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**MONETARY POLICY TRANSMISSION
THROUGH THE ASSET PRICE CHANNEL TO
ECONOMIC GROWTH: AN EMPIRICAL STUDY
IN VIET NAM**

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**LIST OF PUBLISHED RESEARCH PAPERS
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No.	Research work	Year of Publication	Notes
After Admission to the Ph.D. Program			
1	Asymmetric Transmission of Asset Prices to Economic Growth in Vietnam	2025	
2	The Impact of Monetary Policy Transmission through the Asset Price Channel on Vietnam's Economic Growth	2025	
3	Monetary Policy Transmission through the Asset Price Channel and Policy Implications for Vietnam	2024	

ABSTRACT OF THE THESIS

In a modern economy, monetary policy is transmitted not only through interest rates or traditional credit channels but is increasingly influenced by fluctuations in the stock market and the real estate market. Classical theories such as Tobin's q and the wealth effect have confirmed that asset prices represent a crucial link connecting the financial sector with the real economy. For emerging economies, including Vietnam, the extent of influence as well as the operational mechanism of the asset price channel has not yet been fully clarified. Existing empirical findings remain relatively limited and inconsistent, indicating that no clear consensus has yet emerged among scholars regarding the role and transmission intensity of this channel. Most current studies tend to analyze stock prices and real estate prices separately, lacking an integrated perspective that simultaneously incorporates both types of assets. In the context of economic research in Vietnam, a notable academic limitation can be observed as in-depth analyses concerning the asymmetric effects of asset prices on economic growth have rarely been systematically undertaken. In other words, the nonlinear relationship or the differential responses of economic growth to increases and decreases in asset prices remain insufficiently explored, creating a significant research gap from both theoretical and empirical perspectives. Clarifying whether the economy responds more strongly to negative shocks in asset prices than to positive shocks is particularly important for improving the accuracy of economic cycle forecasting. During the period 2013–2024, marked by the rapid expansion of asset markets and especially the shock caused by the COVID-19 pandemic, the State Bank of Vietnam requires stronger scientific evidence to conduct monetary policy more flexibly. This study therefore helps identify the degree of policy transmission, thereby providing recommendations to better balance the objectives of economic growth and financial system stability.

Based on a research sample using quarterly data from the first quarter of 2013 to the second quarter of 2024, comprising 46 observations collected from SBV, GSO, and HOSE, the dissertation employs the ARDL and NARDL estimation methods to measure the transmission of asset prices to output; to test the existence of asymmetric effects from fluctuations in stock prices on economic growth; and to examine the asymmetry in the transmission of the real estate price channel to economic growth. With the support of EVIEWS 11 software, the main findings of the dissertation indicate that:

(1) First, there exists a positive correlation between the stock price index and economic growth in the short run; however, this effect diminishes and becomes statistically insignificant in the long run.

(2) Second, the real estate price channel maintains a stable positive impact on economic growth across both short-term and long-term horizons.

(3) Third, the study confirms the presence of asymmetric transmission from the stock price channel to economic growth in the long run, whereas this phenomenon is not observed in the real estate market in Vietnam.

Based on these results, the dissertation contributes scientifically by simultaneously integrating both the stock market and the real estate market into a unified model of economic growth, allowing a comprehensive assessment of the complex interactions between these markets and economic growth, while clarifying the theoretical foundations of asymmetric transmission; these findings not only test the applicability of international theories (such as Tobin's q and the wealth effect) but also provide a new analytical framework suitable for Vietnam. Consequently, by deriving policy implications to establish the crucial role of the asset price channel within the monetary transmission mechanism, the dissertation offers a set of practical solutions to support regulators in optimizing the effectiveness of monetary policy management. These recommendations serve as an important scientific basis for policymakers to use operational instruments, thereby balancing the objectives of macroeconomic stability and promoting sustainable economic growth.

Keywords: Monetary policy transmission, asset price channel, economic growth, asymmetric transmission.

CHAPTER 1

RESEARCH INTRODUCTION

1.1. RATIONALE FOR THE RESEARCH TOPIC

1.1.1. Theoretical Background

In macroeconomic management, monetary policy is considered one of the state's most important instruments for stabilizing inflation and supporting economic growth. However, unlike direct intervention measures, monetary policy affects the economy through an indirect and complex transmission mechanism, reflecting the close interaction between the financial sector and the real sector (Mishkin, 1996). Within this framework, investment, consumption, and output are influenced by monetary policy shocks through various channels such as interest rates, credit, exchange rates, expectations, and asset prices (Bernanke & Gertler, 1995; Taylor, 1995).

While early studies primarily focused on bank credit and the interest rate channel, from the late 1990s onward, alongside the rapid development of the stock market and the real estate market, the asset price channel has increasingly been recognized as a key component of the monetary policy transmission mechanism (Bernanke & Gertler, 2001). Theoretically, Tobin (1969) argued that expansionary monetary policy lowers interest rates, thereby raising stock prices, increasing the market value of firms relative to the replacement cost of capital ($q > 1$), and subsequently stimulating investment and aggregate demand. This mechanism, known as the Tobin's q effect, laid the foundation for considering the stock market as an indirect yet highly influential channel of monetary policy transmission.

Concurrently, the wealth effect theory developed by Modigliani (1971) emphasizes the role of asset prices, particularly stocks and real estate, in shaping household consumption decisions: when asset prices rise, household net wealth improves, thereby stimulating consumer spending and output growth. Complementing this mechanism, the financial accelerator theory of Bernanke et al. (1999) posits that asset prices also function as a financial amplification channel, whereby increases (or declines) in asset prices alter the value of collateralized assets, affecting the cost of external financing and amplifying economic cycles. Overall, these theoretical frameworks converge on the core idea that asset prices not only directly influence aggregate demand but also serve as an intermediary link between the financial sector and the real economy.

From an empirical perspective, the role of the asset price channel has been widely supported by numerous international studies. For example,

Rigobon & Sack (2004) demonstrated a close link between monetary policy and the stock market, showing that each 25-basis-point increase in the FED's interest rate corresponds, on average, to a 1.7% decline in the S&P 500 index. Similarly, the influence of monetary policy on the real estate market has been confirmed by Goodhart & Hofmann (2008) and Case et al. (2005), with housing price fluctuations identified as a key factor shaping household consumption behavior. However, the effectiveness of the asset price channel is closely constrained by the level of development and the depth of the financial system in each country.

Along this line, Aoki et al. (2004) argue that in emerging economies, the underdevelopment of financial markets, limited access to credit, and a tendency toward short-term speculative investment significantly reduce the effectiveness of the asset price channel. This suggests that, although theory emphasizes the central role of asset prices, in practice, this channel can be overshadowed by traditional transmission channels such as credit or exchange rates.

Conversely, there are notable debates regarding how the central bank should respond to asset price fluctuations. Bernanke & Gertler (2001) argue that the central bank should not target asset prices directly due to the risk of distorting market signals and moral hazard, but rather view asset prices as an indicator reflecting macroeconomic expectations. In contrast, Alessi & Kerssenfischer (2019) provide evidence showing that monetary policy shocks often trigger rapid and strong responses in asset prices, thereby reinforcing the argument that the asset price channel is an important transmission mechanism in the context of financial globalization. This divergence reflects a theoretical debate on the role of asset prices within the framework of monetary policy management.

In developing economies, empirical evidence even indicates pronounced heterogeneity. Mishra et al. (2016) show that under conditions of underdeveloped financial markets, the asset price channel responds weakly and with a lag, making it easily overshadowed by the credit or exchange rate channels. Studies in Asia and the ASEAN region also reveal that stock prices and real estate prices often react inconsistently to monetary shocks, being strongly influenced by capital controls, macroeconomic interventions, and interest rate mechanisms that are not fully market-determined (Checo et al., 2024; Feldkircher et al., 2017; Filardo & Siklos, 2016).

In the context of Vietnam, existing research also reflects similar characteristics. According to Sũu & Hào (2017), the asset price channel

exists but remains weak and unstable, whereas other studies highlight the increasingly prominent role of the stock market and the real estate market in monetary policy transmission through money supply, credit, and expectations (Cảnh, 2014; Toàn & Trang, 2018). These differences indicate that no clear consensus has yet been reached regarding the extent and mechanism of the asset price channel's impact on economic growth. Notably, most studies have so far focused only on the response of asset prices to monetary policy shocks, without fully clarifying the degree to which these fluctuations propagate to investment, consumption, and economic growth.

Moreover, recent theoretical and empirical approaches have begun to emphasize that the impact of monetary policy through the asset price channel can be asymmetric, meaning that the economy's response to expansionary and contractionary monetary shocks, or to upward and downward movements in asset prices, is not fully symmetric. Aastveit & Anundsen (2022) argue that differences in asset supply and demand elasticity, along with expectation formation, can cause monetary policy shocks to have asymmetric effects on stock prices, real estate prices, and economic growth. However, this line of research remains relatively limited, particularly in the context of developing economies such as Vietnam.

From the above synthesis, it can be observed that although Tobin's q , the wealth effect, and the financial accelerator all consistently affirm the intermediary role of asset prices in the monetary policy transmission mechanism, empirical evidence shows that the effectiveness of this channel strongly depends on institutional context and the level of financial market development. In particular, a research gap remains regarding the ultimate impact of the asset price channel and its asymmetry on economic growth. Therefore, continuing to study monetary policy transmission through the asset price channel, with a focus on stock prices and real estate prices, while examining the asymmetric aspects of this mechanism, is necessary both theoretically and practically, especially for Vietnam's economy, which is currently undergoing rapid development and deep integration.

1.1.2. Practical Context

During the period 2013–2024, Vietnam's economy experienced significant transformations, particularly in the context of the Covid-19 pandemic. In this environment, monetary policy continued to play a central role in maintaining macroeconomic stability, controlling inflation, and supporting economic growth. Unlike the period before the 2011–2012 credit crisis, monetary policy in Vietnam gradually shifted from an administrative approach toward a market-oriented framework, with flexible use of interest

rate instruments, exchange rates, reserve requirements, and open market operations. This shift laid the foundation for a multi-channel transmission mechanism, in which the asset price channel has become increasingly prominent.

In practice, Vietnam's economic growth during this period was maintained at a relatively high level despite major shocks such as the Covid-19 pandemic. The strong recovery after 2021 implies that expansionary monetary policy effectively stimulated domestic demand. However, viewing monetary policy solely through traditional interest rate or credit channels is insufficient to fully explain the economy's fluctuations. According to Mishkin (1996), monetary policy is transmitted through multiple channels, among which the asset price channel plays an increasingly important role as financial markets develop and household participation rises.

The evolution of Vietnam's stock market during 2013–2024 clearly reflects the intermediary role of stock prices in the monetary policy transmission mechanism. Periods of expansionary monetary policy, especially after the pandemic, were associated with strong increases in the VN-Index and market capitalization, indicating a relatively consistent link with international studies such as Rigobon & Sack (2004) and Bernanke & Gertler (2001), where low interest rates reduce discount rates and boost stock prices. This finding is also consistent with the results of Huong & Trung (2020) in the Vietnamese context, which show a long-term relationship between interest rates and the VN-Index.

However, when monetary policy shifted toward tightening from 2022, the stock market responded in the opposite direction, with sharp declines in both the index and market capitalization. This development reinforces the argument of Bjørnland & Leitemo (2009) regarding the close interdependence between monetary policy and the stock market, while also indicating that the effects of monetary policy extend beyond financial markets to influence consumption and investment expectations. Nevertheless, domestic studies remain divided on the relative role of interest rates versus money supply, as Cánh (2014) and Sữu & Hào (2017) suggest that the stock market channel transmits more strongly through M2, whereas the effect of interest rates is relatively weak. This divergence reflects the characteristics of a developing financial market, where asset prices are more influenced by cash flows than by capital pricing signals.

Alongside the stock market, the real estate market also exhibits high sensitivity to changes in monetary policy. Periods of monetary easing are associated with rapid increases in housing prices and real estate credit,

generating a wealth effect that stimulates consumption and investment, consistent with the argument of Goodhart & Hofmann (2008) regarding the multidimensional linkages between money, credit, and housing prices. Conversely, when monetary policy tightens, the real estate market cools quickly, leading to negative effects on investment, employment, and growth, indicating that the asset price channel can indeed amplify economic cycles.

Notably, recent studies emphasize that the impact of monetary policy through the asset price channel is not symmetric. Aastveit & Anundsen (2022) show that in the U.S., expansionary and contractionary monetary policy elicit different responses in housing prices, depending on the stage of the cycle and supply elasticity. Similarly, Peersman & Smets (2001) and Goodhart & Hofmann (2008) indicate that the effects of monetary policy on output and asset prices are stronger during periods of recession or boom compared to stable periods. In the context of Vietnam, although some studies have addressed asymmetry (Loi & Dang, 2023), empirical evidence on how increases and decreases in stock prices and real estate prices differently affect economic growth remains limited and inconclusive (Tiên et al., 2019).

Moreover, most current studies examine each type of asset separately, whereas international evidence indicates that the interaction and cross-market spillovers between the stock market and the real estate market can alter the strength of monetary policy transmission (Igan et al., 2011). Recent developments in Vietnam, with the stock market capitalization-to-GDP ratio rising faster than credit-to-GDP and a strong increase in household asset investment, further highlight the importance of an integrated approach encompassing both markets.

From the above analysis, it is evident that although international theory and empirical studies have reached a relative consensus on the role of the asset price channel in monetary policy transmission, results remain inconsistent regarding its strength, mechanisms, and particularly the asymmetry of its effects. In the context of Vietnam, an emerging economy with rapidly developing asset markets, increasing financial openness, and increasingly flexible monetary policy, it is necessary both academically and practically to systematically study the transmission of monetary policy through stock prices and real estate prices to economic growth, while also examining the asymmetric nature of this mechanism. The research outcomes not only help fill existing gaps but also provide an important foundation for the State Bank of Vietnam to conduct monetary policy more effectively, balancing the objectives of economic growth and financial stability.

From this perspective, studying the topic “*Monetary policy transmission through the asset price channel to economic growth: an empirical study in Viet Nam*” not only helps test the applicability of international theories in the context of an emerging economy but also contributes to filling current academic gaps. The empirical evidence obtained from this research will provide the State Bank of Vietnam with a multidimensional understanding of the effectiveness of monetary policy. This is particularly significant as Vietnam strives to improve its inflation-targeting framework while simultaneously promoting the development of the real estate market and the capital market.

1.2. RESEARCH OBJECTIVES AND RESEARCH QUESTIONS

1.2.1. Research Objectives

The overall objective of the dissertation is to study the transmission of monetary policy through the asset price channel (via the stock price channel and the real estate price channel) to economic growth in Vietnam. Based on this, the study aims to propose policy implications to help improve the transmission of monetary policy through the asset price channel in particular, and the implementation of monetary policy in general.

The dissertation aims to achieve the following specific objectives:

(1) To study the impact of monetary policy transmission through the asset price channel, via both the stock price channel and the real estate price channel, on economic growth in Vietnam.

(2) To examine the asymmetric transmission of stock prices to economic growth in Vietnam.

(3) To examine the asymmetric transmission of real estate prices to economic growth in Vietnam.

1.2.2. Research Questions

To achieve the specific research objectives mentioned above, the dissertation aims to answer the following questions:

(1) What is the degree of monetary policy transmission through the asset price channel to economic growth via the stock price channel and the real estate price channel?

(2) Does an asymmetric effect of stock prices on economic growth exist? If so, what is the magnitude of the impact of stock prices on economic growth?

(3) Does an asymmetric effect of real estate prices on economic growth exist? If so, what is the magnitude of the impact of real estate prices on economic growth?

1.3. RESEARCH SUBJECT AND SCOPE

1.3.1. Research Subject

The research subject is the examination of monetary policy transmission through the asset price channel to economic growth in Vietnam, via both the stock price channel and the real estate price channel.

1.3.2. Research Scope

- Time scope: The research period is defined from Q1/2013 to Q2/2024, a phase particularly suitable and significant both theoretically and for policy practice in Vietnam.

- Spatial scope: The dissertation focuses on clarifying the transmission mechanism of monetary policy through the asset price channel (with emphasis on stock prices and real estate prices) to economic growth in Vietnam, while also examining the asymmetric nature of this mechanism.

1.4. RESEARCH METHODOLOGY

This thesis employs quantitative analytical methods using the ARDL model and the NARDL model.

1.5. NEW CONTRIBUTIONS OF THE DISSERTATION

Research on monetary policy transmission through the asset price channel to economic growth in Vietnam has brought several new contributions both scientifically and practically. The following are the key scientific contributions:

Scientific contributions:

- *First*, the dissertation contributes to expanding the theoretical analytical framework of the monetary policy transmission mechanism through the asset price channel by adopting a multi-asset approach. Most previous studies have focused on analyzing individual asset classes in isolation, primarily the stock market (Nyakerario & Morekwa, 2012; Nguyen et al., 2016; Omodero et al., 2021; Singh et al., 2011) or the real estate market (Yan, 2019; Zhang & Pan, 2021; Zhenyu & Taltavull, 2020). Meanwhile, Charles Goodhart and Boris Hofmann (2008) emphasize the multidimensional linkages among housing prices, credit, and the macroeconomy, and argue that household asset structures differ significantly across countries. On that basis, the dissertation develops an analytical framework that allows for the simultaneous assessment of the transmission roles of both the stock price channel and the real estate price channel in economic growth, thereby providing a more comprehensive perspective on the monetary policy transmission mechanism under the complex interactions among asset markets in Vietnam.

- *Second*, the dissertation further clarifies the theoretical foundation of asymmetry in the transmission mechanism through the stock price channel. Drawing on fundamental economic theories such as the wealth effect and Tobin's q theory, prior studies suggest that fluctuations in stock prices affect economic growth through changes in households' net wealth and firms' cost of capital (Doan & Bui, 2021; Nyakerario & Morekwa, 2012; Tchereni et al., 2022). However, empirical evidence indicates that this relationship is non-linear, as shocks from the stock market tend to generate stronger and more persistent effects during downturns than during expansionary periods (Omodero et al., 2021; Peersman & Smets, 2001; Tang et al., 2013). Consequently, traditional linear models may overlook important thresholds at which the nature of the impact of stock prices on economic growth changes significantly (Rostami et al., 2018; Zhang et al., 2018). Building on these arguments, the dissertation develops a more appropriate asymmetric analytical framework, thereby contributing to a clearer understanding of the monetary policy transmission mechanism through the stock price channel in the context of emerging markets, where empirical findings remain inconclusive (Duy, 2023; Vo & Nguyen, 2017).

- *Third*, the dissertation reinforces and further clarifies the explanatory power of the theory on the asymmetric transmission mechanism through the real estate price channel. Previous studies affirm that real estate serves as the most important collateral asset in the financial system (Mishkin, 2007), while also indicating that the negative impact of declining real estate prices on economic growth is often stronger and more persistent than the positive impact observed during periods of price increases (Goodhart & Hofmann, 2008; Igan et al., 2011). In addition, the intensity of the effects of monetary and credit shocks tends to increase during housing price booms, whereas in downturns or adverse conditions, the sensitivity of credit and consumption to policy changes varies significantly (Goodhart & Hofmann, 2008; Lim & McNelis, 2008; Loi & Dang, 2023). Building on these theoretical and empirical findings, the dissertation contributes to clarifying the asymmetric nature of the impact of real estate prices on economic growth, thereby strengthening the theoretical foundation for analyzing the role of the real estate channel in the monetary policy transmission mechanism.

Practical contributions:

The study of the monetary policy transmission mechanism through the asset price channel in Vietnam provides significant practical value. First, it helps the State Bank of Vietnam better understand how monetary policy is transmitted through stock prices and real estate prices to economic growth,

thereby enabling more timely and effective policy formulation. Second, clarifying asymmetric effects and potential risks arising from asset markets provides a basis for preventing sharp fluctuations and maintaining macroeconomic stability. Third, the quantitative results of the study offer a solid scientific foundation for forecasting and for formulating strategies aimed at sustainable economic development, balancing macroeconomic stability with long-term growth. Finally, this research clarifies the monetary policy transmission mechanism through asset prices in the specific context of Vietnam, providing concrete and systematic information for policymaking as well as for future studies.

1.6. STRUCTURE OF THE THESIS

The main content of the thesis is organized into five chapters: Chapter 1 provides an overview of the research; Chapter 2 presents the theoretical framework; Chapter 3 outlines the research methodology; Chapter 4 presents the research findings; and Chapter 5 offers conclusions and policy recommendations.

CONCLUSION OF CHAPTER 1

CHAPTER 2 THEORETICAL FRAMEWORK

2.1. OVERVIEW OF MONETARY POLICY THEORY

2.1.1. Concept of Monetary Policy

According to Mishkin (1996), monetary policy is understood as a process through which the central bank controls short-term interest rates, the money supply, and shapes societal expectations regarding the economic future. The core objective of this process is to achieve macroeconomic targets, particularly maintaining price stability, ensuring employment, and promoting sustainable development. Mishkin emphasizes that the essence of monetary policy is not merely “injecting or withdrawing money,” but rather a comprehensive regulation by the central bank of financial conditions and market expectations. This perspective expands the scope of monetary policy from technical instruments to behavioral factors, reflecting the modern view of the role of monetary policy in “guiding expectations.”

The 2010 Law on the State Bank of Vietnam defines national monetary policy as decisions regarding money at the national level made by competent state authorities, including decisions on the objective of stabilizing the value of the currency, expressed through inflation targets, and

decisions on the use of instruments and measures to achieve the set objectives.

2.1.2. Selected Theories of Monetary Policy

- Classical theory
- Keynesian and Post-Keynesian theory
- Monetarist theory
- Modern monetary transmission theory

2.1.3. Objectives and Instruments of Monetary Policy

Objectives of monetary policy

Modern theory and practice indicate that the objectives of monetary policy have evolved from a single-target approach, focusing primarily on controlling the money supply, to a multi-target system encompassing price stability, promotion of economic growth and employment, ensuring financial stability, exchange rate stability, and managing public expectations.

Instruments of monetary policy

To enhance the effectiveness of monetary management amid the economy's complex dynamics, it is essential to combine traditional and modern instruments. While earlier approaches relied on direct tools, the current framework places greater emphasis on communication and expectations to influence macroeconomic objectives. Transmission channels such as interest rates, expectations, balance sheets, credit, and asset prices serve as the primary pathways through which these instruments operate to achieve the overarching goals.

2.2. TRANSMISSION MECHANISM OF MONETARY POLICY THROUGH THE ASSET PRICE CHANNEL

The effectiveness of monetary policy transmission through the asset price channel significantly depends on the characteristics of financial markets and the institutional structure of each country (Cecchetti, 2000). For Vietnam, studies show that the stock market responds relatively strongly to money supply shocks but reacts less to interest rate changes in the short term (Sửu & Hào, 2017). In contrast, the real estate channel usually exhibits longer lags but exerts more persistent and profound effects on macroeconomic stability, due to the market's lower liquidity and the cyclical "freeze-and-boom" nature of real estate (Hoa, 2014).

2.3. RELEVANT THEORIES

2.3.1. Tobin's Q Theory

2.3.2. Wealth Effect

2.3.3. Studies Related to Sticky Price Theory

2.4. THEORIES OF ECONOMIC GROWTH

2.4.1. Development of Economic Growth Theories

- Exogenous Growth Models (Solow-Swan).
- Optimal Growth Models (Ramsey-Cass-Koopmans).
- Endogenous Growth Theory (AK Model).
- Innovation-Based Growth (Romer and Schumpeter).
- Role of Human Capital and Institutions.

2.4.2. Factors of Economic Growth

- Direct input resources.
- Core determinants.

2.5. RELATED EMPIRICAL STUDIES

2.5.1. Monetary Policy Transmission through the Stock Price Channel

2.5.2. Monetary Policy Transmission through the Real Estate Price Channel

2.5.3. Monetary Policy Transmission through Both Stock and Real Estate Price Channels

2.5.4. Asymmetric Transmission of Stock and Real Estate Prices

2.6. RESEARCH GAPS

In the context of globalization and financial risks, understanding the transmission mechanism of monetary policy through the asset price channel has become a central task for central banks, particularly in developing economies such as Vietnam. The asset price channel has long been recognized as one of the four traditional pillars of monetary policy transmission (Mohanty, 2012); moreover, the importance of asset price fluctuations in conveying policy effects has been well established (Modigliani, 1971). Nevertheless, this remains a topic that requires further development. Based on a review of the literature, the dissertation identifies the following key issues:

- *First*, most international and domestic studies analyzing monetary policy transmission via the asset price channel focus only on individual asset types. Specifically, some studies concentrate solely on the stock market (Nyakerario & Morekwa, 2012; Nguyen et al., 2016; Omodero et al., 2021; Singh et al., 2011), while others focus only on the real estate market (Yan, 2019; Zhang & Pan, 2021; Zhenyu & Taltavull, 2020). Meanwhile, Goodhart & Hofmann (2008) emphasize the multidimensional linkage between housing prices, credit, and the macroeconomy in developed countries. Therefore, it is possible to conduct a quantitative comparative study to determine, in developing economies like Vietnam, whether the stock price or real estate price channel has a stronger transmission effect on economic

growth. This is particularly important because household asset structures differ across countries (Goodhart & Hofmann, 2008; Igan et al., 2011). In Vietnam, an integrated study of both asset types to compare which channel more strongly transmits to economic growth is essential, especially given the often complex interactions between these two markets (Doan & Bui, 2021). Accordingly, the dissertation analyzes both the stock price and real estate price channels simultaneously in the monetary policy transmission mechanism, thereby providing additional empirical evidence and a more comprehensive perspective.

- *Second*, investigating the asymmetric effects of stock prices on economic growth is a pressing requirement in the context of an increasingly volatile stock market that is closely linked to the real economy. According to foundational theories such as the wealth effect and Tobin's Q theory, changes in stock prices affect economic growth by altering households' net asset values and firms' capital costs (Doan & Bui, 2021; Nyakerario & Morekwa, 2012; Tchereni et al., 2022). However, empirical studies indicate that this relationship is non-linear; shocks from the stock market often produce stronger and more persistent reactions during economic downturns than during periods of growth (Omodero et al., 2021; Peersman & Smets, 2001; Tang et al., 2013). If only traditional linear models are employed, researchers may overlook critical thresholds where the impact of stock prices on growth fundamentally changes (Rostami et al., 2018; Zhang et al., 2018). This is especially relevant in developing economies such as Vietnam, where research results on asset price transmission channels remain inconsistent or unclear. Clarifying the asymmetry provides policymakers with a deeper understanding, enabling them to forecast economic cycles more accurately and design flexible monetary policy scenarios to prevent negative financial market shocks from spilling over into the real economy (Sova & Lukianenko, 2022). In Vietnam, the lack of in-depth studies in this direction has resulted in incomplete assessments of monetary policy impacts through stock price fluctuations. The dissertation aims to fill this gap, helping to identify the asymmetric transmission mechanism of monetary policy through stock prices.

- *Third*, investigating the asymmetric effects of real estate prices on economic growth is crucial to address the limitations of linear models, which often overlook important aspects of real economic behavior (Lim & McNelis, 2008). Real estate plays the role of the most important collateral asset in the financial system (Mishkin, 2007). Empirical studies show that the negative impact of declining real estate prices on economic growth is

usually stronger and more persistent than the positive effects of price increases, due to financial constraints and precautionary household spending behavior (Goodhart & Hofmann, 2008; Igan et al., 2011). The impact of monetary and credit shocks tends to intensify during housing price booms compared to normal periods (Goodhart & Hofmann, 2008); conversely, in a recessionary market or adverse economic contexts such as a pandemic or crisis, the sensitivity of credit supply and consumption to policy changes shifts significantly, necessitating an asymmetric analytical framework to accurately capture the intensity of effects (Loi & Dang, 2023). In short, clarifying the asymmetry in real estate price fluctuations whether negative shocks from price declines are more severe than the positive effects of price increases is fundamental for policymakers to optimally design macroprudential tools (Goodhart & Hofmann, 2008). Therefore, conducting in-depth analyses of this mechanism in the Vietnamese context is essential. The research results will provide crucial practical evidence to support the State Bank of Vietnam in implementing monetary policy in a flexible and targeted manner, while ensuring a balance between stability and long-term economic growth.

CONCLUSION OF CHAPTER 2

CHAPTER 3 RESEARCH METHODOLOGY

3.1. RESEARCH PROCESS AND HYPOTHESES

3.1.1. Research Process

The dissertation adopts an approach grounded in theory and the findings of prior related studies. The entire research process is carried out as follows: first, identifying the analytical framework and research gaps; based on this step, the dissertation proposes hypotheses, research models, representative variables, data sources, and appropriate estimation methods; then, the hypotheses are tested to answer the research questions; the research results are discussed; and finally, conclusions are drawn and policy recommendations are proposed.

3.1.2. Research Hypotheses

- *Hypothesis H_1* : Stock prices have a positive effect on economic growth.
- *Hypothesis H_2* : Real estate prices have a positive effect on economic growth.

- *Hypothesis H₃*: There exists an asymmetric transmission of stock prices to economic growth.

- *Hypothesis H₄*: There exists an asymmetric transmission of real estate prices to economic growth.

3.2. PROPOSED RESEARCH MODEL

- Research model of the impact of monetary policy transmission through the asset price channel (real estate prices and stock prices) on economic growth:

$$GDP = f(REM, VNI, LS, COVID)$$

Where: GDP is economic growth, REM is real estate market growth, lvni is the stock price index expressed in logarithm form, ls is the refinancing interest rate, and covid is a dummy variable representing covid-19.

- Research model on the asymmetric transmission of stock prices to economic growth:

$$GDP = f(REM, VNI^+, VNI^-, LS, COVID)$$

- Research model on the asymmetric transmission of real estate prices to economic growth:

$$GDP = f(REM^+, REM^-, VNI, LS, COVID)$$

3.3. VARIABLES IN THE RESEARCH MODEL

3.3.1. Economic growth variable (GDP)

3.3.2. Real estate market growth variable (REM)

3.3.3. Stock price variable (VNI)

3.3.4. Refinancing interest rate (LS)

3.3.5. Dummy variable representing the covid-19 pandemic (COVID)

3.4. RESEARCH METHODS

3.4.1. Var method

3.4.2. Vecm method

3.4.3. Ardl method

3.4.4. Nardl method

CONCLUSION OF CHAPTER 3

CHAPTER 4

RESEARCH RESULTS AND DISCUSSION

4.1. TRENDS IN MONETARY POLICY IMPLEMENTATION AND THE DEVELOPMENT STATUS OF THE VIETNAMESE STOCK AND REAL ESTATE MARKETS

4.1.1. Trends in monetary policy implementation by the state bank of vietnam

Between 2013 and 2024, the implementation of monetary policy by the State Bank of Vietnam underwent several pivotal shifts. Initially, the main focus was on macroeconomic stability and maintaining low inflation. Over time, the State Bank adopted a more flexible approach to foster economic growth, particularly to counteract the adverse impacts of the Covid-19 pandemic and global geopolitical uncertainties. Key characteristics by period and the correlation between financial markets and macroeconomic variables are summarized as follows:

(1) 2013-2015: macroeconomic stabilization and reduction of interest rates.

(2) 2016-2019: flexible policy implementation and a financial market boom.

(3) 2020-2021: response to the Covid-19 pandemic with strong monetary easing.

(4) 2022-2024: international volatility and efforts to support economic recovery.

Overall, throughout 2013–2024, interest rate tools, credit targets, and other monetary policy measures of the State Bank of Vietnam played a key role in directing capital flows in both the stock and real estate markets, while directly affecting economic growth, inflation, and urban unemployment. When interest rates were low and credit expanded (e.g., 2015, 2017, 2020–2021), both financial markets generally experienced strong growth. Conversely, when exchange rate pressures required tightening measures or interest rate hikes (e.g., late 2022 and Q3/2023), asset prices faced downward adjustment pressures. At the same time, macroeconomic indicators show that Vietnam’s economy remains highly cyclical and significantly exposed to external shocks, highlighting the need to enhance the effectiveness of monetary policy transmission to reduce the economy’s vulnerability to these cycles.

4.1.2. Development of Vietnam’s stock market

Starting with only two listed firms (REE and SAM in July 2000), with total market capitalization of merely VND 986 billion, equivalent to 0.28% of GDP, Vietnam’s stock market has experienced rapid expansion over its 24 years of operation (2000-2024). By the end of 2024, total market capitalization reached approximately VND 7,200 trillion, accounting for nearly 70% of GDP.

4.1.3. The current state of Vietnam's real estate market

The emergence and expansion of Vietnam's real estate market are closely associated with the comprehensive reform process initiated by the Communist Party and the State after the Sixth National Party Congress in 1986. These reforms established a market-oriented economic system under strong macroeconomic management and regulation by the State, in line with socialist orientation.

The development of Vietnam's real estate market can be divided into three major stages, marked by key legal milestones in land legislation:

(1) the initial stage (prior to 1993), before the promulgation of the 1993 Land Law.

(2) the transitional stage (1993-2003), from the enforcement of the 1993 Land Law to before the enactment of the 2003 Land Law.

(3) the modern stage (from 2003 to the present), following the enforcement of the 2003 Land Law.

4.2. EMPIRICAL RESULTS

4.2.1. Descriptive statistics

The descriptive statistics of the variables (see Table 4.3 in the dissertation) reflect the dynamic characteristics of Vietnam's economy and the volatility of financial markets during 2013–2024. Economic growth maintained a relatively high average but exhibited significant fluctuations over time. The two financial markets, the real estate market and the stock market, showed higher volatility, consistent with the sensitivity of financial channels to changes in economic cycles and macroeconomic policies. The refinancing interest rate variable indicates stability in monetary policy implementation, while the COVID-19 dummy clearly captures the sudden impact of the pandemic shock on the economy and financial markets. These characteristics provide a suitable basis for applying ARDL and NARDL models in the subsequent analysis of both linear and nonlinear relationships between asset prices and economic growth.

4.2.2. Unit root tests

The unit root test results (see Table 4.4 in the dissertation) indicate that the variables for real estate market growth, stock price index, and refinancing interest rate are integrated of order one, $I(1)$. In contrast, the economic growth variable is stationary at the level and identified as $I(0)$. This implies that the use of ARDL and NARDL models is appropriate, as these models accommodate variables with mixed integration orders $I(0)$ and $I(1)$ but do not allow for variables integrated of order higher than one.

4.2.3. Cointegration tests

The study applies the bounds testing approach proposed by Pesaran et al. (2001) to examine the existence of cointegration among the variables (see Table 4.5 of the thesis).

4.2.4. Research model results

The author applied the ARDL method to analyze the impact of monetary policy transmission through asset prices on economic growth.

The results of the ARDL model (see Tables 4.6 and 4.7 of the dissertation) show the following:

The real estate market has a positive effect on economic growth, with a long-term adjustment coefficient of -0.51 , which corresponds to approximately two quarters for equilibrium adjustment. This impact is observed in both the short and long term, consistent with the findings of Schmalz et al. (2017). In Vietnam, Nguyen & Bui (2019) also report a similar positive relationship between the real estate market and economic growth. This aligns with the practical context in Vietnam, where a developed real estate market increases household wealth and credit capacity, stimulating consumption and investment, thus promoting economic growth. Most previous studies indicate a positive effect of the real estate market on growth; however, some suggest that excessive growth in the real estate market can create bubbles, potentially leading to financial crises and future economic downturns (Crowe et al., 2013).

The stock price index positively affects economic growth in the short term, but no statistically significant long-term effect is found. This result aligns with Tiên et al. (2019) and indicates that Vietnam's stock market remains a frontier market, unable to fully reflect economic growth in the long term. While the stock market serves as a long-term capital mobilization channel, in practice, it has primarily met short-term speculative needs, with market manipulation still occurring. Consequently, stock price volatility undermines investor confidence and introduces instability into the economy.

The Covid-19 pandemic had a negative long-term impact on economic growth. During 2020–2021, the pandemic severely disrupted

production and business activities, affecting livelihoods and corporate operations. Early in the pandemic, supply constraints, reduced demand, and delayed investments contributed to a global GDP decline of -4.5%. Vietnam was also significantly affected as key production chains were interrupted, and consumption dropped sharply, impacting services and tourism. Nevertheless, Vietnam was among the few economies worldwide to achieve positive GDP growth during the pandemic, with 2.1% in 2020 and 2.58% in 2021.

4.3. RESULTS OF THE ASYMMETRIC TRANSMISSION MODEL OF STOCK PRICES TO ECONOMIC GROWTH

4.3.1. Estimation of Long-Term Coefficients in the NARDL Model

The research results of the asymmetric transmission model of stock prices to economic growth using the NARDL method (see Table 4.8 of the dissertation) are as follows:

The long-term estimates show that both COVID and the refinancing interest rate have negative impacts on economic growth, reflecting prolonged disruptions from the pandemic as well as the tightening effect of monetary policy on production and business activities. Conversely, the model does not find statistically significant long-term effects of real estate market growth on GDP, implying that real estate fluctuations are highly cyclical and do not generate sustained impacts on growth.

Notably, the study clearly confirms the asymmetry in the impact of the stock price index on economic growth. Specifically, the positive component, LVNI_SA_POS, representing the effect of rising financial asset prices, has a coefficient of approximately 5.8, indicating that when the stock market increases, economic growth tends to improve correspondingly, consistent with the positive wealth effect mechanism. In contrast, the negative component, LVNI_SA_NEG, has a coefficient of 14.7, much larger than the positive direction, reflecting that when asset prices fall, the negative impact on the economy is substantially stronger. This demonstrates that the economy is more sensitive to negative shocks from financial markets and reinforces the hypothesis of an asymmetric effect of asset prices on economic growth in the NARDL model.

4.4. RESULTS OF THE ASYMMETRIC TRANSMISSION MODEL OF REAL ESTATE PRICES TO ECONOMIC GROWTH

The research results show that there is no asymmetric transmission from real estate prices to vietnam's economic growth.

4.5. DISCUSSION OF RESEARCH RESULTS

4.5.1. The impact of monetary policy transmission through asset prices on economic growth

- Variable: real estate market growth.
- Variable: stock price index.
- Variable: covid.
- Variable: refinancing interest rate.

4.5.2. Asymmetric transmission of stock prices to economic growth

the long-term estimation results indicate that both variables representing the covid-19 shock and the refinancing interest rate have a negative effect on economic growth. this reflects that: (i) prolonged disruptions caused by the pandemic weaken production, service, and consumption activities, thereby hindering economic growth; (ii) the trend of monetary tightening to control inflation increases capital costs, reducing investment and consumption. these results are consistent with international studies showing a negative relationship between epidemic shocks and economic growth (barro et al., 2020), as well as the growth-suppressing effects of monetary tightening. in vietnam, studies by thuận (2020) also recorded the negative impact of the pandemic on gdp growth and macroeconomic activities.

4.5.3. Asymmetric transmission of real estate prices to economic growth

The research results show that there is no asymmetric transmission from REAL ESTATE PRICES to Vietnam's ECONOMIC GROWTH. This result aligns with many previous domestic and international studies, further reinforcing the reliability of the empirical findings.

4.5.4. Application of sticky price theory in analyzing monetary policy in Vietnam

Sticky Price theory is particularly relevant in the context of emerging economies such as Vietnam, where nominal prices and wages are frequently influenced by institutional factors, contracts, and market psychology.

- Price and wage rigidity in Vietnam.
- The impact of monetary policy.
- The persistence of inflation and economic cycles.
- Policy implications.

4.5.5. Linking theory with practical experiences in Vietnam during the COVID-19 period

CONCLUSION OF CHAPTER 4

CHAPTER 5

CONCLUSION AND POLICY IMPLICATIONS

5.1. CONCLUSION

In this dissertation, the author has systematized the theoretical basis of monetary policy transmission through asset prices to economic growth, the asymmetric impact of asset prices on economic growth, and has reviewed related previous studies. Based on this, the author identified the research methods and developed a research model on monetary policy transmission through asset prices to economic growth and the asymmetric impact of asset prices on Vietnam's economic growth. After conducting the research, the author draws the following conclusions:

Regarding research objectives:

(1) The author studied the degree of monetary policy transmission through asset prices via the stock price channel and the real estate price channel to Vietnam's economic growth. From this, the author concluded that this relationship exists in both the short term and long term.

(2) The author investigated the asymmetric transmission of stock prices to Vietnam's economic growth. The results show that asymmetric transmission of stock prices to economic growth exists in the long term.

(3) The author examined the asymmetric transmission of real estate prices to Vietnam's economic growth. Based on the research results, the author concluded that there is no asymmetric transmission of real estate prices to economic growth in Vietnam.

Regarding research results:

The author focused on studying the transmission of monetary policy through asset prices via the stock price channel and the real estate price channel to economic growth, and the asymmetric impact of asset prices on Vietnam's economic growth, during the period from the first quarter of 2013 to the second quarter of 2024. By using the ARDL method to study monetary policy transmission through asset prices to economic growth and the NARDL method to study the asymmetric impact of asset prices on economic growth, the dissertation achieved the following results:

(1) *First*, there is a positive short-term correlation between the stock price index and economic growth; however, this effect diminishes and is not statistically significant in the long term.

(2) *Second*, the real estate price channel maintains a stable positive impact on economic growth throughout both short-term and long-term periods.

(3) *Third*, the study confirms the existence of asymmetry in the transmission from the stock price channel to economic growth in the long term; conversely, this phenomenon is not observed in the real estate market in Vietnam.

5.2. POLICY IMPLICATIONS

5.2.1. Regarding real estate market growth

- Orient the development of the real estate market as a driver of economic growth.

- Manage real estate credit in a controlled supportive manner.

- Develop the housing finance market to improve the efficiency of the asset channel.

- Control the risk of housing price bubbles to limit long-term negative effects.

- Shift real estate development toward real demand.

- Improve institutions and enhance transparency in the real estate market.

5.2.2. Regarding stock market development

Vietnam needs to focus on improving capital allocation efficiency in the stock market, reducing reliance on short-term speculative activities, and developing long-term financing instruments for enterprises, thereby strengthening the role of the stock market as a driver of sustainable growth.

Stock market development policies should be guided by risk management and asymmetry considerations, enhancing information transparency, improving corporate governance standards, controlling margin trading, and developing mechanisms for monitoring, warning, and handling asset bubbles. This will increase the economy's resilience to financial shocks and improve the transmission efficiency of the capital market.

Stock market development policies need to be closely linked with monetary policy and bank credit to ensure consistency in capital supply, reduce capital costs, and facilitate productive business investment.

Vietnam's stock market can fully become a long-term growth driver if its depth is improved, liquidity developed, corporate governance mechanisms perfected, and the impact of speculation and short-term "hot money" reduced. Therefore, stock market development policies should integrate enhanced capital allocation efficiency, risk and asymmetry management, long-term capital mobilization, and coordination with

monetary policy and bank credit to promote sustainable and stable economic growth.

5.2.3. responding to macroeconomic shocks (such as the Covid-19 pandemic)

- Improve the macro policy framework to simultaneously address supply and demand shocks.
- Strengthen the role of fiscal policy to stabilize consumption and investment.
- Stabilize the financial market given the asymmetric impact of asset price shocks.
- Enhance the economy's long-term resilience to macroeconomic shocks.

5.2.4. Regarding refinancing interest rates

The State Bank of Vietnam needs to develop a roadmap to gradually reduce direct administrative intervention in credit allocation. Instead, it should enhance the guiding role of the refinancing interest rate so that this tool functions as a true market price signal. Allowing interest rates to operate according to market principles will narrow the gap between policy rates and actual rates, thereby improving transmission to aggregate demand as expected by traditional theoretical models.

The State Bank of Vietnam should aim for a more transparent monetary policy management framework.

The government should place more emphasis on fiscal policy (especially public investment) to directly stimulate demand. Monetary policy through refinancing rates should play a supporting role, maintaining stable liquidity and reasonable borrowing costs, thereby enabling other policies to effectively support economic growth (Duy, 2023).

5.2.5. Recommendations for stakeholders

- Government: direct relevant ministries to develop a real estate price index to monitor market fluctuations, support policymakers, help investors make accurate decisions, and enhance transparency, stability, and sustainable development in the real estate market in the long term. also, strengthen overall coordination between fiscal, monetary, and financial market policies to minimize risks of asset price fluctuations transmitting to the macroeconomy.

- State bank of Vietnam: pay special attention to the transmission mechanism via asset prices, including stock prices and real estate. continue to pursue flexible monetary policy that is highly adaptable to domestic and international economic conditions.

- Ministry of finance: In the short term, priority should be given to developing and stabilizing the stock market to support economic growth. In the medium and long term, efforts should focus on building a transparent and sustainable real estate market. At the same time, the Ministry of Finance should take the lead, in close coordination with relevant ministries and agencies, in expeditiously improving the legal framework, regulatory sandbox mechanisms, and breakthrough incentive policies to facilitate the establishment and development of international financial centers in Vietnam. Concurrently, risk supervision should be strengthened, and policy coordination with the State Bank of Vietnam should be enhanced to improve the effectiveness of the transmission of asset markets and international financial centers to economic growth.

- State securities commission: enhance supervision of the stock market to improve the efficiency of monetary policy transmission through stock price movements. strengthen the capacity for system risk management, particularly against market manipulation that destabilizes asset prices.

5.3. LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

- Research data only includes 46 quarterly observations from 2013 to mid-2024, so the time series is relatively short. therefore, future studies should use more updated data and extend the time horizon to test the stability of the relationship between asset prices and economic growth across different economic periods.

- The research mainly focuses on the asset price channel and has not combined other transmission channels such as credit, interest rates, exchange rates, or expectations. future studies should consider multiple monetary policy transmission channels to better understand the mechanisms affecting economic growth and provide more comprehensive policy recommendations.

- The research mainly focuses on two types of assets: stocks and real estate. future research should include other asset price channels to better understand the economic impact mechanism and provide more complete policy recommendations.

- The study does not deeply analyze the asset market structure, such as liquidity, information transparency, or investor behavior. future studies should consider additional factors such as unemployment, labor productivity, and fiscal policy to obtain a more comprehensive view of the asymmetric impact of asset prices on economic growth in the context of a transitioning and increasingly integrated economy.

- The study is conducted at the national level and does not examine differences in the impact of asset prices on economic growth across geographic regions (e.g., urban vs rural) or economic sectors (e.g., industry, services, agriculture). therefore, analyzing the impact of asset prices on growth at the provincial, city, or demographic segment level would help better understand heterogeneity in effects and support more effective micro-level policy design.

- Although the dissertation has achieved a number of meaningful findings, it still has several limitations. In particular, the robustness of the empirical model has not been examined comprehensively through robustness tests. Due to time constraints and the specific characteristics of the research context, the author was unable to identify suitable alternative proxy variables. Consequently, the current model has only been evaluated under the baseline specification and has not been extensively tested using alternative measures or model specifications. This represents a research gap that should be addressed in future studies to examine the consistency and reliability of the findings across different methodological approaches.

- The proxy variable representing the real estate market in this study was constructed using an indirect approach due to limitations in the availability and continuity of real estate market data in Vietnam. Although this approach helps overcome data constraints and allows the model to capture the general trend of the market, it may not fully reflect the actual fluctuations and characteristics of the real estate sector. Consequently, the research findings may not entirely capture the magnitude of the impact of the real estate price channel on economic growth. In the future, as housing price indices and real estate price data become more comprehensively and consistently available, subsequent studies may employ direct measurement variables to improve the accuracy and reliability of the empirical results.

- Although the ARDL/NARDL framework offers significant advantages in handling variables with different orders of integration, is well suited to small sample sizes, and enables the estimation of both symmetric and asymmetric effects in the short and long run, it primarily captures the relationships among the variables of interest rather than fully elucidating the transmission mechanism through which monetary policy affects economic growth via the asset price channel.

CONCLUSION OF CHAPTER 5