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RESEARCH PROJECT

The impact of public debt on economic growth – The case of Vietnam

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CHAPTER I. INTRODUCTION

According to IDS 2018 statistics, the world's total external debt in 2016 was $6.9 million trillion, an increase of $248 billion, equivalent to 4.1 percent compared to 2015. However, if calculated according to the debt-to-GNI ratio, it is downtrend, from 26% to 25%. Incremental loans focus on long-term loans. Of which, new bilateral loans increased by $84 billion, double that of 2015. External debt of the private sector increased by 6.8% compared to 5% of the public sector. External debt in 2016 of low- and middle-income countries (excluding China) increased slightly by 3.2% compared to 2015, in which the public sector increased rapidly at a rate of 4.5% compared to the private sector only 2.8% (Spataro and Renström, 2012). The public debt/GNI ratio above 60% accounts for about 25% of all low- and middle-income countries, of which 10 countries have this ratio above 100%. The above figures show that the important role of external debt for countries in the development process is to mobilize all financial resources to support investment in economic growth due to the low savings rate that has not yet been achieved while the investment demand is high. Therefore, besides domestic financial resources, external resources are a necessary and important channel to supplement the shortage of capital. On the other hand, countries tend to borrow from outside because of the preferential interest rates with low interest rates from developed countries. Thus, governments can have ample budgets from public borrowing if they invest effectively in these loans (Ajisafe and Gidado 2006). In addition, if domestic borrowing is high, it will crowd out private sector investment as well as affect fiscal policy and investment efficiency in the economy (Mutasa 2003). Therefore, the increase in public borrowing by developing countries is an inevitable result of economic development (Diallo 2010).

However, there are many issues that public borrowers are concerned about when the Asian financial crisis (1997) and the European public debt crisis take place, which are mainly caused by the impact of external debt. Challenges and risks pose to borrowers such as exchange rate fluctuations, which increase debt obligations compared to the resources obtained from borrowing to invest in developing the economy, taking more resources to repay debt instead of investment in the economy. Another good example of the impact of public debt on economic growth mentioned today is Turkey. Commercial banks in Turkey have borrowed public loans at low interest rates and then lent them back to domestic enterprises. As of March 2018, Turkey's total external debt was $437.7 billion, equivalent to 50% of GDP at an exchange rate of 3.96 Lira/USD. However, when the local

currency depreciated 70% in July 2018, the external debt ratio was 88% of GDP (Borissov and Kalk, 2020). In addition, businesses faced difficulties in debt repayment due to the rising exchange rate, which led to the banking system being shaken and macro instability appeared in the economy.

Vietnam is a developing country, which has suffered many negative effects from the war lasting for more than 30 years, has continuously invested in development to get rid of poverty and improve people's income. One of the problems that Vietnam faces is the source of capital to invest in developing the country. In the last three decades, Vietnam has mobilized all financial resources for economic development with the basic goal of hunger eradication and poverty reduction, joining the group of middle-income countries. One of the financial resources Vietnam uses is public loans. Public debt becomes a financial channel for investment and development of infrastructure construction, to cover the budget deficit. After joining WTO (2007), public debt has increased sharply, especially after 2010. If public debt in 2007 was 23.2 billion USD, by 2016 it was 86.95 billion USD, an increase. 274% within 10 years, equivalent to 42.36% of GDP (WB 2018). In the ranking of public debt by the CIA in 2017, Vietnam ranked 52 out of 208 countries and territories in terms of public debt. Public debt plays an important role in meeting the capital needs of the economy to build infrastructure, national key projects, develop economic zones, and create an important premise in attracting capital. Public investment. However, one problem is that the more public loans, the higher the economic growth of Vietnam. How public capital flows affect investment, savings and trade activities as well as economic growth of Vietnam. This can create a vicious cycle in the economic development of developing countries where public debt accumulation poses risks to the economy (Chen, Maslar and Serfling, 2020). Buiter (1977) and Ahmed and Miller (1999) pointed out the crowding out effect in public investment in countries that have a lot of public debt and do not create a sustainable and effective repayment source in the future, creating a negative impact on investment and economic growth.

Based on the above analysis from practice and theory, the thesis finds that there is very few research on assessing the impact of external debt as well as some other macro variables (openness, exchange rate, inflation) to Vietnam's economic growth on the basis of combining data with different frequencies in the research model. Previous research models mainly used ARDL or GMM models for variables with the same frequency. Therefore, studying the impact of public debt on Vietnam's economic growth on the basis of combining research variables with different frequencies using the VECM method is the

research gap of the thesis. Through the VECM method, the quantitative study examines whether the rapid increase in external debt causes the corresponding rapid increase in Vietnam's economic growth? Research results are important empirical evidence to make recommendations on public debt for Vietnam in the future. In addition, the thesis has also selected the period from 2000 to 2016 to study on the basis that Vietnam has signed a debt settlement agreement with the Russian Federation about the debts of the Soviet Union in the past, in order to avoid changes in the past. The sharp movements in external debt related to the conversion between the ruble and the dollar. On the other hand, the thesis studies the impact of public debt on Vietnam's economic growth from a non-linear perspective to see if there exists an optimal debt threshold for Vietnam? The thesis will consider the debt threshold on a quarterly basis while the debt thresholds identified in previous studies for Vietnam are mainly on an annual basis (Hoang, 2020; Le, Vo and Vo, 2021). Based on this debt threshold, policy recommendations will be made in the management of public debt for Vietnam in the coming time.

To answer the above questions, the thesis ***"The impact of public debt on economic growth – The case of Vietnam"*** has been selected for analysis, evaluation and empirical research, as a basis for making recommendations public debt policy.

1.1. Research objectives:

The overall objective of the thesis is to evaluate the impact of public debt on the Vietnam's economic. To achieve the goal above, the thesis will aim at the following specific objectives:

+ Investigating the current situation of public debt in Vietnam

+ Measuring the impact of the public debt on Vietnam's economic growth.

+ Proposing policy implications to improve the efficiency of using public debt to develop Vietnam's economy.

1.2. Significant of the study:

The thesis studying the impact of foreign debt on Vietnam's economic growth has the following new points:

Firstly, the thesis has considered the linear impact of foreign debt on Vietnam's economic growth based on the VECM model. Previous studies on this issue mainly analyzed using OLS, VAR, and MIDAS models (More and Thomas 2010). Experimental research using the VECM model allows combining data with different frequencies without missing important information like other models when reducing variables to the same frequency, contributing to updating the data. Research results show a positive impact of

foreign debt on Vietnam's economic growth in the period 1988-2020, compared with previous research on this issue by Nguyen Hoang Bao and Doan Kim Thanh (2009) suggesting negative relationships.

Second, the thesis also found significant impacts of trade openness, money supply, and CPI on the economic development of Vietnam. Using VECM allows the thesis to identify the short and long-term influence of these variables on the economy. Surprisingly, the behavior of CPI and money supply varies between different time dimensions. In the short term, an expansion of the money supply does not have significant impact on the performance of economic growth. CPI index, although slightly significant, poses trivial impacts only. By contrast, both money supply and inflation are found to have significant impacts in the long term. Moreover, the research also results in a higher error correction than previous studies of Dao and Doan (2014) and Canh and Phong (2018), which implies that the PD would adjust more quickly to a deviation from long-term equilibrium. This difference might stem from sampling dissimilarities between two studies as this thesis adopted annual data.

Third, based on the results of the regression model, the thesis has made some recommendations to effectively use and manage foreign debt resources in public investment, creating a source of revenue for debt repayment as well as promote the role of macroeconomic data statistics according to international standards, including external debt data.

Scope of the study

The study concentrates on Vietnam's economy only. Thus, cautious must be taken when extrapolating the results to external contexts. Moreover, the research is restricted by limited number of observations.

Thesis structure

This thesis comprises of five chapters and is organized as follows. Chapter 1-Introduction presents the background of the study, research objectives, research questions, research significance, research scope and limitations, and thesis structure. Chapter 2 Literature Review introduces the literature review of relative previous researches and theories; then develops hypotheses. Chapter 3 Data and Methodology describes the data set and data collection; and analyzes the research models and research methods. Chapter 4-Empirical Results presents and discusses the key findings of the research and their implications. Chapter 5 Conclusions and Recommendations summarizes the conclusions of the

research, provides suggestions and recommendations, and highlights research limitations.

CHAPTER II. LITERATURE REVIEW

2.1. Definition of public debt

According to the International Monetary Fund (IMF 2013), external debt at a point in time is the total actual outstanding balance required to pay the principal and/or interest of the borrower at a future point in time (not including contingent liabilities). This is a debt owed by non-residents to residents. Accordingly, liabilities are established through the provision of economic values such as assets (financial or non-financial), services and/or income by the creditor to the debtor in the form of a contract including payment terms and conditions (Das, 2021). Commitments providing future economic value cannot establish a debt obligation until there is a change of ownership, for example, undisbursed amounts under the loan commitment or commitments on Export credits will not be included in the total foreign debt. In addition, borrowers can be legal or natural persons in the economy. This concept is used uniformly among the World Bank, IMF, OECD and BIS in assessing the level of debt of a country (Gilbert, 2020). In summary, the external debt of a country is understood as the debts owed by non-residents to residents of an economy, regardless of legal or natural persons, but which are liable to repay the debts in accordance with the provisions of current law.

2.2. The impacts of public debt on economic growth

2.2.1. Existing empirical research in the world

Buchner, Carswell, Meattle (2018) studied the channels of impact of external debt on growth through three transmission channels, (i) through investment channel, (ii) aggregate demand, (iii) debt repayment obligation in future. As for the investment channel, countries make up for the shortfall in capital by participating in the international capital market. When the borrowed capital is invested effectively, it will increase GDP for the economy. However, when interest rates rise, trade activity declines, affecting borrowers in international capital markets. This leads to a decrease in total investment in the economy and the emergence of macro uncertainties. In addition, when the Government's debt obligations increase, it will reduce private investment due to concerns that tax increases as well as policies introduced will affect profits (Spataro and Renström, 2012; Cooray, Dzhumashev and Schneider, 2017). All of the above factors led to a decline in economic growth caused by the debt crisis.

For the aggregate demand channel, external debt affects economic growth through per capita income. Foreign borrowing causes public and private sector spending to increase (Cohen, 1995). An increase in private sector spending will affect fiscal policy, leading to an increase in aggregate demand and output for the economy. At the same time, imports are affected by income factors and domestic production activities due to the import of inputs for export activities. Therefore, to meet debt obligations, the government needs to improve the balance of payments to balance foreign currency flows by borrowing from outside. The ultimate impact of external debt on economic growth is through future interest payments. Countries that borrow heavily from outside means an increase in the payment of future debt obligations (principal and interest). This means increasing pressure on the country's future foreign exchange earnings. Therefore, this means a decrease in investment, a decrease in imports and a decrease in aggregate demand in the economy, resulting in a decrease in economic growth.

Based on the two-gap model of Chenery and Strout (1966), Bacha (1990), Taylor (1995) added the budget gap (Fiscal gap) to the three-gap model. According to Bacha (1990), governments of developing countries overspend their budgets to invest in development to build infrastructure and industries as the foundation for private investment development. These overspending are then offset through foreign loans. The three-gap model of public debt in general and external debt in particular is based on controlling the budget deficit. For sustainable economic growth, countries need to close these three gaps. One of the measures to narrow it is to use external resources such as FDI, FII, or ODA (Combes, Minea and Sow, 2017). The three-gap model emphasizes the adjustment to balance the three gaps. If the budget gap is larger than the savings gap, government spending should decrease, and the growth rate of investment must match the increase in savings in consumption. If the trade gap is larger than the budget gap, it should increase revenue through taxes and increase trade surplus to reduce the trade gap.

Nautet and Meensel (2011) argue that public debt and external debt affect economic growth in the long run through the fiscal gap. The implementation mechanism is described on the basis of when low national saving is offset through external borrowing to cover the budget deficit. This means that in the long term, interest rates will increase, resulting in a decrease in investment, leading to a decrease in capital accumulation and a decrease in labor productivity. In addition,

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high debt makes debt obligations increase, leading to government reducing investment or raising taxes to create sources to repay debt (Clements, Bhattacharya and Nguyen, 1987; Ajisafe *et al.*, 2006). The result is a reduction in consumption, private investment and the supply of labor. Finally, debt affects growth in terms of the cost of risk. The high-risk cost of debt leads to an increase in the cost of financing loans due to the impact on the country's solvency. As a result, lending rates increase. All of the above factors will affect the economic growth of the country.

Studying the impact of foreign debt on economic growth with two main trends, (i) increasing foreign debt will increase economic growth, (ii) increasing foreign debt will increase economic growth in the first stage, but then if the debt continues to increase, economic growth will decrease.

As for the first view on the positive effect of debt on economic growth, Égert (2015) argues on the basis that effectively invested loans will increase potential (real) GDP. Output reaches its optimum in the long run mainly through capital accumulation in the economy. Besides, foreign loans are a way to access international capital markets as well as increase abundant investment capital for the economy. On the other hand, with a large capital source is an opportunity for developing countries to invest in infrastructure to attract foreign investment capital to invest more effectively on the basis of learning experiences and foreign technology (Spataro and Renström, 2012). Through this process to accumulate capital to reinvest in the economy, gradually reducing the dependence on external resources. The empirical studies of have provided evidence to support this view.

The second point of view is that a lot of foreign borrowing will reduce economic growth. One of those arguments is Krugman's (1988) debt overhang theory, which argues that when countries increase their debt at a reasonable level, economic growth will be boosted. However, if accumulated debt surpasses the debt peak, it will put pressure on growth. When the level of foreign debt is high, the expected return on investment will decrease because the government implements distorted taxes to get the money to repay the debt. Therefore, high debt discourages investment activities and slows down capital accumulation for the economy. At the same time, there is no incentive for governments to implement fiscal reform, which is the foundation for developing countries to maintain high economic growth rates in order to realize the United Nations' millennium goals. Another argument for explaining the debt paradox is based on an analysis of a country's ability to repay

debt (Das, 2021). He argued that if the expected level of foreign debt exceeds the country's ability to repay, it will affect national output because foreign creditors will tax the profits of domestic investment, leading to decline in economic growth. On the other hand, when the external debt is too large, it will reduce domestic investment by spending resources to repay the debt and as a result, economic growth will decrease (Agénor and Neanidis, 2011). The government will use the wrong tools to increase revenue to meet debt obligations, resulting in investment and growth decline. This can be seen as the Laffer curve of external debt. Cohen (1995) considers the relationship between the par value of foreign debt and investment as a form of the Laffer curve. At a certain threshold of foreign debt, foreign borrowing will positively affect investment and economic growth. However, crossing this threshold will have the opposite effect. Clements, Bhattacharya and Nguyen (1987) also argues that between external debt and economic growth there is also a Laffer curve through investment. In support of this hypothesis, Tsuchiya (2016) empirically studied with time series data in 23 developing countries in the period 1975-1987 showing that there is a negative relationship between external debt, private investment, and economic growth. Checcherita-Westphal and Rother (2012) also studied this issue based on panel data that showed the threshold for external debt based on the Laffer curve.

Therefore, how foreign debt affects economic growth depends a lot on the efficiency of capital use and rational resource allocation in the economy. Borrowing a lot of foreign investment to invest in the economy is unlikely to create high growth because of the debt burden appearing, reducing future investment as well as the process of accumulating capital for the economy and destroying the natural environment. Governments must consider these issues in the process of borrowing foreign debt to invest in the economy, avoiding the situation of borrowing a lot but using it inefficiently, creating a debt burden in the future for the country.

The link between foreign debt and growth is an interesting subject for many academics from a theoretical standpoint. This link is based on dynamic economical models in open economies, with public debt being the only one to exploit external savings in economic development. External debt and economic growth theories are focused on understanding this relationship. This is much more dynamic for developing nations when vast external resources and contemporary technologies are used to reduce development times in order to escape poverty, catch up with

affluent countries and increase their citizens' wages. However, the other side is the problem of effective use of loans and increased debt obligations in the future when increasing public borrowing for investment. This creates several dangers for borrowers who are extensively borrowed from abroad in the economic development process, leading to an accumulation of higher interest payments resulting to less investment and a reduction in social protection. One concern is whether the expansion in foreign debt would promote economic growth, or vice versa, as debt obligations are growing. This means, that the buildup of debt commitments, and hence insolvency of the countries, might adversely influence economic growth.

Debates revolve around the issue of positive or negative effects of external debt on economic growth of countries or whether increasing external debt reduces economic growth. Burhop (2005) shows that countries with high external debt ratio must spend most of the resources obtained from exports to repay the debt instead of spending resources to invest in the economy, which has a direct impact on efficiency of investment by countries. Therefore, the issue of public debt management becomes the top concern of policy makers. Countries need to develop autonomous policies on debt management that are appropriate to their respective circumstances (Sardoni, 2021). The studies of Cohen (1995)(1993), Deshpande (1997), and Krugman (1998) have supported this theory through a number of empirical studies showing that High public debt ratio brings instability to the economy due to inefficient capital allocation, focusing on short-term, high-risk projects.

However, it is also argued that compared with developed countries, developing countries with small capital capacity but high rate of return become the focus of attracting capital inflows from outside for investment. If debtor countries effectively use public loans, it will create an impetus for economic growth as well as create good cash flow to repay loans in the future. Therefore, small countries with a high external debt ratio have become the subject of research on the positive impact of external debt on economic growth. The studies of Roche (2012) and Karfakis (2021) show that the positive impact of external debt on economic growth has reinforced the basis for the above arguments.

2.2.2. Existing empirical research in Vietnam

Domestically, Thao and Vinh (2015) researched the issue of "Testing the impact of public debt on economic growth". With the method of using regression model, the sample size includes 7 developing countries in Southeast Asia, namely

Vietnam, Malaysia, Indonesia, Thailand, Philippines, Laos, Cambodia with data series from 1995-2013, The results show that there is a non-linear relationship between public debt and economic growth, an inverted U-shaped model. When the public debt/GDP ratio is less than 68% public debt has a positive impact on economic growth. Since then, the study has determined the public debt threshold to be able to accurately refer to the public debt threshold. Meanwhile, research by Phuc (2013) with data including developing countries with the topic "Public debt and economic growth. Experiences of other countries and lessons for Vietnam", using the regression function to estimate the impact of public debt on economic growth. The results show that when excluding other factors such as initial per capita income, investment rate, educational inflation, population, government efficiency index. When public debt increases, it has a negative impact on economic growth, so the increase in public debt needs to be very cautious to avoid negative effects of public debt.

In addition to the above-mentioned studies, the thesis has analyzed many theoretical and empirical studies on the impact of public debt on economic growth to demonstrate the impact of public debt on economic growth. Quantitative studies mainly use models of ARDL or GMM with variables with the same frequency (Ajisafe *et al.*, 2006; Ruby, 2012).For empirical studies on the impact of public debt on Vietnam's economic growth, Nguyen (2017) and Dinh, Powell and Vo (2021) using the ADRL or GMM models, both give results consistent with previous studies on external debt. However, the studies on Vietnam have a small number of observations (less than 30 observations) or the research period has many fluctuations. To solve this problem and increase reliability, Ghysels et al (2002, 2006, 2009) introduced the MIDAS method on the basis of combining variables with different frequencies in the research model.

Thus, the above studies do not provide a general conclusion on the relationship between public debt and economic growth, which may be due to differences in research methods, space and time. Moreover, we all know that public debt originates from the budget deficit and the purpose of finding capital for economic growth. But in most countries, the basic budget deficit depends on the annual revenue and expenditure plan of the state management agencies. In other words, a part of the public debt and budget deficit originates from the budget deficit and many subjective factors that can be adjusted, with the ultimate goal of economic

growth. However, studying the relationship between public debt and economic growth, under the influence of macro variables, can still provide useful policy suggestions in debt management and national budget regulation, thereby proposing appropriate fiscal policies.

CHAPTER III. RESEARCH <mark>MEDTHODOLOGY</mark>

3.2. Proposed model

The research model of the thesis is based on the research of Pattillo *et al.* (2004) and Sulaiman and Azeez (2012). The selection of variables in empirical research through a review of previous studies. In previous studies, variables on labor force, investment capital, and trade openness were included in the model to estimate the impact of external debt on economic growth. For economic growth models, labor force and investment capital are the two main drivers of economic growth. This is shown in the studies of Pattillo *et al.* (2004), Cecchetti, Mohanty and Zampolli (2011), and De Luca *et al.*(2017). In addition to the above variables, the following variables are also included in the research model such as money supply (Mohamed 2013), exchange rate variables (Sulaiman and Azeez 2012), inflation variables (Dumitrescu, Kagitci and Cepoi, 2021). The thesis uses the following variables in the regression equation of the study, including:

$$GDP = \alpha + \beta_1 PD + \beta_2 OPE + \beta_3 M2 + \beta_4 EX + \beta_5 CPI + \mu$$

Of which:

GDP is a dependent variable, showing the growth rate of Vietnam's gross domestic product in %/quarter. This variable is used in studies Clements (2005), Adegbite et al (2008).

PD represents the ratio of public debt to GDP, in % of GDP, data in years. This variable is commonly used in studies on debt to assess the fiscal situation as well as the debt repayment ability of countries. The studies of Fosu (1996), Were (2001), Pattillo (2002), Clements (2005), Adegbite et al (2008), Ayadi (2008), Tokunbo et al (2010) and Korkmaz (2015) use this variable to assess the impact on economic growth. The results show that public debt has a positive or negative impact on economic growth

M2 is the money supply in the economy, in % of change between the study periods of this year compared to the previous year, monthly data, one of the macro variables affecting economic growth, represents the level of financial development of the economy. This indicator is used in the studies of Mohamed (2013).

CPI is the consumer price index in the economy, quarterly data (%), reflecting the impact of inflation on economic growth. This variable is used in the studies of

Were (2001), Mohamed (2005), Sulaiman and Azeez (2012) and Ramzan and Ahmad (2014).

Research data is quarterly time series data collected from various sources during the period of 1988 -2020, corresponding to 22 observations. The selection of this period for research ensures objectivity and consistency after Vietnam has agreed on a debt settlement mechanism previously with the Soviet Union, leading to data with large fluctuations between these two periods. The data sources used are mainly from the International Monetary Fund (IMF), the Asian Development Bank (ADB), the World Bank (WB) and the General Statistics Office of Vietnam (GSO). Besides, other data sources used in the thesis are official sources with clear origin.

3.1. Method

The thesis examines the linear and nonlinear effects of foreign debt on Vietnam's economic growth based on the Vector Error Correction Model (VECM) for the time series. For the VECM model, it is applied to study the nonlinear effects of foreign debt on Vietnam's economic growth. Thereby, testing the relationship between the thresholds of external debt, the openness of the economy to economic growth in the research period. The advantage of the VECM model allows measuring the phenomenon of cointegration among many variables in the research model, and at the same time allows to measure the degree of adjustment from the imbalance of the previous period of the research variables. The detailed process comprises following steps:

First, test the stationary of the research data through the Unit Root Test to determine the integration order of the time series. From there, determine the appropriate delay structure for the VECM model based on information standards. For time series data, the first requirement is to ensure stationary so that the research model has a constant mean and variance over time. Besides, if the time series data is not stationary, it will lead to spurious regression. Therefore, in this study, the first step to take is to check the stationary of the research variables by Dickey Fuller's unit root test.

Select the optimal lag for the model based on information criteria such as LR (Likelihood Ratio), AIC (Akaike infor criterion), SC (Schawarz criterion), HQ (Hannan-Quinn criterion) and FPE (Final Prediction Error).

Select the type of cointegration equation to estimate. The cointegration is understood as between the independent and dependent variable there is a long-

run relationship. There are two methods of cointegration test: Engle - Granger test (1987) and Johansen - Juselius test (1991). The study will use Johansen - Juselius test to select the cointegration equation because it has the advantage of showing more than one cointegration relationship in the research model.

Perform Trace and Max-Eigen tests for the type of cointegration equation selected in step 2. The Johansen - Juselius method will approach based on the estimation of the Max - Eigen value and the dominant value. Trace value to find out the number of co-integrated vectors. The number of cointegration equations depends on the number of variables in the model.

Regression analysis of VECM model to get cointegration equation results. The VECM model allows to simultaneously explore the long-run and short-run relationships of the variables if they have a cointegration relationship.

Diagnostic testing of the VECM model to ensure that the obtained results are solid and reliable. The first test is to check the stability of the model by calculating the autoregressive characteristic polynomial solution. A necessary and sufficient condition for the model to be stable is that the characteristic solutions outside the unit circle or the inverse of the characteristic solutions must lie within the unit circle. The next test is the test with residuals through the Portmanteau test, the Lagrange multiplier test and the Jarque Bera test. The Portmanteau and Lagrange tests show whether the residuals have autocorrelation up to the lag order h. The Jarque Bera test shows the normal distribution of the residuals. This test compares the kurtosis and skewness in the distribution of the residuals with the kurtosis and skewness in the normal distribution. In principle, residuals without a normal distribution invalidate the test statistics. However, researchers argue that for small samples, this measure is not informative (Gujarati 2009).

3.3. Hypothesis development

To achieve the aforementioned research question, the thesis proposes the following hypothesis as the main consider:

H1: Public debt negatively affects the economic growth

Regarding the expected relationship between the independent variables and other control variable in the research model are also testified under the VECM. The thesis expects the openness of the economy to have a positive impact on the economic growth during the study period. By contrast, the variables of money supply

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M2 and consumer price index will negatively affect economic growth. These expectations are based on studies of Fosu (1999), Were (2001), Pattillo (2002, 2011), Sulaiman and Azeez (2012), Mohamed (2013)… when assessing the impact of public debt on growth economic growth through empirical models. As a result, the thesis develops a subset of hypotheses:

H2: Trade openness positively affects the economic growth

H3: M2 negatively affects the economic growth

H1: CPI negatively affects the economic growth

The following table summarizes variables and theoretical impacts on the economic growth:

Number	Variable	Description	Unit	Expectation
Dependent variable				
1	GDP	Ln of GDP-Independent variable		
Independent variables				
1	PD	Central government Debt/Total GDP	Percentage	+
2	OPE	Total trade/Total GDP	Percentage	+
3	M2	Broad Money supply/GDP	Percentage	-
4	CPI	Annual Consumer Price Index	Ratio	-

CHAPTER IV. ANALYTICAL RESULTS

4.1. The Current situation of public debts in Vietnam

In the 2016-2020 period, the management of public debt in our country has basically met the set goals and achieved some important results, specifically as follows:

Firstly, public debt safety indicators are closely regulated, staying within the debt ceiling level established by the National Assembly and steadily decreasing throughout the years from 2016 to 2019, contributing to increased fiscal policy flexibility. The debt portfolio has improved, with the public debt balance falling from a peak of 63.7 percent of GDP in 2016 to around 55.0 percent of GDP at the end of 2019, contributing significantly to boosting fiscal policy space to attract investment harmed by the macro "shock" in 2020 (the Trade war). The public debt growth rate fell from an average of 18.1 percent per year in 2011-2015 to around 6.8 percent per year in 2016-2019; the proportion of domestic debt increased from 38.9 percent in 2011 to 60.1 percent in 2016 and 61.9 percent of the total outstanding debt of the Government by the end of 2019. By the end of 2020, it is projected that public debt objectives, Government debt to GDP tends to grow again before the fiscal relaxation strategy to help the economy's recovery from the Covid-19 epidemic, but still guarantees that the debt limit set by the National Assembly is met.

*Table **Error! No text of specified style in document.**-1: Public debts to GDP*

	2001	2005	2010	2015	2016	2017
Growth	36,5%	40,8%	50%	62,2%	64,73%	61,3%

Secondly, the central bank has mobilized a large amount of capital for the state budget (state budget) and development investment, contributing to the successful implementation of the 5-year and annual socio-economic development plan. Most of the public debt is used directly for investment and development projects and repays loans incurred in the previous period for public investment, contributing to the improvement of the economic and technical infrastructure system-a synchronous society, promoting growth and stabilizing the macro-economy in recent years.
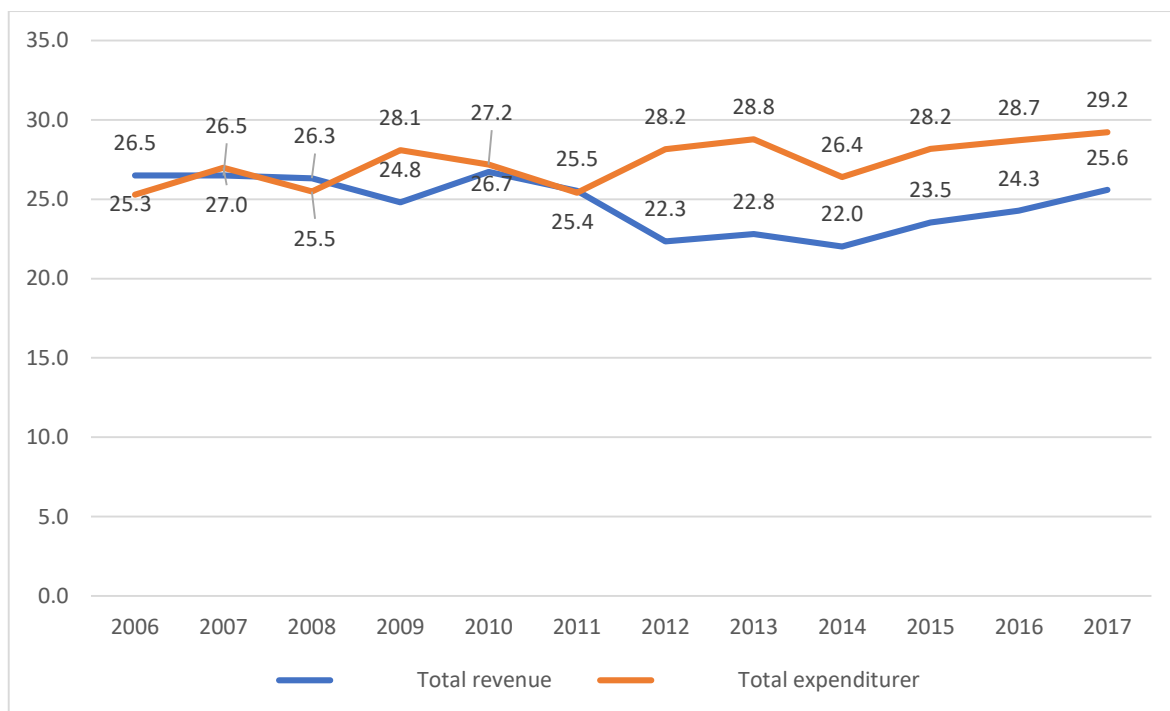
*Figure **Error! No text of specified style in document.**-1: Vietnam's revenue and expenditure figure.*

Third, the Vietnamese government make full and on-time debt repayments, ensure debt obligations committed to creditors, thereby improving the national credit coefficient. The Government's direct debt repayment obligation compared to state budget revenue remains within the limits allowed by the National Assembly, on average for the period 2015-2020 is about 18.6% (compared to the ceiling of no more than 25%).

Fourthly, the legal framework and policies on public debt management and government debt have been gradually improved, the efficiency of state management of public debt has been improved in the new situation towards a stricter and more effective direction, according to Resolution No. 07-NQ/TW dated November 18, 2016 of the Politburo. Law on Public Debt Management No. 20/2017/QH14 was approved by the National Assembly to institutionalize the Party and State's policy on safe, sustainable and effective public debt management. Legal documents guiding the law such as Government Decrees and guiding circulars of the Ministry of Finance have been promptly issued, contributing to creating a legal corridor in the state management of public debt in line with international practices.

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Fifth, implementing the policy of the Party and the National Assembly, over the years, the Government has directed the Ministry of Finance to focus on implementing solutions to develop the government bond market in a sustainable way, associated with issuing government bonds with the restructuring of the government bond portfolio in the direction of extending the term, reducing the pressure of short-term debt repayment and borrowing costs. It is expected that for the whole year of 2020, the average issuance term is about 13-13.5 years, an increase of about 1.9 times compared to 2015 (6.9 years); the average maturity (ATM) of the government bond portfolio is about 7.6-7.8 years, much higher than the previous period (in 2011 was 1.84 years and in 2015 was 4.44 years).

While the average term of government bonds reached a record high, the average issuing interest rate of government bonds continuously decreased, showing the effectiveness of government bond issuance. In the period 2016-2020, the interest rate level has decreased from 6.5%-8.0%/year for terms from 5 years to 30 years at the beginning of 2016 to about 1.2% -3.3%/year (at the end of October 2020), of which the 5-year to 30-year term has the lowest interest rate ever. The decrease in government bond issuance interest rates has created favorable conditions for the Government to increase debt in the domestic market, reduce foreign debt, thereby contributing to the restructuring of public debt in a sustainable way.

Last but not least, the results of fiscal consolidation and control of public debt create room for policy provisions to cope with macro risks, contributing to improving the national credit rating. Along with efforts to improve the quality of cooperation with credit rating agencies, the socio-economic achievements of our country are recorded and reflected through the national credit coefficient. of Vietnam has been gradually improved. Raising the national CSR level is a very positive message, contributing to improving the country's prestige, reducing the cost of raising foreign capital for both the Government and enterprises. For example: In the first 10 months of 2020, all three credit rating agencies (S&P, Moody's and Fitch) have issued 110 downgrade ratings and 121 downgraded ratings for 54 countries in the world.

4.2. Descriptive analysis

Descriptive statistics for the variables in the research model are shown in Table Error*! **No text of specified style in document.**-2* with values listed such as maximum value, minimum value, standard deviation, kurtosis, skewness, etc.

(Kurtosis) and inclination (Skewness) reveal the distribution shape of the data set. If the kurtosis is 3, then the probability distribution is concentrated in the normal range, greater than 3 means the concentration is higher than normal, and less than 3 means the concentration is lower than normal. In this manner, only PD is normally concentrated, whereas the other variables all deviate from the normal concentration level. Regarding the skewness, from -0.5 to 0.5 is a symmetric distribution, less than -0.5 is asymmetrical distribution and the graph is more sloping to the left, greater than 0.5 is asymmetric distribution, and the graph is more sloping to the right. With regards to the collected dataset, lnGDP and OPE appear to be symmetrically distributed. The skewness of the M2, CPI, and GDP are higher than critical level of 0.5, that is, the distribution is asymmetrical and the graph is more inclined to the right.

*Table **Error! No text of specified style in document.**-2: Descriptive statistics*

Variables	Obs	Mean	Std. Dev.	Min	Max	p1	p99	Skew.	Kurt.
lnGDP	24	25.104	.828	23.928	26.291	23.928	26.291	-.05	1.47
PD	24	42.383	12.378	25.716	72.907	25.716	72.907	.612	2.791
OPE	24	145.24	35.564	92.706	210.46	92.706	210.46	.242	2.095
M2	24	25.783	12.334	11.942	66.452	11.942	66.452	1.639	6.264
CPI	24	6.152	5.445	-1.71	23.115	-1.71	23.115	1.594	5.928

4.3. Analyzing the VECM

4.3.1. Preliminary tests for background of VEC model

To implement the VECM model, unit root testing by the ADF method must be performed on seasonally processed data. According to Gujarati (2003) computations of non-stationary data series will not yield reasonable results. Therefore, before building and running the regression model, it is necessary to

analyze the stationarity to avoid the case of spurious regression, which is the model has very good t and R statistic results, but the model may not be significant.

*Table **Error! No text of specified style in document.**-3: Stationary test*

Variables	Test statistic	1% Critical value	5% Critical value	10% Critical value
lnGDP	-0.102	-3.750	-3.000	-2.630
d(lnGDP)	-6.424	-3.750	-3.000	-2.630
PD	-2.840	-3.750	-3.000	-2.630
OPE	0.070	-3.750	-3.000	-2.630
M2	-3.482	-3.750	-3.000	-2.630
CPI	-2.963	-3.750	-3.000	-2.630

The results show that the data variables are non-stationary and the first difference is at 1% significance level (Table Error*! No text of specified style in document.-3*). The variables all stop at the first difference, so there may exist a co-integration relationship between the research variables. This is the basis for conducting the cointegration test according to the Johansen method.

Conduct the cointegration relationship test to prove the long-run relationship between the variables in the model through Trace and Max-Eigen tests with the corresponding lags found in step 1. From there, the best VECM model is selected. The results show that proposed model (with constant and trending in the cointegration equation)

*Table **Error! No text of specified style in document.**-4: Johansen test of cointegration*

Trend: constant   Number of obs = 22

Sample: 1998 - 2019   Lags = 2

Maximum rank	Parms	LL	Eigenvalue	Trace statistic	5% critical value
0	30	-222.85415		71.7060	68.52

1	39	-209.77575	0.69546	45.5492*	47.21
2	46	-200.85043	0.55576	27.6986	29.68
3	51	-193.74251	0.47595	13.4827	15.41
4	54	-187.00133	0.45819	0.0004	3.76
5	55	-187.00114	0.00002		

Maximum rank	Parms	LL	Eigenvalue	Trace statistic	5% critical value
0	30	-222.85415		26.1568	33.46
1	39	-209.77575	0.69546	17.8506	27.07
2	46	-200.85043	0.55576	14.2158	20.97
3	51	-193.74251	0.47595	13.4827	14.07
4	54	-187.00133	0.45819	0.0004	3.76
5	55	-187.00114	0.00002		

The results show that the data variables are non-stationary and the first difference is at 1% significance level (Table 4.2). The variables all stop at the first difference, so there may exist a co-integration relationship between the research variables. This is the basis for conducting the cointegration test according to the Johansen-Jesulius method. The study seeks to find the optimal lag for the VECM model through information criteria using Stata software. With the results as shown

in Table Error*! **No text of specified style in document.**-5*, the optimal lag order for the VECM model is 2.

*Table **Error! No text of specified style in document.**-5: Optimal lag for VEC model*

Lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0				0.555	2.250	2.259	2.299	-21.496
1	30.095	103.18*	1	0.000	0.004	-2.809	-2.790	-2.710
2	31.685	3.181	1	0.074	.003332*	-2.86851*	-2.83935*	-2.71915*
3	31.845	0.320	1	0.572	0.004	-2.785	-2.746	-2.585
4	33.588	3.486	1	0.062	0.003	-2.859	-2.810	-2.610

4.3.2. VECM results

The following table captures the VECM results in detailed:

Sample: 1998 - 2019	Number of obs = 22
Log likelihood = -209.7758	AIC = 22.61598
Det (Sigma_ml) = 131.7805	HQIC = 23.0716
	SBIC = 24.5501

Equation	Parms	RMSE	R-sq	chi2	P>chi2
D_lnGDP	7	.04492	0.9022	138.4445	0.0000
D_PD	7	4.58216	0.6829	32.31088	0.0000
D_OPE	7	5.81479	0.7429	43.34291	0.0000
D_M2	7	12.2339	0.5688	19.78865	0.0060
D_CPI	7	5.2865	0.4809	13.8951	0.0531

	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
L._ce1	-.139	.073	-1.89	.005	-.282	.005	**
LD.lnGDP	.713	.206	3.47	.001	.31	1.116	***

	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
LD.PD	.005	.002	2.33	.02	.001	.009	**
LD.OPE	.005	.002	2.96	.003	.002	.009	***
LD.M2	0	.001	-0.05	.958	-.002	.002	
LD.CPI	-.008	.004	-1.93	.053	-.017	0	*
Constant	-.003	.03	-0.09	.928	-.062	.057	
L._ce1	**-.954**	**7.477**	**-0.13**	**.898**	**-15.607**	**13.7**	
LD.lnGDP	29.899	20.967	1.43	.154	-11.196	70.993	
LD.PD	.428	.211	2.03	.042	.015	.841	**
LD.OPE	-.048	.189	-0.25	.8	-.419	.323	
LD.M2	-.393	.091	-4.30	0	-.573	-.214	***
LD.CPI	-.462	.442	-1.05	.296	-1.328	.404	
Constant	-3.338	3.086	-1.08	.279	-9.386	2.711	
L._ce1	**1.365**	**9.488**	**0.14**	**.886**	**-17.231**	**19.96**	
LD.lnGDP	-31.831	26.607	-1.20	.232	-83.98	20.319	
LD.PD	.281	.268	1.05	.293	-.243	.806	
LD.OPE	.114	.24	0.47	.637	-.358	.585	
LD.M2	.062	.116	0.54	.591	-.165	.29	
LD.CPI	-.71	.561	-1.27	.205	-1.808	.389	
Constant	8.391	3.916	2.14	.032	.716	16.066	**
L._ce1	-47.275	19.962	-2.37	.018	-86.399	-8.151	**
LD.lnGDP	-30.37	55.98	-0.54	.587	-140.089	79.349	
LD.PD	1.271	.563	2.26	.024	.168	2.375	**
LD.OPE	-.081	.506	-0.16	.873	-1.072	.91	
LD.M2	-.738	.244	-3.03	.002	-1.217	-.26	***
LD.CPI	-1.479	1.179	-1.25	.21	-3.79	.833	
Constant	1.303	8.239	0.16	.874	-14.846	17.451	
L._ce1	-10.084	8.626	-1.17	.242	-26.99	6.822	
LD.lnGDP	11.051	24.19	0.46	.648	-36.36	58.463	
LD.PD	.277	.243	1.14	.255	-.2	.754	
LD.OPE	.592	.219	2.71	.007	.163	1.02	***
LD.M2	-.031	.105	-0.29	.769	-.238	.176	
LD.CPI	-1.139	.51	-2.23	.025	-2.138	-.14	**
Constant	-4.656	3.56	-1.31	.191	-11.634	2.322	

Mean dependent var		0.006	SD dependent var			0.222
Number of obs		22.000	Akaike crit. (AIC)			.

*** p<.01, ** p<.05, * p<.1

Cointegration equation

Equation	Parms	chi2	P>chi2
_ce1	4	476.6851	0.0000

Identification: beta is exactly identified: Johansen normalization restriction imposed

beta	Coef	Std. Err.	z	P>|z|	[95% Conf. Interval]	
lnGDP	1					
PD	-.0074342*	.0039659	-1.87	0.061	-.0152072	.0003388
OPE	-.0172554***	.0011828	-14.59	0.000	-.0195736	-.0149373
M2	.0073347*	.0041848	1.75	0.080	-.0008672	.0155367
CPI	-.0306303 ***	.0090495	-3.38	0.001	-.048367	-.0128937
_cons	-22.36027					

Drawing from the above regression result, the short and long-term relationship are specified as follows:

Short-term relationship:

$$\Delta lnGDP_t = -0.003 + 0.713\Delta lnGDP_{t-1} + 0.005\Delta PD_{t-1} + 0.050\Delta PE_{t-1}$$
$$+ 0.000\Delta M2_{t-1} - 0.008\Delta CPI_{t-1} - 0.139ECT$$

Long-term relationship:

$$lnGDP = 22.36 + 0.0074PD + 0.0172OPE - 0.0073M2 + 0.0306CPI + \varepsilon$$

Both short and long-term equations are statistically significant at a 1% confidence level. Regarding the long-term relationship, all variables are found to have significant impacts on economic growth. Unexpectedly, the positive coefficient of public debt and CPI are not aligned with previous presumptions. By contrast, these tests reveal significant impacts of economic openness and money supply on Vietnam's economy that perfectly satisfy the hypothesized presumptions 2 and 4. In the short term, the influence of money supply is statistically insignificant, while the coefficient of CPI is reversed. The positive correlation between public debt and trade openness is preserved. The adjustment term is statistically significant at a 5% confidence level, implying that a deviation from long-term equilibrium is corrected within a year at a convergence speed of 13.9%.

4.3.3. Diagnose test of VECM

The following table presents the Lagrange test of autocorrelation

*Table **Error! No text of specified style in document.**-6: LM-Test of autocorrelation*

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lag	chi2	df	Prob>Chi2
1	19.532	25	0.771
2	17.043	25	0.880

H0: no autocorrelation at lag order

The null hypothesis states that no autocorrelation is present at lag order. With a p-value of 0.771 at lag 1, which is insignificant. Accordingly, the test eliminates the alternative hypothesis and preserves the null hypothesis. Hence it means at lag 1, the estimated VECM model avoids the autocorrelation problem.

*Table **Error! No text of specified style in document.**-7: Jarque-Bera test of normality*

Equation	chi2	Df	Prob > chi2
D_lnGDP	2.393	2	0.302
D_PD	0.359	2	0.835
D_OPE	2.186	2	0.335
D_M2	0.061	2	0.970
D_CPI	1.433	2	0.488
All	6.431	10	0.777

Equation	Skewness	chi2	Df	Prob > chi2
D_lnGDP	.802	2.360	1	0.124
D_PD	-.195	0.140	1	0.708
D_OPE	.765	2.150	1	0.143
D_M2	-.059	0.013	1	0.909
D_CPI	.569	1.190	1	0.275
All		5.853	5	0.321

Equation	Kurtosis	chi2	Df	Prob > chi2
D_lnGDP	3.190	0.033	2	0.855
D_PD	3.488	0.218	2	0.640
D_OPE	2.802	0.036	2	0.850
D_M2	2.771	0.048	2	0.827
D_CPI	2.484	0.243	2	0.622
All		0.579	10	0.989

The null hypothesis states that the residuals of variables are normally distributed. According to the table above, p-values of all variables are higher than 10% level, indicating the alternative hypothesis is rejected. Hence, the VECM model is free of the normality problem

*Table **Error! No text of specified style in document.**-8: Eigenvalue stability condition*

Eigenvalue	Modulus
1	1
1	1
-.1943894 + .6447457i	.673412
.6725133 + .01007642i	.672589
.6725133 - .01007642i	.672589
-.3859635 + .2038506i	.436489
-.3859635 - 2038506i	.436489

The above table presents the Eigenvalue stability condition of the VECM. The specified mode has four variables with 1 cointegrating relationship. The companion matrix therefore will have 3 units eigenvalues. According to Table Error*! No text of specified style in document.-8*, the estimated VECM is stable as the remaining r eigenvalues are less than unity.

4.4. Discussion

The most conspicuous result that emerges from the dataset and VECM is that public debt does have positive impacts on Vietnam's economy. In this manner, the value is hardly distinguishable from Thao and Vinh (2015) who document a positive correlation between public debt and economic growth. This is also in complete agreement with the domestic literature of Phuc (2013), Nguyen (2017), and Dinh, Powell, and Vo (2021). Nonetheless, this thesis found a much higher value of the coefficient of public debt with respect to those reported by Ghysels et al (2002, 2006, 2009). Differences in sampling and research methods might be the underlying reasons for such dissimilarities. In terms of international literature, although the positive correlation found in this test concurred well with prevalent literature, the coefficient value of public debt is much larger than that of Greene and Villanueva (1991), Chorafas (2014), and Alloza *et al.* (2020). A possible explanation is the marginal effects of additional capital for developing countries like Vietnam are higher than that of developed countries, which are the preferred objectives of previous

literature. Also, as suggested by Cohen (1995), additional public debt triggers private spending, thereby leading to an increase in aggregate demand and output for the economy.

The Openness of the economy is highly correlated to the GDP of a country. In Vietnam, the government has placed trading activities as the center of the development path. Indeed, studies of Thiago (2010) and Phan and Daly (2020) have shared a mutual consensus that trading activities and private consumption are the two largest contributors to the phenomenal growth of Vietnam. According to Chao *et al.* (2019), enlarging the openness endows a country with greater capability to find its strengths and comparative advantages to better cope with the global market. In this manner, the thesis found perfectly substantiates previous findings in the literature of international trade.

Regarding the impacts of monetary and inflation, the thesis found complex results. In the short term, an expansion in money supply results in an insignificant improvement in GDP. Hence, it lends strong support to the theory of money neutrality as putting forward by Le, Meenagh, and Minford (2021) in Vietnam's context. Nonetheless, in long-term equilibrium, enlarging the money base negatibely influences the economy, which is normally observed under the Keynesian economy. Given that the findings are based on a limited number of observations, the results from such analyses should consequently be treated with the utmost caution. The coefficient value of the inflation variable is positive in both the short and long run. Although this result differs to some extent from those of Bhattacharya (2014) and Nguyen, Sun, and Anwar (2017), it could nevertheless be argued that the effects of expected inflation are more vivid in Vietnam.

Finally, the center of this thesis rests on the error correction term, which was be found to have a much higher value than the previous study of Dao and Doan (2014). Also, the result is larger than the regional average, as suggested by Canh and Phong (2018). This difference is largely attributed to sampling difference as this thesis adopt annual data whereas previous studies used quarterly data. The seasonality in the quarterly dataset might interfere and impact the error correction terms. In terms of economic intuition, a possible reason is the rising integrated level of Vietnam's financial system towards global standards. As a result, capital flows are being accelerated, thereby increasing the adjustment speed of public debt towards the long-term equilibrium.

CHAPTER V. CONCLUSION AND POLICY RECOMMENDATIONS

5.2. Key Findings

The study is significant in two main ways. The most conspicuous result that emerges from the dataset and VECM is that public debt does have positive impacts on Vietnam's economy. Empirical evidence suggests that external debt has a long-term beneficial influence on economic growth. In terms of the external debt variable, a 1% rise in public debt raises GDP by 0.074 percent. At the same time, economic openness has a beneficial impact on economic growth, with GDP increasing by 0.13 percent for every one percent rise in openness. Empirical evidence demonstrates that raising the money supply M2 has a negative influence on economic growth, with a 1% increase in the money supply reducing GDP by 0.0137 percent. As a result, the study accomplished the objectives outlined in Chapter 3.

5.1. Recommendations for public debt management

In order to meet the main requirements, objectives and tasks of the 5-year public borrowing and repayment plan in the 2021-2025 period, in the coming time, it is necessary to continue to implement the following solutions:

Firstly, perfecting institutions and policies on public debt management and implementing proactive debt management tools. Continue to review laws and decrees, propose amendments and supplements to complete institutional regulations, functions and tasks of the Government, the Prime Minister, the Ministry of Finance, Ministry of Planning and Investment, the State Bank of Vietnam, local authorities ensure consistency with the provisions of the Law on Public Debt Management 2017. Improve efficiency and strengthen public debt management capacity, in which focus on forming public debt. a professional and modern national debt management agency in accordance with international practices as directed in Resolution No. 07-NQ/TW of the Politburo; improve the qualifications of public servants in debt management; consolidating and modernizing facilities for debt management. Unified implementation of local government debt management; strengthen the capacity of local government debt managers to meet the requirements of monitoring, assessment and risk management; build and connect local government debt information system.

Second, mobilize capital to meet the State budget's borrowing tasks at a reasonable cost - risk level. Thoroughly grasping the principle that borrowing to offset state budget deficit is only used for development investment, spending only within the economy's ability and only borrowing within its debt repayment capacity. The goals of growth, overspending, and public investment need to be synchronized and consistent with the debt safety goal. Organize capital mobilization for state budget and development investment with reasonable cost-risk. Towards the goal of diversifying domestic and foreign capital sources and methods of borrowing. For domestic deposits, diversifying issuance terms, including those under 5 years, to meet the needs of investors, contributing to the formation of a standard yield curve with a full range of maturities for debt instruments as well as other economic sectors. The mobilization of foreign loans is concentrated in a number of key areas to ensure maximum promotion of economies of scale; focus on projects that directly promote growth associated with sustainable development, projects that can generate foreign currency revenue. To gradually shift from lending for programs and projects to borrowing for budget support to increase the initiative and efficiency in using the Government's loans. Develop a variety of products and goods on the market; developing green bond products to mobilize domestic and foreign capital for environmental protection projects for sustainable economic

Third, strictly manage and control provisional debt obligations of the State budget. As for the provisional debt obligations from the Government guarantee, expeditiously handle the projects facing difficulties in repayment of the previous period related to legal problems, administrative procedures and the responsibilities of the beneficiaries are guaranteed. Supplementing sanctions to improve the debt payment responsibility of the guaranteed, avoiding the situation of converting debt obligations of enterprises into debt obligations of the State when the Government has to pay debts instead of acting as guarantors. Strengthen the management of fiscal risks arising from lending activities on on-lending, increase the responsibility of repaying loans associated with the initiative in borrowing decisions of the locality, and associate the responsibility of repaying loans with the owners of public non-business units.

5.2. Conclusion, limitation, and future studies

Empirical analysis shows that external debt has a positive impact on economic growth in the long run. For the external debt variable, a 1% increase in public debt

will increase GDP by 0.074%. At the same time, the openness of the economy also positively affects economic growth in the proportion that for every 1% increase in openness, GDP increases by 0.13%. Empirical analysis shows that an increase in money supply M2 has a negative impact on economic growth in the direction of money supply increasing by 1%, decreasing GDP by 0.0137%. Thus, the study has solved the objectives set out in chapter 3. The experimental results in section 4.3 also show the positive impact of the public debt on Vietnam's economic growth in the short term and long-term.

However, an analysis of Vietnam's borrowing and use of public loans in the 2000-2016 period shows that debt has increased sharply in the last five years, but the safety indicators according to international standards are still not strongly guaranteed. The problem of low capital efficiency is reflected by the high ICOR coefficient compared to other countries in the region. The management of central government debt still has many problems that need to be changed to improve its efficiency. In the context of global financial integration, public debt is a transmission channel for the country's economic development. Therefore, the study provides policy recommendations to improve the policy mechanism of borrowing and using public debt in the future of Vietnam. The current problem of Vietnam is how to properly allocate loans for the right purposes and effectively use loans to ensure the maintenance of debt repayment sources in the future, and to meet safety standards on foreign debt management. To do this, the Government needs to pay attention to cash flow management to ensure debt repayment capacity as well as national financial safety, avoiding too much dependence from the outside. Besides, developing the domestic financial market to mobilize capital for the economy is a long-term, safe alternative to foreign debt that Vietnam needs to aim for.

One of the limitations of the study is the up-to-date data on foreign debt on a quarterly basis. Currently, the WB and ADB have not updated this data quarterly since 2014. In addition, many macro data of Vietnam are mainly updated on a quarterly basis, not interested in analyzing quarterly data such as direct investment. Foreign direct investment, foreign exchange reserves, foreign debt... Therefore, these variables have not been considered in the model affecting economic growth as well as the threshold of foreign debt of Vietnam. The study sample was small (68 observations) and not long enough for long-term analysis. Besides, the study has not mentioned the opposite effect of economic growth on the threshold of external

debt. The next research direction of the topic is to add more independent variables to the study in the relationship with external debt affecting Vietnam's economic growth. Besides, it is possible to study the causal relationship between foreign debt and economic growth of Vietnam.

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