	3.84 (5,75)	1,12 (0,64)	1,16 (0,92)	0,07 (0,06)
Services	10,17 (11,86)	1,42 (1,36)	1,67 (2.05)	0,12 (0,14)

Source: Results from Stata 17

Note: Values are presented as mean (standard deviation); CL represents the cash holdings ratio.

4.1.2 Correlation Analysis

Correlation analysis is conducted to examine the linear relationships among the variables in the research model and to provide an initial assessment of possible multicollinearity among the explanatory variables before panel data regression. Table 4.4 presents the correlation matrix among corporate governance variables, cash holdings, firm value, and control variables.

The results show that cash holdings (CL) are positively and significantly correlated with all three measures of firm value, including TQ1, TQ2, and TQ3. For ID, the results show a positive correlation with TQ1 but negative correlations with TQ2 and CL. These correlations are statistically significant at the 1% level. In addition, the proportion of female board members (Nu) is positively correlated with TQ1 at the 0,1% significance level, while institutional ownership (SHTC) is negatively correlated with TQ1 at the 1% significance level.

Table 4.4. Correlation Analysis Results (N = 1,139)

	TQ1	TQ2	TQ3	CL	SHNN	SHTC	Bsize	ID	Nu	SIZE	BDS	HTD	DV
CL	0,116 ***	0,127 ***	0,105 ***	1,000									
SHNN	0,051 †	0,149 ***	0,104 ***	0,104 ***	1,000								
SHTC	-0,095 **	0,038	0,032	0,171 ***	0,099 **	1,000							
Bsize	-0,017	0,152 ***	0,141 ***	0,014	0,247 ***	0,000	1,000						
ID	0,099 **	-0,080 **	-0,033	-0,093 **	-0,039	-0,097 **	0,011	1,000					
Nu	0,138 ***	-0,023	-0,048	0,063 *	0,056 †	-0,032	-0,045	-0,020	1,000				
SIZE	0,057†	-0,024	0,012	-0,170 ***	0,211 ***	-0,014	0,318 ***	-0,030	-0,063 *	1,000			
BDS	0,378 ***	-0,078 **	-0,021	-0,108 ***	-0,083 **	-0,199 **	0,057 †	0,157	0,014	0,279 ***	1,000		
HTD	-0,103 **	0,097 **	0,085 **	0,005	0,066 **	0,134 ***	0,078 **	-0,155 ***	0,143 ***	0,151 ***	-0,241 ***	1,000	
DV	0,044	0,063 *	0,051 †	0,223 ***	0,008	-0,025	-0,093 **	-0,047	0,181 ***	-0,458 ***	-0,238 ***	-0,254 ***	1,000
CN	-0,075 *	0,001	-0,010	-0,042	0,110 ***	-0,077 **	0,082 **	0,160 ***	-0,210 ***	-0,010	-0,238 ***	-0,254 ***	-0,25 ***

Source: Results from Stata 17

4.1.3. Multicollinearity Test

To assess multicollinearity among the explanatory variables in the research model, the dissertation uses the variance inflation factor (VIF). The correlation results in Table 4.4 show that the correlations among the independent and control variables are generally low, suggesting no serious multicollinearity problem. However, to increase the reliability of this assessment, the study further conducts the VIF test for the variables included in the regression model.

The VIF results presented in Table 4.5 show that the VIF values range from 1,09 to 1,97, with a mean VIF of 1,41. All VIF values are below 5, which is the threshold used in the dissertation to assess multicollinearity. The highest VIF is 1,97 for the service industry dummy variable (DV), which is well below this threshold. Therefore, the results do not indicate serious multicollinearity among the explanatory variables in the model.

Table 4.5.VIF Analysis Results (N = 1,139)

Number	Variable	VIF	1/VIF
1	DV	1,97	0,51
2	BDS	1,73	0,58
3	CN	1,72	0,58
4	HTD	1,66	0,60
5	SIZE	1,58	0,63
6	Bsize	1,18	0,85
7	SHNN	1,17	0,85
8	SHTC	1,12	0,89
9	CL	1,12	0,89
10	Nu	1,11	0,90
11	ID	1,09	0,92
<i>Mean VIF</i>		1,41	

Source: Results from Stata 17

4.2. Regression Results of the Research Models

4.2.1. Regression Results for the Impact of Corporate Governance Factors on Firm Value

Table 4.6 presents the results of the baseline regression model using TQ2 as the measure of firm value, in which corporate governance factors are examined together with cash holdings and control variables. The results show that corporate governance factors have different directions and levels of impact on firm value. The regression results also show that corporate governance factors and cash holdings have different impacts on the firm value of non-financial companies listed on the Vietnamese stock market. In the baseline model, CL has a positive and statistically significant coefficient ($\beta = 1,5454$; $p = 0,014$), while CL² has a negative but statistically insignificant coefficient ($\beta = -1,2157$; $p = 0,254$).

Table 4.6: Regression results for the Impact of Corporate governance factors on Firm value

Variable	Coefficient	Standard error	t	P> t
CL	1,5454	0,6276	2,46	0,014
CL ²	-1,2157	1,0641	-1,14	0,254

SHNN	0,8561***	0,2448	3,50	0,000
SHTC	-0,0206	0,1026	-0,20	0,841
Bsize	0,0922***	0,0214	4,32	0,000
ID	-0,1466*	0,0769	-1,91	0,057
Nu	-0,3210*	0,1649	-1,95	0,052
SIZE	-0,0382*	0,0212	-1,81	0,071
CN	0,0682	0,0974	0,70	0,484
BDS	0,0395	0,1010	0,39	0,696
HTD	0,2971***	0,0948	3,13	0,002
DV	0,1864*	0,1042	1,79	0,074
_cons	1,6195***	0,5803	2,79	0,005
Number of observations (N)	1,139			
F-statistic	7,26			
Prob > F	0,000			
R ²	0,0718			
Adjusted R ²	0,0619			

Source: Results from Stata 17

4.2.2. Regression results for the Impact of corporate Governance factors on Cash holdings

The regression results show that some corporate governance characteristics have statistically significant impacts on cash holdings of listed non-financial companies during the research period. Table 4.7 presents the estimation results of the model with cash holdings (CL) as the dependent variable.

According to Table 4.7, foreign ownership (SHNN) has a positive and statistically significant impact on cash holdings ($\beta = 0,0697$; $p = 0,002$). The result shows that companies with higher levels of foreign ownership are associated with higher levels of cash holdings. This may reflect a more cautious financial policy and a greater need to maintain financial flexibility in companies with foreign investor participation. This result is compared with previous studies and Agency Theory in the discussion section.

Table 4.7, Regression results for the Impact of corporate Governance on cash holdings

Variable	Coefficient	Standard error	P-value
SHNN	0,0697***	0,0221	0,002
SHTC	0,0517***	0,0092	0,000
Bsize	0,0026	0,0019	0,174
ID	-0,0181**	0,0070	0,010
Nu	0,0102	0,0150	0,495
SIZE	-0,0072***	0,0019	0,000
CN	0,0116	0,0089	0,191
BDS	0,0128	0,0092	0,164
HTD	0,0130	0,0086	0,131
DV	0,0482***	0,0094	0,000
β_0	0,2295***	0,0518	0,000

Source: Results from Stata 17

Note: *** $p < 0,01$; ** $p < 0,05$, * $p < 0,10$

4.2.3. Regression results for the impact of cash holdings on Firm value

To examine the impact of cash holdings on firm value, the study estimates regression models with firm value as the dependent variable and cash holdings (CL) as the main explanatory variable. CL² is also included in the model to test the nonlinear relationship between cash holdings and firm value.

Table 4.8. Regression Results for the Impact of Cash Holdings on Firm Value

Variable	TQ1	TQ2	TQ3
CL	7,17	2,47***	3,20***
P-value	(0,316)	(0,000)	(0,002)
CL ²	14,61	-2,25**	-2,77
P-value	(0,242)	(0,036)	(0,114)
Constant	8,32***	1,13***	1,29*
P-value	(0,000)	(0,000)	(0,000)
Number of observations (N)	1.139	1.139	1.139

Source: Results from Stata 17

The regression results show that the coefficient of cash holdings (CL) is positive for all three measures of firm value: TQ1, TQ2, and TQ3. However, the impact of cash holdings is statistically significant only for TQ2 and TQ3. Specifically, the coefficient of CL is 2,47 for TQ2 ($p < 0,01$) and 3,20 for TQ3 ($p < 0,01$), showing that cash holdings have a positive relationship with firm value when measured by TQ2 and TQ3. In contrast, although the coefficient of CL for TQ1 is positive, it is not statistically significant ($p = 0,316$).

4.3 Testing the mediating role of cash holdings

Based on the panel data regression results presented in Tables 4.10, 4.11, and 4.12, the dissertation further examines the mediating role of cash holdings in the relationship between corporate governance factors and firm value of listed non-financial companies. The mediating role is tested by examining both the direct impact of corporate governance factors on firm value and the indirect impact through cash holdings in the models using TQ1, TQ2, and TQ3. Among these measures, TQ2 is used as the main measure of firm value in the dissertation.

4.3.1. Testing the mediating role with TQ1

Table 4.9 presents the results of testing the mediating role of cash holdings in the relationship between corporate governance factors and firm value measured by TQ1. The results show that cash holdings have a positive and statistically significant impact on firm value, providing a basis for examining the mediating role of cash holdings in the research model.

Table 4.9. Regression results for corporate governance factors, cash holdings, and TQ1

No.	Variable	CL	TQ1 (1)		
			Direct effect	Indirect effect	Total effect
1	CL		16,77**		16,77***
2	SHNN	0,07**	6,02*	1,17**	7,19**
3	SHTC	0,05***	-0,83	0,84***	0,03

4	Bsize	0,003	-0,52*	0,04	-0,48*
5	ID(y)	-0,02*	1,30	-0,30*	0,99
6	Nu	0,01	6,59**	0,17	6,76***
7	SIZE	-0,01***	0,20	-0,12**	0,08
8	CN(y)	0,01	3,23**	0,19	3,42**
9	BDS(y)	0,01	14,23***	0,21	14,44***
10	HTD(y)	0,01	1,94†	0,22	2,16*
11	DV(y)	0,05***	4,67***	0,81***	5,48***
12	B ₀	0,23***	1,01		

Model fit based on the saturated model (LR test model vs. saturated): $\chi^2(0) = 0$

Model fit based on the baseline model (LR test baseline vs. saturated): $P(\chi^2(21)) < 0,001$

Source: Results from Stata 17

4.3.2. Testing the Mediating Role with TQ2 (Baseline Model)

Table 4.10 presents the results of testing the mediating role of cash holdings in the relationship between corporate governance factors and firm value measured by TQ2, which is the main measure of firm value in the dissertation. The results show that cash holdings have a positive and statistically significant impact on firm value, providing a basis for examining the mediating role of cash holdings in the research model.

Table 4.10. Regression results for corporate governance, cash holdings, and TQ2

No.	Variable	CL	TQ2 (1)		
			Direct effect	Indirect effect	Total effect
1	CL		0,93**		0,93**
2	SHNN	0,07**	0,88***	0,07*	0,94***
3	SHTC	0,05***	-0,02	0,05*	0,03
4	Bsize	0,003	0,09***	0,002	0,10***
5	ID(y)	-0,02*	-0,15†	-0,02†	-0,16*
6	Nu	0,01	-0,32†	0,01	-0,31†
7	SIZE	-0,01***	-0,04*	-0,01*	-0,05*
8	CN(y)	0,01	0,07	0,01	0,08
9	BDS(y)	0,01	0,03	0,01	0,05
10	HTD(y)	0,01	0,30**	0,01	0,31**
11	DV(y)	0,05***	0,18†	0,04*	0,23*
12	B ₀	0,23***	1,71**		

Model fit based on the saturated model (LR test model vs. saturated): $\chi^2(0) = 0$

Model fit based on the baseline model (LR test baseline vs. saturated): $P(\chi^2(21)) < 0,001$

Source: Results from Stata 17

4.3.3 Testing the Mediating Role with TQ3

Table 4.11 presents the results of testing the mediating role of cash holdings in the relationship between corporate governance factors and firm value measured by TQ3. These results are compared with the baseline model using TQ2 to examine whether the mediating role remains consistent when the measure of firm value is changed. The results show that cash holdings have a positive and statistically significant impact on firm value, providing a basis for examining their mediating role in the research model.

The results using TQ3 provide further evidence that cash holdings are an important transmission channel in some relationships between corporate governance factors and firm value. The similarity between the TQ2 and TQ3 results also supports the stability of the mediating role of cash holdings in the research model.

Table 4.11. Regression results for corporate governance, cash holdings, and TQ3

No.	Variable	CL	TQ3 (1)		
			Direct effect	Indirect effect	Total effect
1	CL		1,38*		1,38*
2	SHNN	0,07**	0,84*	0,10*	0,94*
3	SHTC	0,05***	0,05	0,07*	0,12
4	Bsize	0,003	0,13***	0,004	0,14***
5	ID(y)	-0,02*	-0,07	-0,02†	-0,09
6	Nu	0,01	-0,75**	0,01	-0,73**
7	SIZE	-0,01***	-0,02	-0,01*	-0,03
8	CN(y)	0,01	0,16	0,02	0,18
9	BDS(y)	0,01	0,28†	0,02	0,29†
10	HTD(y)	0,01	0,56***	0,02	0,58***
11	DV(y)	0,05***	0,45**	0,07*	0,52**
12	B ₀	0,23***	0,93		

Model fit based on the saturated model (LR test model vs. saturated): $\chi^2(0) = 0$

Model fit based on the baseline model (LR test baseline vs. saturated): $P(\chi^2(21)) < 0,001$

Source: Results from Stata 17

4.3.4. Comparison of the Mediating role using the SEM model

In addition to the regression models used in the main analysis, the dissertation uses Structural Equation Modeling (SEM) with observed variables as a supporting method to examine the direct and indirect effects of corporate governance factors on firm value through cash holdings. SEM is not used to develop a measurement model or analyze latent variables. Instead, it is used to support path analysis and compare the results of the mediating role of cash holdings.

The regression models use TQ2 as the main measure of firm value, while TQ1 and TQ3 are used to test the robustness of the results. Based on this approach, the SEM model simultaneously examines the relationships among corporate governance factors, cash holdings, and firm value, together with control variables for firm size and industry. This analysis is also considered together with the results on the linear relationship between cash holdings and firm value and the identified differences across industries.

4.4. Discussion of Research Results

The empirical results show that corporate governance factors have different impacts on cash holdings and firm value. Cash holdings may also act as a transmission channel through which some corporate governance factors affect firm value. These findings suggest that each corporate governance mechanism should be considered separately rather than assuming that all governance factors have the same impact.

First, regarding the impact of corporate governance factors on firm value, foreign ownership (SHNN) has a positive and statistically significant impact on firm value across all three measures, TQ1, TQ2, and TQ3. This result is consistent with Agency Theory and with previous studies suggesting that foreign investor participation may strengthen monitoring, improve transparency, and improve corporate governance effectiveness (Batten & Vo, 2019; Lutz et al., 2020; Duong et al., 2021). In contrast, institutional ownership (SHTC) does not show a statistically significant direct impact on firm value. The effects of Bsize and ID are not stable, while the effect of the proportion of female board members varies across the measures of firm value. These results show that the impact of corporate governance on firm value depends on specific governance characteristics and the measure of firm value used.

Second, regarding the impact of corporate governance factors on cash holdings, the results show that SHNN and SHTC have positive impacts on cash holdings, while ID has a negative and statistically significant impact. Bsize and Nu do not show statistically significant impacts. The findings for ownership factors are consistent with studies suggesting that foreign and institutional shareholders can monitor and influence firms' financial decisions (Jiang & Kim, 2004; Al-Najjar & Clark, 2017; Hapsari & Norris, 2022). This result indicates that cash-holding policy is not only a financial decision but is also related to firms' corporate governance characteristics.

Third, regarding the impact of cash holdings on firm value, the multivariate model shows that cash holdings have a positive and statistically significant impact on firm value. This result is consistent with the argument that cash helps firms maintain liquidity, increase their ability to use internal financing, and improve financial flexibility, thereby supporting investment activities and value creation (Subramaniam et al., 2011; Adrian et al., 2012; Edwards et al., 2016).

For the nonlinear relationship, the univariate analysis using TQ2 provides initial evidence of an inverted U-shaped relationship, which is generally consistent with Opler et al. (1999), Faulkender and Wang (2006), and Martínez-Sola et al. (2013). However, when corporate governance factors and control variables are included together in the multivariate model, CL² is no longer statistically significant for TQ1, TQ2, or TQ3. Therefore, the results do not provide strong enough evidence to confirm an inverted U-shaped nonlinear relationship, and hypothesis H7 is not supported. The main results support a positive impact of cash holdings on firm value within the research sample.

Fourth, regarding the mediating role of cash holdings, the results show that cash holdings act as a transmission channel in some relationships between corporate governance factors and firm value, but this role is not the same across all governance factors. SHNN has a direct impact on firm value and also an indirect impact through cash holdings, while SHTC mainly shows an indirect impact through cash holdings. This finding is consistent with previous studies suggesting that ownership structure may affect firms' financial policies

(Jiang & Kim, 2004; Vo, 2018; Brown et al., 2012; Al-Najjar & Clark, 2017). For Bsize, ID, and Nu, evidence of the mediating role is not stable across models and measures of firm value.

Overall, the results show that corporate governance affects firm value through both direct and indirect effects through cash holdings, but these effects differ across corporate governance factors. The findings also provide additional empirical evidence on the relationships among corporate governance, cash holdings, and firm value in the context of non-financial companies listed in Vietnam during the 2019-2024 period. However, evidence of a nonlinear relationship between cash holdings and firm value is not sufficiently stable when corporate governance factors and control variables are considered together.

Chapter 4 Summary

Chapter 4 presents the empirical results on the impact of corporate governance factors and cash holdings on firm value of non-financial companies listed on the Vietnamese stock market during the 2019-2024 period. The results show that corporate governance factors have different directions and levels of impact on cash holdings and firm value. Cash holdings have a positive impact on firm value and also play a mediating role in some relationships between corporate governance factors and firm value.

Regarding the nonlinear relationship, although TQ2 shows an inverted U-shaped pattern in the univariate analysis, this result is not maintained in the multivariate model because CL^2 is not statistically significant. Additional tests using SEM, listing exchanges, and types of financial statements are used to examine the stability of the results.

These findings provide the basis for the conclusions, managerial implications, and recommendations presented in Chapter 5.

CHAPTER 5. CONCLUSIONS AND POLICY IMPLICATIONS

5.1. Research Conclusions

The research results show that cash holdings have a positive impact on firm value of non-financial companies listed on the Vietnamese stock market. Although the initial analysis shows some evidence of an inverted U-shaped nonlinear relationship, the multivariate regression results do not provide sufficient evidence to confirm that this relationship is stable. Therefore, the dissertation does not have sufficient evidence to identify an optimal level of cash holdings at which firm value is maximized.

For corporate governance factors, the results show that their impacts on cash holdings and firm value differ across factors. Foreign ownership (SHNN) has a direct impact on firm value and an indirect impact through cash holdings. For institutional ownership (SHTC), the indirect impact through cash holdings is clearer than the direct impact. Board characteristics show different results across models and measures of firm value. Therefore, the results indicate that the impact of corporate governance on firm value should be considered through both direct and indirect impacts through cash holdings.

5.2. Managerial Implications

5.2.1. Implications for Listed Non-Financial Companies

The research results suggest that listed non-financial companies should continue to improve the quality of corporate governance by increasing information transparency, monitoring effectiveness, and accountability. For foreign ownership (SHNN) and institutional ownership (SHTC), companies should create conditions for these shareholders to strengthen their monitoring role, especially in decisions related to investment, cash flow management, and financial risk. Regarding board structure, companies should focus on the actual effectiveness of the board, clear responsibilities between the board and management, and the ability and participation of board members, rather than focusing only on the formal characteristics of the governance structure.

Regarding cash-holding policy, the results show that cash holdings have a positive relationship with firm value and also act as a transmission channel in some relationships between corporate governance factors and firm value. However, because there is not enough evidence of an optimal level of cash holdings, companies should determine an appropriate cash level based on liquidity needs, investment opportunities, access to capital, and operating characteristics, rather than following an extreme policy of either accumulating or reducing cash. Companies should also improve the disclosure of information on cash flows, liquidity, and plans for the use of cash to increase transparency and help the market assess firm value.

In addition, listed companies should strengthen their internal control systems, cash flow monitoring, and financial risk management. Responsibilities among the board, management, and specialized departments should be clearly defined. Cash flow management

should be linked to liquidity, investment needs, and capital structure to improve the efficiency of capital use and reduce financial risks.

5.2.2. Implications for Regulatory Authorities

For the Ministry of Finance and the State Securities Commission of Vietnam, the research results suggest that the legal framework for corporate governance, information disclosure, and accountability should continue to be improved in line with international practices. At the same time, the monitoring of listed companies' compliance with corporate governance and disclosure requirements should be strengthened. Information related to corporate governance and the use of cash flows should also receive greater attention to improve transparency and protect investors' interests.

For HOSE and HNX, the monitoring of corporate governance and information disclosure requirements should continue to be strengthened. They should also support companies in improving corporate governance quality, financial risk management, and information transparency, thereby contributing to the quality of the Vietnamese stock market.

5.2.3. Implications for Investors

Investors should evaluate companies in a comprehensive way. They should consider not only short-term financial indicators but also ownership structure, corporate governance characteristics, cash holdings, liquidity, and information transparency. In particular, corporate governance and cash-holding policy should be considered together because governance mechanisms may affect how companies hold and use financial resources, which may in turn be related to firm value.

5.3. Research Limitations and Directions for Future Research

5.3.1. Research Limitations

The dissertation has several limitations.

First, the research sample includes only non-financial companies listed on HOSE and HNX during the 2019-2024 period that meet the data requirements. Therefore, the results should be generalized to the entire Vietnamese stock market with caution.

Second, the corporate governance variables only reflect some aspects of ownership structure and board characteristics. They do not fully cover other aspects such as independent board members, audit committees, state ownership, and ownership concentration. In addition, changes in legal regulations during the research period may affect how well the ID variable reflects the leadership structure.

Third, corporate governance data depend on the level of information disclosed by companies and may therefore not fully reflect the actual quality of corporate governance.

Fourth, because the study uses observational data, it does not fully address endogeneity and two-way causal relationships. Therefore, the results are mainly interpreted as empirical relationships rather than evidence of absolute causal relationships.

Fifth, the study does not separately examine the effects of Covid-19, macroeconomic changes, geopolitical factors, or changes in the institutional environment during the research period.

5.3.2. Directions for Future Research

Future studies may expand the sample size and research period, examine differences across industries, and include more detailed measures of corporate governance quality. They may also consider macroeconomic factors, the institutional environment, and external shocks.

Future studies may also apply more advanced estimation methods, such as System GMM, dynamic panel data models, or other methods for controlling endogeneity, to examine the research relationships in greater depth. In addition, the nonlinear relationship between cash holdings and firm value may be further tested across different industries, firm sizes, or economic periods.

Chapter 5 Summary

Chapter 5 summarizes the main conclusions on the impact of corporate governance factors and cash holdings on firm value. The results show that the impacts of corporate governance factors differ across individual factors and that cash holdings act as a transmission channel in some relationships between corporate governance and firm value. Cash holdings have a positive impact on firm value, while evidence of a nonlinear relationship is not confirmed in the multivariate model.

Based on the research results, the dissertation provides implications for companies, regulatory authorities, and investors. The chapter also presents the limitations of the study and directions for future research.

LIST OF PUBLICATIONS RELATED TO THE DISSERTATION

[1] Thao, N. T. T., Hai, L. T. T., Thao, N. T. P., Bac, D. T., Hong, N. T. X., & Tai, D. D. (2026). Cash holdings, corporate governance, and firm value: Nonlinear evidence from real estate firms. *Multidisciplinary Science Journal*, 8(11), 2026864.

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[4] Nguyễn Thị Thu Thảo, Đỗ Đức Tài, Phạm Văn Đăng, & Vũ Văn Hóa (2025). Ảnh hưởng của nắm giữ tiền và cơ cấu vốn đến hiệu quả tài chính của các doanh nghiệp bảo hiểm niêm yết. *Tạp chí Nghiên cứu Tài chính - Kế toán*, Số 2(298), 54.

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