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IMPACT OF MACROECONOMIC INSTABILITY ON FOREIGN TRADE IN VIETNAM

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Abstract

This study attempts to answer the question: Does macroeconomic instability effect on foreign trade in Vietnam in the period 1991 – 2016?. In order to answer this question, the study has calculated the macroeconomic instability index (MII) based on studies by Ismihan et al (2003), which uses four macroeconomic indices: Comsumer price index (CPI), Exchange rate (EXR), Bubget deficit to Gross National Product (GNP), and External Debt to GNP in Vietnam in the period of 1991 – 2016. Data on foreign trade (TRADE) is calculated as Exports plus Imports value of Vietnam in the period of 1991 to 2016. In addition, the study adds Vietnam's foreign exchange reserves (REV) (1991 - 2016) which is the independent variable along with the MII variable in the impact assessment model between MII, REV to TRADE (as a dependent variable). The study had used the Augmented Dickey Fuller (ADF) test and Phillip Parron (PP) test to check the stationarity of individual data series and used Johansen cointegration test to estimate the cointegration data series. According to the results, the study have used the Vector Autoregression (VAR), Impulse Response Functions, Variance Decomposition with Cholesky Ordering to assess the impact of MII, REV on TRADE in Vietnam. Data is collected from reliable sources such as International Monetery Fund (IMF), World Bank (WB) and Asia Development Bank (ADB). The results show that there is a strong and negative impact of MII, REV on TRADE of Vietnam in period of 1991 to 2016. From that result, the study has proposed some recommendations to limit macroeconomic instability to improve Vietnam's exports and imports in future.

Keywords: *Imports, Exports, Foreign Trade, Vietnam, macroeconomic instability.*

INTRODUCTION

After 30 years of conducting "Doi Moi" (1986-2016), opening the economy and international integration, the Vietnamese economy has developed rapidly. According to WB data, in 1986 gross domestic product (GDP), exports and imports of Vietnam were $ 9.61 billion, $ 0.789 billion, $ 2.155 billion. However, by 2016, these indexes have risen to $ 202.62 billion, up 21 times, $ 175.942 billion, up 223 times and $ 173.26 billion respectively. Vietnam has trade relations with 187 countries around

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the world, and attracts foreign investors from 125 countries to invest in Vietnam. In general, the Vietnamese economy is developing positively, but in the period 1991 - 2016, the Vietnamese economy also witnessed periods of macroeconomic instability. Previous studies have shown that there are many causes of Vietnam's economic instability, both external and internal reasons (global economic instability, large capital inflows and sudden capital outflows, poor fiscal policy, etc). In theory, studies have shown that macroeconomic instability has a negative impact on foreign trade. However, in Vietnam there are few studies that use this theory to assess the impact of Vietnam's macroeconomic instability on its import-export activities, especially quantitative research.

These studies have practical value for Vietnam in macroeconomic management in the context of Vietnam's international economic integration. At the same time, commercial activity is occupying the most important position in Vietnam's economic growth, so the research to promote Vietnam's foreign trade in the future is always given priority by Vietnam. Therefore, studying the impact of macroeconomic instability in Vietnam on Vietnam's foreign trade is very necessary.

OBJECTIVE AND METHODOLOGY

The aim of this paper is to determine the impact of Vietnam's macroeconomic instability on Viet Nam's foreign trade (exports, imports) in the period of 1991 to 2016. To reach the aim of the study, the following tasks are set: to examine the theoretical macroeconomic instability and foreign trade on many aspects; calculating the macroeconomic instability of Vietnam in the period of 1991 - 2016; use the econometric method to assess the impact of macroeconomic instability on foreign trade in period of 1991 - 2016. In addition, the study also evaluates the impact of foreign exchange reserves on Vietnam's imports and exports in the period 1991 - 2016. From the results obtained, this study provides solutions to minimize the negative effects of macroeconomic instability and foreign exchange reserves on Vietnam's export - import growth in the coming time.

In order to implement these objectives, the study has calculated the macroeconomic instability index (MII) based on studies by Ismihan et al (2003), which uses four macroeconomic indices: Comsumer price index (CPI), Exchange rate (EXR), Bubget deficit to Gross National Product (GNP), and External Debt to GNP in Vietnam in the period of 1991 – 2016. Then use the Eview 6.0 software for time series of the macroeconomic instability (MII), foreign exchange reserves (REV) and foreign trade (TRADE) variables. The quantitative analysis process is conducted such as checking the stationarity of individual data series and estimating the cointegration data series. After that, the study have used the Vector Autoregression (VAR), Impulse Response Functions, Variance Decomposition with Cholesky Ordering to assess the impact of MII, REV on TRADE in Vietnam.

This study is organized as follows. In litterature review, we review theoretical arguments and empirical evidence with respect to the relationship between

macroeconomic instability, foreign exchange reserves on exports and import. In the next section, the study will set the context for Vietnam's economy from 1991 to 2016 through macroeconomic indicators such as GDP, export-import, foreign exchange reserves, inflation, exchange rates foreign exchange, budget deficit and foreign debt.The study also included a separate section to show the calculation and results of the macroeconomic instability index in Vietnam from 1991 to 2016. In the next section, the study provides description of model, variables, their measures and data descriptive. At the same time, this section also presents emprical results and analysis. Finally, concluding remarks with discussion on measures to limit negative impact of macroeconomic instability to foreign trade of Vietnam, as well as measures to promote export and import of Vietnam in the coming time.

LITERATURE REVIEW

Macroeconomic Instability: The phrase "macroeconomic instability", so far have not reasonably explained. Fissher (1993), Bleaney (1996) and Ismihan, Metin-Ozcan & Aysit (2002) in their study have seen an increase in one of the indicators: inflation, GNP and the ratio of external debt/GNP in the economy is an increase of macroeconomic instability. Meanwhile, Sameti *et al.* (2012) chose to observe a set of variables such as economic growth, inflation, current account deficit, foreign exchange reserves and budget deficits in the economy to identify the macroeconomic instability of that economy. Thus, macroeconomic instability can be interpreted as a negative change in the macroeconomic situation of an economy, or a "negative" state of the economy.

Macroeconomic instability is measured in two forms through individual macroeconomic indicators and through a set of macroeconomic variables (Ha Thi Thieu Dao, 2013). (1) Through individual macroeconomic indicators such as inflation, budget deficits, exchange rates, international reserves. Fischer (1991), Ramey and Ramey (1994), Drugeon and Wignolle (1996), Azam (1997, 1999), Yiheyis (2000), Caballero (2007), Iqbal and Nawaz (2010) and Shahbaz (2013) used inflation as a proxy for macroeconomic instability. Azam (2001) argues that inflation affects relative prices in the economy, leading to unclear market signals, which are the result of macroeconomic instability. Frimpong and Marbuah (2010), Somoye and Ilo (2009), Beaudry et al. (2001) show that high inflation has a major impact on the accumulation of capital in the economy. Accordingly, capital accumulation will be shifted to another portfolio as the real rate of return of the currency falls. Olaniyan (2000) also points to inflation and the volatility of inflation is an important signal for macroeconomic instability in Nigeria and has a negative impact on investment in the country. Fischer (1993) argues that budget deficits are a sign that the government is unlikely to use the tools to interfere in the economy, so the government is losing control of the economy. Azid *et al.* (2005), Campa and Goldberg (1995) argue that exchange rate fluctuations make investment decisions uncertain, so investors tend to wait for enough information to determine investment. Obstfeld and Rogoff (1998) asserted that exchange rate fluctuations triggered the cost and

volume of foreign trade, thus affecting economic growth. Therefore, exchange rate volatility is also considered to represent the macroeconomic instability of the economy. As a macroeconomic regulatory instrument, foreign exchange reserves are also considered as an indicator of the macroeconomic situation (IMF, 1993). (2) In addition to the use of individual indicators to illustrate the macroeconomic instability of the economy, many scientists use a set of individual economic indicators. Ali (2015) uses inflation, unemployment, budget deficits and trade deficits to measure macroeconomic instability in Pakistan. Ismihan (2003) constructed the macroeconomic instability index, using four indices (inflation rate, foreign debt for GNP, budget deficit for GNP, exchange rate) (to be presented below). Jaramillo and Sancak (2007) also set up macroeconomic instability index (mi) with aggregate variables such as volatility of inflation, exchange rate, foreign exchange reserve vs. base money and budget deficit to GDP.

As regards the factors affecting on macroeconomic instability, Raddatz (2007), Svensson and Razin (1983), Cardarelli et al. (2009) argue that not only internal causes such as fiscal policy and monetary policy but also external causes such as the shock of foreign trade (import and export) and capital inflows created macroeconomic instability. In addition, according to Clipa and Caraganciu (2009), the global economic crisis will spread through financial, foreign and investment channels to the macroeconomic situation of the economy. out of unrest. In Vietnam, Ha Thi Thieu Dao (2013) and Le Thi Thuy Van (2016) summarized the studies show that both internal factors (monetary policy, fiscal policy and the combination of monetary policies) and external factors (openness, integration of the economy with the world, capital inflows and foreign exchange) affect the macroeconomic situation.

Foreign Trade. There are many studies on foreign trade (It is also called as International trade, External trade or Inter-Regional trade) and concepts of Foreign Trade. This study uses the concept of some research It has recently been suggested that there is a full understanding of Foreign Trade, in which: *(1)* Foreign trade is the exchange of capital, goods and services (Smiriti Chand, 2011). *(2)* Foreign trade consists of imports, exports and entrepot. The inflow of goods in a country is referred to as import trade. The outflow of goods from a country is called export trade. Entrepot trade is also known as Re-export. It refers to the purchase of goods from one country and then selling them to another country after some processing operations (Gaurav Akrani, 2011). In line with the definition of foreign trade, researchers also came to the conclusion of the factors affecting foreign trade. Smriti Chand (2013) considered that there are seven factors influencing foreign trade: inflation, national income, government policies, subsidies for exporters, and restrictions on imports, lack of restrictions on piracy and impact of exchange rates. Thomas James (2017) also points to the factors that affect foreign trade: exchange rate, competitiveness, tariffs and trade barriers, and globalization. Simon Kang (2015) argues that factors affecting foreign trade are: geographical position, natural resources, economic development level and political factors. In 2013, a series of

studies by economists, based on the theory of David Ricardo and the Heckscher-Ohlin model, the World Trade Organization (WTO) published the study "Fundamental economic factors affecting international trade", in which the factors that influence foreign trade include: Demographic change, Investment, Technologis, Energy and other natural resources, Transportation cost, Institutions.

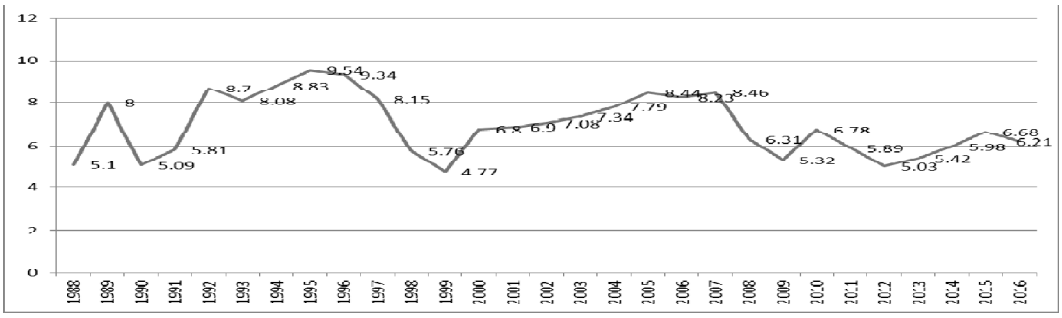
Macroeconomic Instability, Foreign Exchange Reserves and Foreign Trade. Macroeconomic instability is considered to have a negative impact on foreign trade. Fluctuations in exchange rates and high inflation are key factors in the macroeconomic instability of the economy. Therefore, the impact of these factors on imports and exports may reflect the impact of macroeconomic instability on foreign trade. In particular, Edwards (2006) argues that exchange rate fluctuations affect inflation, exports and the economy. Hyder & Shah (2004) demonstrated the effect of exchange rate fluctuations on the aggregate demand of the economy. WenShwo Fang, YiHao Lai and Stephen M. Miller (2005), show that exchange rate changes affect exports of Asean nations (Indonesia, Japan, Singapore, Taiwan, Korea, Thailand, Malaysia) to the United States. Sajjadur Rahman, Apostolos Serletis (2009), points out that changes in exchange rates have a negative and significant impact on US export performance. Dang Thi Huyen Anh (2012), using the least squares method (OLS) in econometric terms to describe the relationship between the real exchange rate and Vietnam's trade balance from 2002 to 2012. The study shows that in many phases, the fluctuation of the real exchange rate has brought advantages for Vietnam's export and import goods in terms of price, contributing to stimulating economic growth. Nguyen Thi Hien (2011) uses the two-way quantum model of the Engle-Granger Causality Test and the error correction model to test the relationship between the exchange rate and the international balance of payments in Vietnam in the period 1999-2009. The study indicates that the overall balance of payments deficit pressure was triggered by a trade deficit in the current account. At the same time, the study also found a two-way interaction between the real exchange rate and the trade balance and certain latency effects. Lipsey et al. (1982) found that high inflation could lead to a reduction in demand for imported goods. Gylfason (1997) concludes that high inflation tends to reduce exports, especially in favor of a country. Rahman M. (2010) points out that higher inflation drives higher prices for raw materials, which affects both the cost of importing raw materials for production and the cost of selling those products abroad. The high cost of production due to inflation will affect the import and export activities of an economy. Ulke et al. (2011) also shown a positive correlation between inflation and imports in this country in Turkey's economic from 1995 to 2010.

Foreign exchange reserves may be understand: Foreign exchange reserves are the foreign currency held by a central bank. They are also called foreign currency reserves or foreign reserves (Kimberly Amadeo, 2017). Foreign exchange reserves also have an impact on the export and import activities of the economy. Moran (1989), Faini *et al.* (1992) pointed out that foreign exchange reserves are a complement to the assessment model that impacts on the demand for commodity

imports of an economy. Dutta and Ahmed (1999), confirms the existence of a long-term equilibrium relationship between imports, real import prices, real GDP and foreign reserves in Bangladesh. Arize *et al.* (2004), also found that Pakistani imports and foreign exchange reserves have a long-term relationship. These studies are the basis for adding foreign exchange reserves as an additional variable to the model for impact of macroeconomic instability on Vietnam's exports and imports.

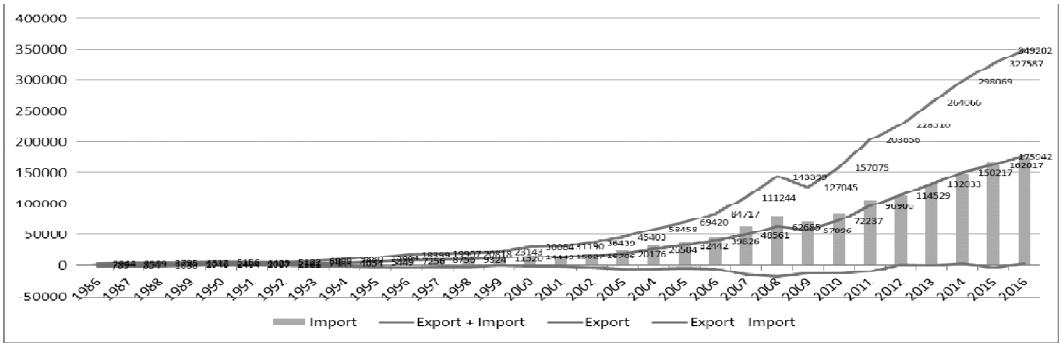
CONTEXT OF VIETNAM'S ECONOMIC IN PERIOD OF 1991 - 2016

In 1986, Vietnam has shifted its economy from a centrally planned economy to a market economy. However, from 1991 up to now, Vietnam's economy has started to change dramatically. Graph 1 shows that the period of 1991-1995 Vietnam's GDP increased by 8.2% per year. In the period 1996-2000, despite the impact of the regional financial crisis, Vietnam maintained a GDP growth rate of 7%/year. In the period from 2001 to 2010 GDP increased by 7.26% on average. In the period of 2011-2016, the average GDP is about 6% / year. For the whole period of 1991 - 2016, GDP increased by 7% on average, of which 20 years continuous GDP increased by 7.43%. This performance is lower than South Korea, Singapore, but higher than most other ASEAN countries.



Graph 1. Vietnam's GDP (%) in the period of 1986 - 2016

(*Source:* Asia Development Bank)



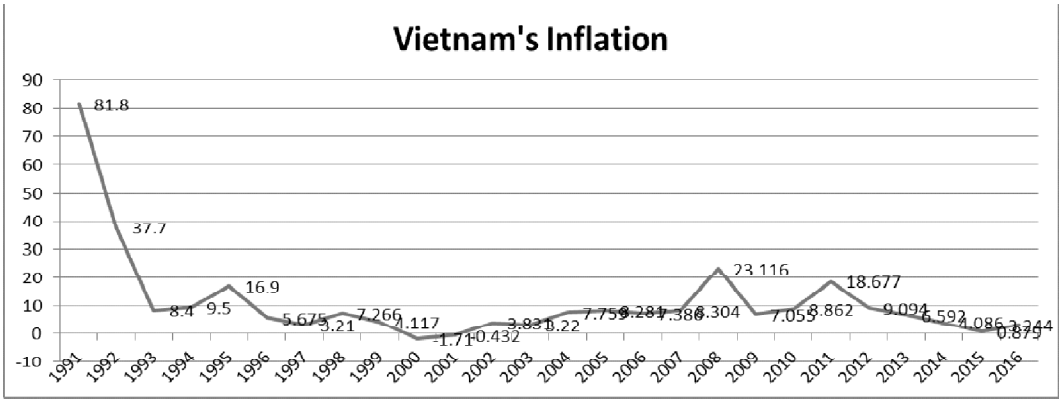
Graph 2. Vietnam's import-export value and Balance of trade (*Million USD)*

(*Source:* World Bank)

Graph 2 shows that the value of Vietnam's exports and imports in the period 1988 - 2016 has been steadily increasing, declining only in the period 2008-2011. This is also the period of financial crisis and world economic downturn took place, causing the export market of Vietnam to decline. However, from 2012 onwards, Vietnam's exports and imports continue to increase, even in 2012, 2014 and 2016, Vietnam has a trade surplus.

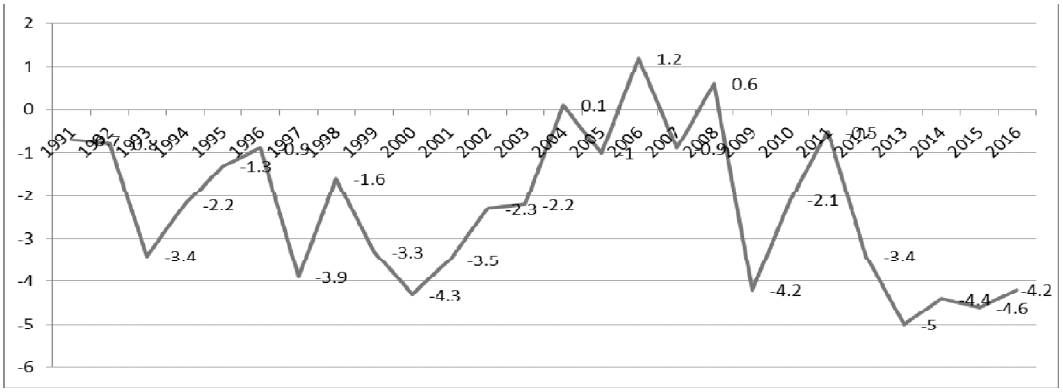
The macroeconomic situation of Vietnam, through a number of individual macroeconomic indicators, also reflects the Vietnam's macroeconomic picture.

Graph 3 shows that after the hyperinflationary period from the 1980s, since 1993 the inflation rate in Vietnam has been more stable. However, in the period 1995-1997 and 2007- 2011, the inflation rate increased very strongly, adversely affecting the macroeconomic stability in Vietnam.



Graph 3: Vietnam's inflation in the period of 1991 – 2017

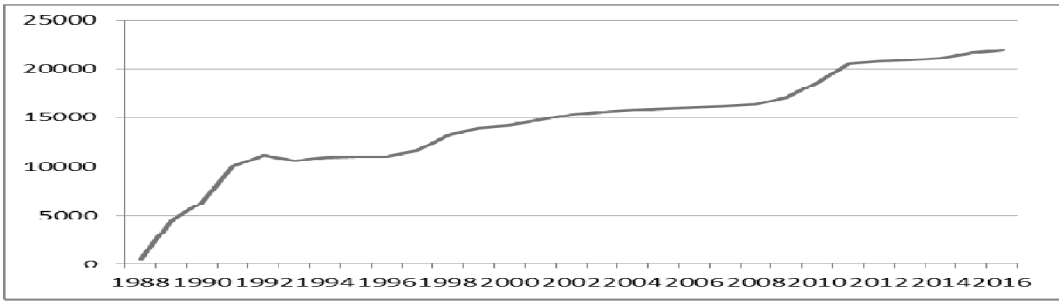
(*Source:* International Monetery Fund)



Graph 4. Budget deficit to GDP in Vietnam (%)

(*Source:* International Monetery Fund)

Graph 4 shows that Vietnam continues to run a budget deficit, especially in the period 2009 - 2016, putting great pressure on the macroeconomic situation of Vietnam.

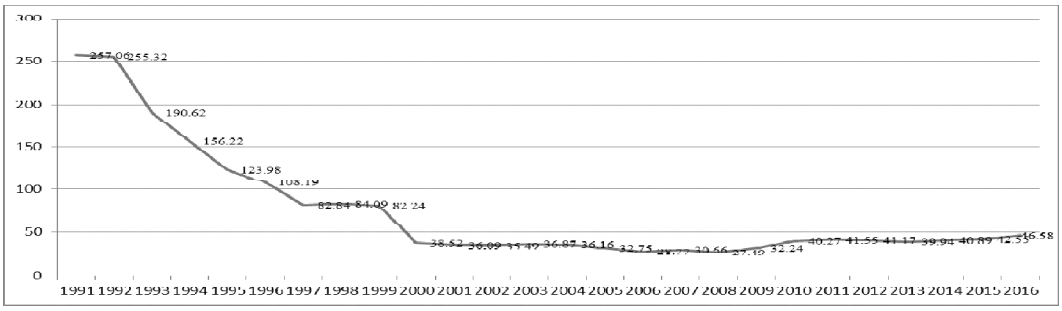


Graph 5: Exchange rate (VND/USD) from 1988 to 2016

(*Source:* Asia Development Bank)

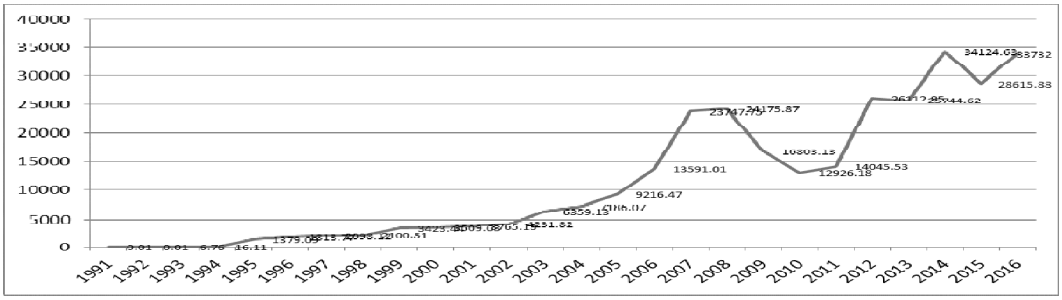
From Graph 5, the real exchange rate of Vietnam has increased sharply over time, especially in the period 1990 - 1994 and 1996 - 1999, corresponding to periods of fluctuations in the world economic situation.

Graph 6. shows that Vietnam have controlling of external debt better, so in the period from 1991 to 1999, the external debt factor was a major impact on Vietnam's



Graph 6. Vietnam's External Debt to GNP (%) in the period of 1991 - 2017

(*Source:* Asia Development Bank)



Graph 7: Vietnam foreign exchange reserves (million USD)

(*Source:* International Monetary Fund)

macroeconomy, but from 2000 to now, this factor has less impact on macroeconomic instability in Vietnam.

The above table shows that Vietnam's foreign exchange reserves have increased significantly between 1991 and 2008, but in the period of 2008 - 2011, Vietnam's foreign exchange reserves plummeted. This is also a period of financial crisis and economic decline of global economic.

MACROECONOMIC INSTABILITY INDEX (MII)

The calculation of the macroeconomic instability index (MII) is based on the Human Develop Index (HDI) method which were developed by the UNDP (1992). The MII method is implemented in 2 steps:

Step 1. Calculate the macroeconomic indices by the following formula:

$$I_t = \frac{(x_t - x_{\min})}{(x_{\max} - x_{\min})}$$

I_t: the index value of the component of the macro variable X in year t; X_t is the value of the macro variable X in year t, Xmin (Xmax) is the smallest (largest) value of the variable X in the period. The index value of the macro variable X will be in the range of 0 to 1 ($0 \leq It \leq 1$).

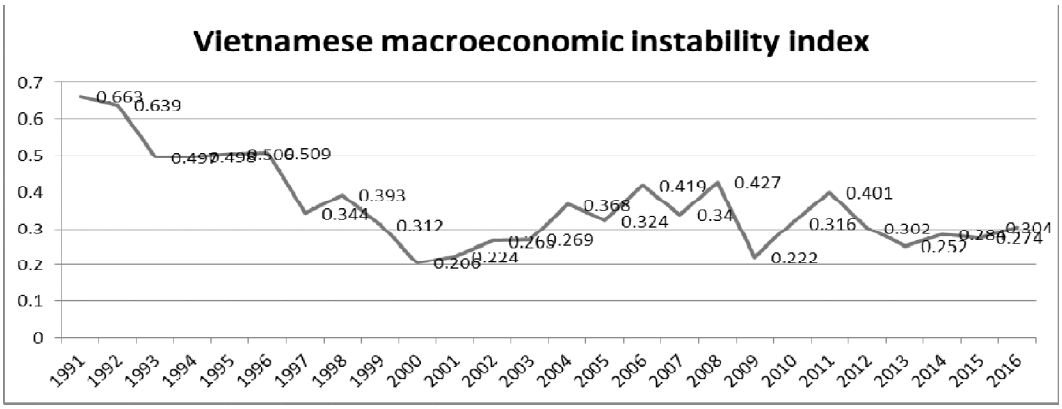
Step 2. Calculate the MII by the simple average of the component indexes.

$$MII = (I_{t1} + I_{t2} + I_{t3} + I_{t4})/4$$

The above formula shows that because of $0 \leq I_t \leq 1$, therefore 0d"MII d"1, this is explained: the lower the value of MII as close to zero, the lower the level of macroeconomic instability, and the closer to 1, the macroeconomic instability is higher. The components of MII are the I_t, so the MII fluctuates or decreases according to the macroeconomic index that constitutes I_t. This shows that through MII it is possible to know which macroeconomic indicators impact macroeconomic instability during the study period, to analyze the macroeconomic instability of a macroeconomic through the stages.

Some researchers have applied this method of calculation MII according to the macroeconomic characteristics of each country. Ismihan et al. (2003) used four single macroeconomic variables: inflation rate, budget deficit/GNP; External debt/GNP and the exchange rate to calculate the MII for Turkey. Sanchez-Robles (2006) used inflation, budget deficits and other public expenditures as part of GDP and market distortion in the period 1962-1995 to calculate the economic instability index macro for Spain. In Vietnam, Ha Thi Thieu Dao (2013) uses four variables that Ismihan *et al.* (2003) perform to calculate the macroeconomic instability index of Vietnam from 1995 to 2011. The results of Ha Thi Thieu Dao's (2013) study are in line with other studies on the macroeconomic situation in Vietnam, reflecting the stages and factors that contributed to the macroeconomic instability in Vietnam at this stage. Therefore, this study will use the methodology and indicators that Ha Thi Thieu

Dao implemented in 2013, including: Inflation, budget deficit/GNP; foreign debt / GNP and exchange rates, but for the period from 1991 to 2016. Data are taken from IMF, ADB and WB.



Graph 8: Vietnamese macroeconomic instability index 1991 – 2016

(*Source:* Author's calculations from IMF, WB and ADB data)

Graph 8 shows that during the period 1991-1994 the macroeconomic instability was very high, which was caused by high inflation rate, foreign debt and exchange rate fluctuation in Vietnam (this is the period the first phase of Vietnam's integration into the international economy). The period from 1995 to 1998 and from 2005 to 2011 show that the volatility of macroeconomic instability is very high because of monetary policy and fiscal policy of the Vietnamese Government. Based on the volatility of individual macroeconomic indicators, it is evident that as inflation rises, the government has introduced measures to curb inflation in the following year. However, when set high growth targets, inflation again. Along with the assessment of other macroeconomic indicators, may indicate the process of managing fiscal and monetary policy of Vietnam in the period of 2005 - 2011 is not consistent. In the period 2012 - 2016, the level of macroeconomic instability is reduced, this is considered to be the period of macroeconomic stability. However, the budget deficit is still rising, challenging the macroeconomic instability of Vietnam in the next phase.

EMPIRICAL RESULTS AND DISCUSSION

Description of variables, model and their measures

Based on the Litterature review, this study proposes the following variables:

LnTRADE	Natural Log of Foreign Trade
LnREV	Natural Log of Foreign exchange reserves
LnMII	Natural Log of Macroeconomic Instability Index

Data was taken from various source from the period of 1991 to 2016 in Vietnam, in which: TRADE data from WB (Export + Import); REV data from IMF; MII data caculated by Author from WB, IMF, ADB data.

For finding the impact of macroeconomic instability index on foreign trade, the study uses the flowing function:

$$TRADE_t = \alpha_0 MII_t^{\alpha 1} REV_t^{\alpha 2} e^{t\alpha 3}$$

e = represent for the base of log

Following the log linear form of the function the model becomes as:

$$LnTRADE_t = \alpha_0 + \alpha_1 LnMII_t + \alpha_2 LnREV_t + e_t$$

Using Eviews 6.0 to quantitative analysis with some steps:

Step 1: The stationarity test for data series by Unit Root test with Augmented Dickey Fuller test (ADF) and Phillips – Perron test (PP). For each of ADF and PP tests, the null hypothesis was that the variable under study has a unit root, whereas the alternative hypothesis was that it does not have it. That is,

H_0: $Yt \sim I(1)$ (Y_t is the first or not integrated data series)

H_1: $Yt \sim I(0)$ (Y_t is the stationarity data at level)

The model for ADF is specified below:

$$\Delta Y_t = \alpha + \beta T + \delta Y_{t-1} + \Sigma d_t \Delta Y_{t-1} + \varepsilon_t$$

In which, Y_t is variable considered, T is the time based value and ε_t is an error term. The coefficients, α, β, δ, represent unknowns of the model to be estimated from the available data. The results:

+ If the all variables is stationary at the level, perform OLS regression
+ If the all variables is stationary together after taking the first difference, go to step 2
+ If at least 1 variable is stationary at the level and other variables is stationary together after taking the first difference, go to step 2.

Step 2: Test the cointegration data series according to Johansen cointegration test (1991). This approach is explained on the basis of two test statistics: the Trace Statistics and the Maximum Eigen Value Test Statistic.

Step 3: Test long-term and short-term relationships between separate data series in two cases:

Case 1 (no cointegration): Use the VAR (Vector Autoregression) model to estimate the short- and long-term relationships of data series.

The VAR model considers all variables to be endogenous to build relationships between them. Thus, the VAR model allows for measurement of the response and oscillation of macroeconomic variables prior to each external shock.

The VAR (p) model looks like this: $Y_t = \varphi_1 Y_{t-1} + \varphi_2 Y_{t-2} + ... + \varphi_p Y_{t-p} + BX_t + \varepsilon_t$

In which, Y_t is the m-dimensional matrix, has the same co- integration, X_t is the quaternary matrix of the exogenous variables, p is the latency of Y_t, φ_i is the square matrix m, B is the matrix At the mxp level parameter, ε_t is the mean noise vector equal to the variance Σ.

Case 2 (with cointegration): Use the VECM (Vector Error Correction Model) model to estimate the relationship between short and long term sequences of data series.

The VECM model is an equation system consisting of ECM equations, where the variables are both independent variables and also dependent variables. It can be expressed as:

$$\Delta Y_t = \beta_0 + \beta_1 \Delta X_t + \gamma (X_{t-1} - Y_{t-1}) + \mu_t \text{ Where } \Delta X_t = X_t - X_{t-1}$$

This is characteristic error correction specification where change in one variable is related to change in another variable as well as gap between variables in previous period.

Step 4: Using Variance Decomposition functions and Response function by cholesky ordering in order to assess the impact of FDI on macroeconomic indicators.

Step 5: Verify residuals from the VECM and VAR models

Using VAR Residual Portmanteau Tests for Autocorrelations, VEC Residual Heteroskedasticity Tests: No Cross Terms (only levels and squares), and Inverse Roots of AR Characteristic Polynomials to test VAR and VECM model about stability, residual autocorrelations and realiable.

After the natural logarithm of the variables, these numbers are expressed as follows:

Table 1
Decriptive Statistic

	LNMII	*LNTRADE*	*LNREV*
Mean	-1.050436	10.82608	7.501802
Median	-1.103204	10.84970	8.818773
Maximum	-0.410114	12.76341	10.43777
Minimum	-1.580484	8.395026	-4.605170
Std. Dev.	0.317398	1.322175	4.120325
Skewness	0.321985	-0.223428	-2.122657
Kurtosis	2.303492	1.921715	6.484563
Jarque-Bera	0.974806	1.475910	32.67861
Probability	0.614219	0.478091	0.000000
Sum	-27.31133	281.4781	195.0468
Sum Sq. Dev.	2.518529	43.70365	424.4270
Observations	26	26	26

The table 1 shows that the variables chosen are normally distributed. The mean – to – median ratio of each variables is approximetely one except. The standard deviation is also low compared to the mean, showing a small coefficient of variation. The range of variation between maximum and minimum is also reasonable. The numeric of skewness of each variable is low and is mildly negatively skewed. The figure for kurtosis in each variable, is below 3 which confirms near normality. The Jarque-Bera test statistics also accept the null hypothesis of normal distribution of each variable with varying probabilities. Thus, the normality of the distribution is ensured.

Stationarity Test

The summary of results is shown in the following table:

Table 2
Augmented Dickey-Fuller (ADF) and Phillips Perron (PP) Test Results
Unit Root Tests at Logaritmic levels

Variable	*Level*	*ADF*		*PP*	
		T stat	*Prob*	*T Stat*	*Prob*
LnTRADE	Level	-1.852226	0.3478	-2.198254	0.2117
	First Difference	-5.897975	0.0001*	-5.897975	0.0001*
LnREV	Level	-4.153416	0.0037*	-5.203495	0.0003*
LnMII	Level	-2.710968	0.0862***	-2.648034	0.0972***

*Significant at 1% level of significance; ** Significant at 5% level of significance; *** Significant at 10% level of significance.

The summary results of two tests (ADF and PP) show that time series data on LnTRADE variable is non – stationary at levels, but the series have been found stationary at first difference i.e intergreted of order one *I(1),* LnREV and LnMII variables is stationary at level.

Table 3
Lag Length selection criteria

VAR Lag Order Selection Criteria

Endogenous variables: LNTRADE LNMII LNREV

Lag	*LogL*	*LR*	*FPE*	*AIC*	*SC*	*HQ*
0	-72.26427	NA	0.106303	6.272022	6.419279	6.311089
1	-4.195841	113.4474	0.000781	1.349653	1.938680*	1.505922
2	9.968364	20.06596*	0.000530*	0.919303*	1.950100	1.192774*

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

From the table 3, according to the LR standard, the latency optimal that AIC suggests is 2 and SIC suggest is 1. In order to ensure the authenticity of the study, we used the latency is 2 as AIC suggested.

Johansen Cointegration Test

Before identifying number of co-integration vectors, the study first used VAR test in order to decide the most favorable lag length. The Akaike information measure, Schwarz Information criterion, Hanna- Quinin Information criterion indicated that 2 years lag is the most favorable lag length for Johansen co-integration test.

Table 4
Unrestricted Cointegration Rank Test (Trace)

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	*Eigenvalue*	*Trace Statistic*	*0.05 Critical Value*	*Prob.***
None *	0.582855	29.27686	29.79707	0.0573
At most 1	0.260292	9.167494	15.49471	0.3501
At most 2	0.092523	2.232994	3.841466	0.1351

Trace test indicates no cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

** MacKinnon-Haug-Michelis (1999) p-values

Table 5
Unrestricted Cointegration Rank Test
(Maximum Eigenvalue)

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	*Eigenvalue*	*Max-Eigen Statistic*	*0.05 Critical Value*	*Prob.***
None *	0.582855	20.10937	21.13162	0.0690
At most 1	0.260292	6.934500	14.26460	0.4969
At most 2	0.092523	2.232994	3.841466	0.1351

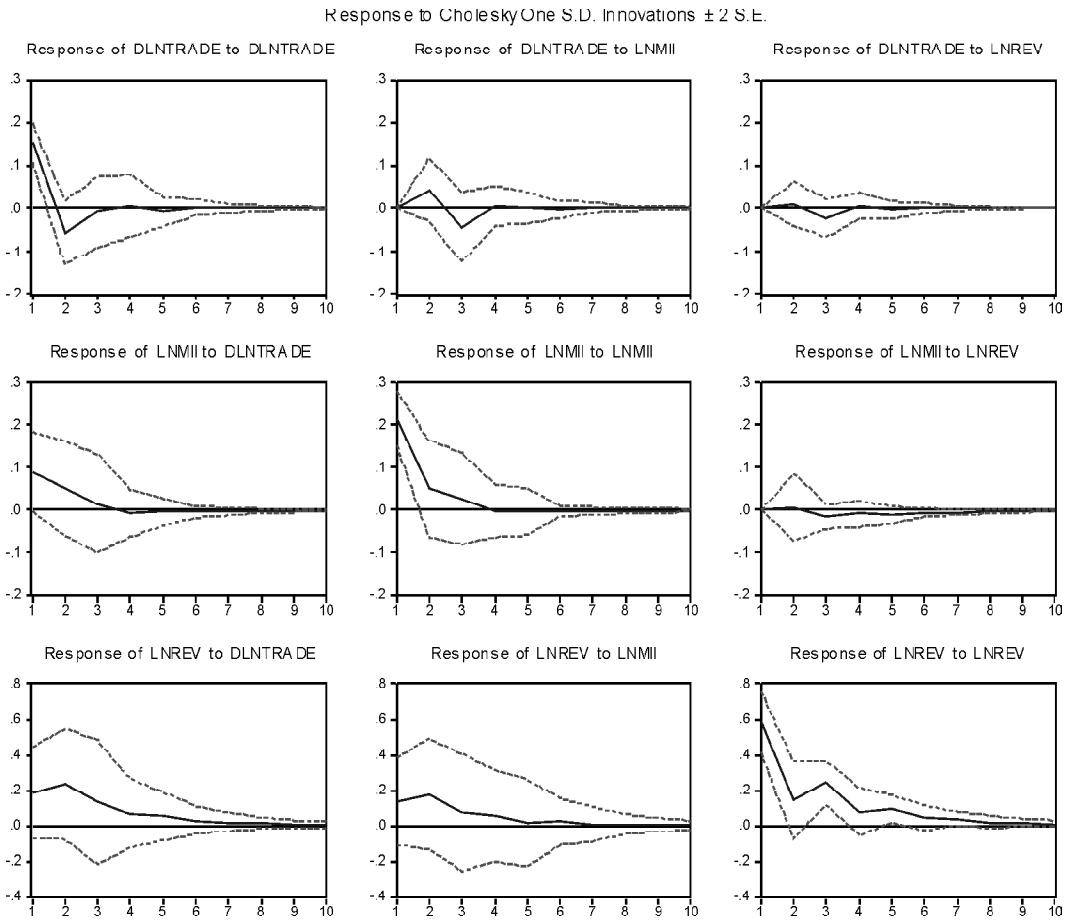
Max-eigenvalue test indicates no cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

** MacKinnon-Haug-Michelis (1999) p-values

The above results show that *Trace* statistics and *Maximum Eigenvalue* statistics have no cointegration at the 0.05 level between LnTRADE, LnMII and LnREV. This results show that VAR model would be better model for estimating impact of LnMII, LnREV on LnTRADE.

The impact of MII, REV on TRADE in Vietnam



Graph 9: Response to Cholesky One S.D.Innovation (MII, REV and TRADE)

From the graph 9, there is a reaction of LnTRADE from the fluctuation of LnMII and LnREV, the first phase of the reaction rate is not available, but the stages after the level of reaction is clear.

The results of the variance distribution show that: The impact of macroeconomic instability on Vietnam's exports and imports during the period 1991 - 2016 is relatively large and clear. Despite having an impact of foreign exchange reserves on Vietnam's exports and imports, the impact level is less than macroeconomic instability. In the early stages, the impact of MII and REV on TRADE has not yet occurred, but at later stages the level of impact is clear and increasing.

Table 6
Variance Decomposition (LnMII, DLnTRADE and LnREV)

	Variance Decomposition of DLNTRADE				*Variance Decomposition of LNMII*			
Period	*S.E.*	*DLNTRADE*	*DLNMII*	*LNREV*	*S.E.*	*DLNTRADE*	*LNMII*	*LNREV*
1	0.153194	100.0000	0.000000	0.000000	0.233378	14.98013	85.01987	0.000000
2	0.169296	93.26137	6.336352	0.402277	0.244173	18.06370	81.85154	0.084758
3	0.176432	86.09488	11.83321	2.071909	0.246672	18.10142	81.43826	0.460328
4	0.176693	85.95061	11.91363	2.135759	0.246928	18.15068	81.27092	0.578404
5	0.176951	85.92370	11.87932	2.196978	0.247258	18.13354	81.07502	0.791435
6	0.177002	85.88168	11.92015	2.198173	0.247356	18.14859	81.01771	0.833703
7	0.177014	85.87126	11.92928	2.199459	0.247434	18.15308	80.97100	0.875921
8	0.177019	85.86848	11.93103	2.200489	0.247458	18.15459	80.95799	0.887423
9	0.177019	85.86791	11.93097	2.201124	0.247471	18.15547	80.94932	0.895209
10	0.177020	85.86786	11.93092	2.201220	0.247477	18.15587	80.94608	0.898050

	Variance Decomposition of LNREV			
Period	*S.E.*	*DLNTRADE*	*LNMII*	*LNREV*
1	0.627184	8.738414	4.870920	86.39067
2	0.708745	17.87872	10.25469	71.86659
3	0.764887	18.45086	9.783776	71.76537
4	0.774668	18.83515	10.11290	71.05195
5	0.782384	18.91898	9.953387	71.12763
6	0.784644	18.97671	9.989631	71.03366
7	0.786049	18.98751	9.964239	71.04826
8	0.786583	19.00198	9.965628	71.03239
9	0.786881	19.00484	9.961876	71.03329
10	0.787001	19.00768	9.961537	71.03078

Table 7
Diagnostic Test Results

Roots of Characteristic Polynomial

Endogenous variables: DLNTRADE LNMII LNREV

Exogenous variables: C

Lag specification: 1 2

Root	*Modulus*
0.685752	0.685752
-0.535160	0.535160
-0.338237 - 0.329681i	0.472328
-0.338237 + 0.329681i	0.472328
0.247431 - 0.174177i	0.302589
0.247431 + 0.174177i	0.302589

No root lies outside the unit circle.
VAR satisfies the stability condition.

VAR Residual Portmanteau Tests for Autocorrelations
Null Hypothesis: no residual autocorrelations up to lag h
Included observations: 23

Lags	*Q-Stat*	*Prob.*	*Adj Q-Stat*	*Prob.*	*df*
1	5.547593	NA*	5.799756	NA*	NA*
2	8.420100	NA*	8.945835	NA*	NA*
3	18.85830	0.0264	20.94977	0.0129	9
4	21.35777	0.2617	23.97544	0.1558	18
5	30.54165	0.2904	35.71040	0.1218	27
6	36.93197	0.4257	44.35612	0.1599	36
7	39.32895	0.7101	47.80178	0.3596	45
8	41.50735	0.8933	51.14200	0.5853	54
9	45.68616	0.9506	58.00719	0.6544	63
10	47.97358	0.9869	62.05416	0.7922	72
11	50.76663	0.9966	67.40751	0.8602	81
12	55.40883	0.9985	77.11391	0.8315	90

* The test is valid only for lags larger than the VAR lag order.

df is degrees of freedom for (approximate) chi-square distribution

VAR Residual Heteroskedasticity Tests: No Cross Terms (only levels and squares)

Joint test:

Chi-sq	*Df*	*Prob.*
69.83968	72	0.5502

Inverse Roots of AR Characteristic Polynomials show no root lies outside the unit circle with a value <± 1, VAR satisfies the stability condition. VAR Residual Portmanteau Tests for Autocorrelations: Null Hypothesis: no residual autocorrelations up to lag h. VEC Residual Heteroskedasticity Tests: No Cross Terms (only levels and squares) also shows that these models are reliable. Conclusion: These models above are suitable.

CONCLUSION

The results of the reaction function show that Vietnam's exports and imports have responded strongly to the volatility of macroeconomic instability and fluctuations in foreign exchange reserves. Latency of this impact within 1 to 2 years. Therefore, the increase of macroeconomic instability will reduce the growth of import - export of Vietnam. In fact, the period of Vietnam's high macroeconomic instability and

macroeconomic instability have been continuously fluctuating (in the period of 2005 - 2011), the trade deficit of Vietnam also increased. Notably, this period of foreign exchange reserves of Vietnam is also fluctuating and low. In periods of low macroeconomic instability and less volatile, Vietnam's trade deficit is less. Even a period of stability in the economy has shown a trade surplus.

Variance decomposition results also show that the volatility of growth in export - import caused by the macroeconomic instability and foreign exchange reserves. In particular, the level of explaining the volatility of imports - imports from the cause of macroeconomic instability is greater than the reasons for fluctuations in foreign exchange reserves. In other words, macroeconomic instability is the cause of Vietnam's export and import volatility during the period 1991 - 2016.

Based on these conclusions, Vietnam will continue to import and export growth in the coming time, considering it an important resource for Vietnam's sustainable economic growth in the coming time. Vietnamese government should restrict macroeconomic instability as well as limiting volatility of macroeconomic instability and foreign exchange reserves. At the same time, the government should step up measures to promote exports and imports. This study proposes measures to implement these two objectives as follows:

(1) Solutions to limit macroeconomic instability: The conclusion from Graph 8 on the macroeconomic instability of Vietnam shows that in order to curb macroeconomic instability, the Vietnamese government should be consistent in macroeconomic policy administration and adopt measures like drastic reduction of budget deficit in future. Therefore, in order to achieve these goals, the Government of Vietnam needs to implement the following measures:

The Vietnamese Government needs to strengthen and enhance the confidence and expectation of domestic and international investors through liberal and open foreign direct investment policy and also facilitate its smooth implementation for the stability of the Vietnamese economy. In particular: (i) consistently propagate consistently on the objective of enhancing macroeconomic stability and economic growth, as a goal throughout; organizing seminars, workshops at home and abroad to propagandize the investment environment, continue to affirm consistently goals, listen to expert opinions and timely feedback, strengthen dialogue to solve express the concerns of investors; (ii) continue to closely integrate fiscal policy and monetary policy, consistent with these two policies; continue to promote long-term and short-term plans, solutions and policies have positive results and remove, adjust the solution is not effective; (iii) Set priorities for short-term macroeconomic policies and prioritize reforms of economic models so that investors can easily plan their investment and business plans.

Vietnamese Government needs to reduce the budget deficit by focusing on savings in government spending, restricting and strictly controlling public investment, especially from SOEs. At the same time, promote anticorruption in all areas, especially in banking and capital construction. In addition, the reform

of administrative procedures should be promoted in order to enhance personal accountability, to ease the operation, to detect corruption and wrongdoing more clearly, to have timely and effective treatment and to create deterrence. The Government continues to promote the previous schemes and solutions to restructure the economy, especially the restructuring of banking and securities. In particular, it is necessary to step up the M & A activities in order to make the system transparent and healthy combined with bad debt processing and restructuring to avoid massive collapse. At the same time, a set of targets for the assessment of banks should be developed, both for restructuring purposes and for post-structural reforms, Targeted, specific roadmap and adherence to the principles and norms of assessment, to facilitate and facilitate the evaluation, inspection and urge implementation.

(2) Solutions to promote export and import: Support domestic production, take advantage of existing trade agreements, especially with large markets such as European Union, The United State, ASEAN, China, India, to promote foreign trade. Specifically: (i) Enhance the effectiveness of trade promotion in foreign markets of Vietnamese enterprises, in which the key to the trade partners need to promote as import partners have a large distribution system and Consumers are in the target group. (ii) Continue to diversify products, which maintain comparative advantages with the current strengths, mostly essential commodities such as agricultural products, textiles and garments; At the same time diversify the market, stick to and expand traditional markets, and expand the advantageous markets through newly signed trade agreements. Promoting the shift of export structure to products with high added value, limiting raw materials, especially natural resources. (iii) Continue to take advantage of the emerging position, the legal corridor of international economic organizations, the bilateral trade agreement of Vietnam, taking advantage of the opportunities of large countries to strengthen relations with the Asia-Pacific region, to tighten ties, limit trade barriers, and promote exports of Vietnam's advantageous commodities. (iv) For imports, the need to reduce dependence on inputs of imports. Vietnam needs to reduce the use of backward technology (from investors), consuming a lot of raw materials, this is the cause of waste of many materials imported.

Continue to promote component shift towards increasing the proportion of private and foreign direct investment (FDI) sectors, reducing the state sector. Continue to encourage the private and FDI sector invest in high technology, high added value, limit outsourcing, assembly, loss of resources, less technology transfer and harm environment. Continue to promote the shift in industrial processes, strengthen the development of supporting industries to increase value added at the stage of production - assembly of finished products. In particular, to focus on high-tech industries of countries to plan industrial zones to support those sectors, to catch up with high-tech investors are intending to invest or expand production. This is also the basis for determining the list of domestic projects that can be invested and attract foreign investment.

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Appendix
Data of Eviews

Years	*External Debt/GNP*	*GDP (Mil. USD)*	*EXPORT (Mil.USD)*	*IMPORT (Mil. USD)*	*CPI (%)*	*EXR (VND/USD)*	*Foreign Exchange Reserve (Mill USD)*
1991	257.06	9610	2087	2338	16.97	10037.035	0.01
1992	255.32	9870	2581	2541	28.43	11202.191	0.01
1993	190.62	13180	2985	3924	33.4	10640.958	6.76
1994	156.22	16290	4054	5826	35.14	10965.667	16.11
1995	123.98	20740	5449	8155	40.2	11038.25	1379.09
1996	108.19	24660	7256	11143	42.48	11032.583	1813.77
1997	82.84	26840	8756	11151	43.84	11683.333	2098.12
1998	84.09	27210	9324	11494	47.03	13268	2100.51
1999	82.24	28680	11520	11622	48.97	13943.167	3423.44
2000	38.52	33640	14449	15635	48.13	14167.75	3509.63
2001	36.09	35290	15027	16162	47.92	14725.167	3765.13
2002	35.49	37950	16706	19733	49.76	15279.5	4231.82
2003	36.87	42710	20176	25227	51.36	15509.583	6359.13
2004	36.16	49420	26504	31954	55.34	15746	7186.07
2005	32.75	57630	32442	36978	59.93	15858.917	9216.47
2006	28.77	66370	39826	44891	64.35	15994.25	13591.01
2007	30.66	77410	48561	62682	69.7	16105.125	23747.75
2008	27.49	99130	62685	80717	85.81	16302.25	24175.87
2009	32.24	106010	57096	69949	91.96	17065.083	16803.13
2010	40.27	115930	72237	84839	100	18612.917	12926.18
2011	41.55	135540	96906	106750	118.68	20509.75	14045.53
2012	41.17	155820	114529	113780	129.47	20828	26112.85
2013	39.94	171220	132033	132033	138.01	20933.417	25744.62
2014	40.89	186200	150217	147852	143.64	21148	34124.63
2015	42.55	193200	162017	165570	144.91	21697.56	28615.88
2016	46.58	202620	175942	173260	149.61	21935.001	33732