Quyen Do Phuc Bui¹

¹Department of Accounting, University of Labour and Social Affairs (Campus II), Vietnam *Corresponding Author: Quyen Do Phuc Bui¹

ABSTRACT: This study considers fluctuations in economic growth under the influence of imports, exports, and other macroeconomic factors in the period 2009-2023. In which, the gross domestic product is dependent, while export, import, inflation, and money supply are independent variables. The article has used descriptive statistical methods and other tests to implement the Vector error correction model (VECM) such as checking the stop, associating and automatic inspection. Granger causal tests and Johansen consolidated tests are also used to analyze long -term relationships. Research results show that economic growth is significantly affected by economic factors. The study also provides some brief explanations and discussions about some related policies.

KEYWORDS – Flutuations, economic growth, imports, exports, VECM.

I.

INTRODUCTION

Economic growth is considered as one of the most important parameters for the development of a country. Regarding the concept of economic growth, many famous economists in the world have tried to find and explain the role and tools that affect the economic growth of a country (Tom J. et al., 2021).

The relationship between different macroeconomic factors and economic growth is an area of extensive study for policymakers and economists. Typical macro-economic variables include GDP, inflations, broad money (M2), foreign direct investment, export, import, etc. (Sharma, 2012; Chirwa and Odhiambo, 2016; Iballi N. et al, 2022; Subrata, 2024).

Over the past 20 years, imports of goods have tended to increase year after year. However, statistics from the General Department of Customs recently recorded the value of imported goods in the first five months of 2023 at 125.57 billion USD, down 18.4% over the same period in 2022. The decrease in import figures will bring many concerns about weak domestic demand and ineffective exports. Because the optimal import level shows strong domestic demand and a growing economy. If these imports are mainly raw materials for production, machinery and equipment, it will be even more favorable for economic growth. Meanwhile, Vietnam is experiencing strong economic growth thanks to the growth of exports. Most of Vietnam's imported raw materials are mainly used for production for export. Reduced imports mean reduced exports.

This paper investigates the impact of import, export and some macroeconomic indicators (inflation, money supply) on economic growth in Vietnam. The study is organized into the following sections: section one includes the introduction, section two is the literature review, section three is the research model, section four is the research results, and section five includes the conclusion and implications.

II. LITERATURE REVIEW

Khaled R.M.E. et al. (2010) from 1980-2007 export impact on GDP in Libya; Dilawar K. et al. (2012) from 1972-2009 period found two-way impact between GDP on export and import in Pakistan; Qazi M. A. H. (2012) from 1978-2009 period two-way impact between GDP on export and import in China.

Zang and Baimbridge (2012) focused on analyzing the relationship between exports, imports and economic growth of Korea and Japan by constructing a VAR model. The results indicate that the three variables are co-integrated for both countries, implying that an equilibrium long-run relationship does not exist. The results also provide evidence of bidirectional causality between imports and economic growth for both countries. Furthermore, Japan appears to experience export-led output growth, while GDP growth in Korea has a negative effect on export growth.

Hye (2012), examined the relationship between exports, imports and economic growth in the case of China from 1987-2009 using the Distributed Lag Technique (ARDL) and modified Granger causality test. Their results support the existence of a bidirectional long-run relationship between economic growth and exports, economic growth and imports, and exports and imports.

Velnampy and Achchuthan (2013) investigated the impact of exports and imports on economic growth in Sri Lanka from 1970-2010, the results showed a strong positive relationship between exports and imports and both exports and imports have a significant impact on the growth of the economy; Kojo M. et al. (2014) analyzed the relationship between exports and GDP growth of Africa coutries using annual data for the period

from 1965 to 2008. For this purpose, VAR model, Granger causality test as well as Intermediate Response Function (IRF) were used. Their results led to rejection of the null hypothesis and ELG in favor of the alternative, GLE. IRF proved that shocks to output growth affect exports and imports while the reverse is not true.

Geanina and all (2019) analyzed imports and exports of wood products which are the sum of the following types of wood products: wood fuel, industrial coniferous round wood, industrial hardwood, charcoal, wood waste, coniferous timber and hardwood timber, veneer sheets, plywood, chipboard, OSB, paper. The statistical calculation was made using the R language in the RStudio program. The interval analyzed is between 1999 and 2016 in Romania.

Isaac O. and Liu J. (2020) identify and quantify the impacts of exports and imports on Ghana's economic growth from 1998 to 2018. Through the unit root and cointegration test, through the first-order difference cointegration variable stability and long-term equilibrium relationship. There is no significant causal relationship between imports in international trade and Ghana's GDP growth. Exports have a significant causal relationship with Ghana's GDP growth.

Authors	Countries	Period	Research Method	Impact
Khaled R.ME. and	Libya	1980-2007	Cointegration analysis VECM	$EX \Rightarrow GDP$
all (2010)			Granger Causality tests.	
Dilawwar K. and all	Pakistan	1971-2009	Cointegration analysis VECM	GDP ⇔ EX
(2012)			Granger Causality tests.	$GDP \Leftrightarrow IM$
Qazi M.A.H. (2012)	China	1979-2009	Cointegration analysis	$GDP \Leftrightarrow EX$
			Granger causality tests	$GDP \Leftrightarrow IM$
Velnampy.T &	Sri Lanka	1970-2010	Cointegration analysis	EX ⇔ IM
Achehuthan.S (2013)			Regression analysis	$GDP \Leftrightarrow EX$
				GDP ⇔ IM
Kojo M. and all	21 African	1965-2008	Granger causality tests.	Trade => GDP
(2014)	Countries			
Mounir B. (2014)	Tunisia	1970-2008	Cointegration analysis VECM	Trade \neq GDP
			Granger Causality tests	
Gungor Turan and all	Albania	1984-2012	OLS	EX => GDP
(2014)				$IM \neq GDP$
Auro K. S. and all	India	1981-2010	Cointegration analysis VECM	$GDP \Longrightarrow EX$
(2014)			Granger Causality tests	
Hussain M. and Afaf	Tunisia	1977-2012	Cointegration analysis VECM	$IM \Rightarrow GDP$
A. (2014)			Granger Causality tests	
Ajmi and all (2015)	South Africa	1911-2011	Granger Causality tests	$\text{GDP} \neq \text{EX}$
-				$\text{GDP} \neq IM$
Geanina and all	Romania	1999-2016	Cointegration analysis VECM	$IM \Rightarrow GDP$
(2019)			Granger Causality tests	EX => GDP
Isaac O. and Liu J.	Ghana	1998-2018	Cointegration analysis VAR	$IM \neq GDP$
(2020)			Granger Causality tests	$EX \Longrightarrow GDP$

Table (1): Studies on Exports, Imports and Economic Growth

III. RESEARCH MODEL

This study applies both qualitative and quantitative methods. In which, the VECM error correction model and tests are used to assess the response of economic growth to exports, imports and other macro variables such as inflation and money supply in the period 2009-2023. Based on the research of Khaled R.M. et al. (2010) and Isaac O. and Liu J. (2020) are used to assess the impact of exports and imports on GDP.

Sample regression model:

$$GDP = \beta_0 + \beta_1 * EX + \beta_2 * IM + \beta_3 * CPI + \beta_4 * M2 + \varepsilon_t$$
(1)

Data is collected from the General Statistics Office and IMF including variables: gross domestic product (GDP), inflation rate (CPI), money supply (M2), export turnover (EX), import turnover (IM). The research period is from the first quarter of 2009 to the fourth quarter of 2023.

4.1 Descriptive statistics

IV. RESEARCH RESULTS

The statistical results show that there are a total of 56 observations, describing the maximum, minimum, and average values of the variables and the variation of the variables in the observations.

**Corresponding Author: Quyen Do Phuc Bui*¹

75 | Page

The kurtosis and skewness values indicate the distribution shape of the research data. If the kurtosis is 3, it is concentrated at a higher level than the average, if it is less than 3, it is concentrated at a lower level than the average. The kurtosis of the research variables of EX, GDP, IM, and M2 are all less than 3, indicating that the variables are concentrated at a lower level than normal, except for CPI, which is 6 and greater than 3, indicating that the CPI variable is concentrated at a higher level than normal. However, EX, GDP, and IM, although lower than 3, are still approximately 3, close to the normal level.

	GDP	EX	IM	СРІ	M2
Mean	2212073	43009.45	41628.02	1.442143	5887650
Median	1915368	40144.00	38616.00	1.200000	5300817
Maximum	6037348.	120898.0	76200.00	6.750000	12349750
Minimum	311136.0	13431.00	12490.00	-0.390000	1597546.
Standard deviation	1423672.	21317.80	17189.65	1.507448	3208499.
Skew	0.803668	1.040172	0.286012	1.799318	0.399489
Kurtness	2.929783	4.918836	2.022222	6.439525	1.933489
Normal distribution	5.284766	16.35327	2.619992	50.59357	3.5625565
Number of observations	60	60	60	60	60

Table 2. Descriptive statistics of research variables

4.2 Stationarity test

When considering the characteristics of the time series data, use the ADF unit root test. The results from Table 3 show that only the CPI variable is stationary, GDP, M2, EX are stationary at the first difference, IM is stationary at the second difference.

Table 3. Unit root test results						
Variable	ADF test at level		ADF test at first difference		ADF test at second difference	
variable	t-statistic	Prob*	t-statistic	Prob*	t-statistic	Prob*
GDP	-1.570379	0.4892	-25.47799	0.0001		
CPI	-2.164105	0.2217	-7.176001	0.0000		
EX	-4.700694	0.0004	-4.700694	0.0004		
IM	-1,319034	0.6108	-1.929159	0.3159	-2.917493	0.0527
M2	4.912264	1.0000	6.3546883	0.0000		

4.3 Cointegration Test

To perform the Johansen-Juselius test, it is necessary to first determine the optimal lag size in the model. There are different criteria designed to select the order of the model.

Table 4. Lag-order selection criterion					
LogL	LR	FPE	AIC	SC	HQ
-2196.057	NA	3.17e+38	100.0026	100.1648	100.0627
-2174.406	38.38032	2.46e+38	99.74574	100.5567	100.0465
-2149.194	40.11048	1.65e+38	99.32700	100.7868	99.86836
-2065.131	118.4518	7.86e+36	96.23325	98.34183	97.01521
-1989.437	92.89732*	5.74e+35*	93.51988*	96.27726*	94.54245*
	LogL -2196.057 -2174.406 -2149.194 -2065.131 -1989.437	LogL LR -2196.057 NA -2174.406 38.38032 -2149.194 40.11048 -2065.131 118.4518 -1989.437 92.89732*	LogLLRFPE-2196.057NA3.17e+38-2174.40638.380322.46e+38-2149.19440.110481.65e+38-2065.131118.45187.86e+36-1989.43792.89732*5.74e+35*	LogL LR FPE AIC -2196.057 NA 3.17e+38 100.0026 -2174.406 38.38032 2.46e+38 99.74574 -2149.194 40.11048 1.65e+38 99.32700 -2065.131 118.4518 7.86e+36 96.23325 -1989.437 92.89732* 5.74e+35* 93.51988*	LogL LR FPE AIC SC -2196.057 NA 3.17e+38 100.0026 100.1648 -2174.406 38.38032 2.46e+38 99.74574 100.5567 -2149.194 40.11048 1.65e+38 99.32700 100.7868 -2065.131 118.4518 7.86e+36 96.23325 98.34183 -1989.437 92.89732* 5.74e+35* 93.51988* 96.27726*

Table 4. Lag-order selection criterion

The choice of lag size is 4 based on the LR (Likelihood-ratio test), FPE (Final prediction error), AIC (Akaike's information criterion), SC (Schwarz Information Criterion) and HQ (Hannan-Quinn information criterion) criteria because the criteria show that the optimal lag size is 4.

4.4 Vector Error Correction Model (VECM)

- Impulse Response Function

After conducting VECM model tests, variance decomposition functions and impulse response functions will be performed to examine the effects of IM, EX, CPI, M2 factors on GDP.



Figure 1. Impulse response function results

The above results show that exports, imports, inflation and money supply all have a positive impact on GDP, while CPI has a positive impact but is currently having a negative impact on GDP.

- Variance decomposition

Variance decomposition of forecast errors of variables in the VECM model aims to separate the contributions of other time series as well as of the time series itself to the variance of forecast errors. The variance decomposition results are consistent with the findings of the impulse response. **Table 5. Variance decomposition results**

Period	S.E.	DGDP	DEX	DIM	DCPI	DM2
1	1421838.	71.57729	28.42209	0.000000	0.000623	0.000000
2	1773092.	60.55884	33.42326	0.059240	0.119255	5.839405
3	1956038.	53.67069	27.59056	8.707438	0.100805	9.930513
4	2049764.	52.12972	26.50425	10.44445	0.405906	10.51567
5	2103017.	51.62190	25.32958	11.96267	1.257982	10.18786
6	2159221.	51.62958	24.53963	12.65929	1.439410	9.732098
7	2174897.	50.94020	24.68105	13.25220	1.423402	9.703150
8	2198962.	50.80394	24.14489	14.01810	1.409073	9.623994
9	2201661.	50.69590	24.14013	14.09803	1.415519	9.650426
10	2213058.	50.68265	23.88905	14.44556	1.431067	9.551674

The results of variance decomposition analysis of GDP at the end of the 10th year show that the change in GDP explained by the growth rate of EX is 23.88905%, IM is 14.44556%, CPI is 1.431067% and M2 is 9.551674%.

- Granger causality test

To determine whether to reject or not to reject the null hypothesis in Granger causality is to examine the F-value and the corresponding p-value. If the p-value is less than 0.05, the null hypothesis is rejected and if the p-value is greater than 0.05, this indicates that the null hypothesis cannot be rejected at the 5% level; there is also room for an f-value with a p-value less than 0.10 and this means that it can be rejected at the 10% level of significance.

Excluded	Chi-sq	Df	Prob.
DCPI	0.487903	2	0.7835
DEX	0.349229	2	0.8398
DIM	9.750228	2	0.0076
DM2	4.241448	2	0.1199
All	18.41941	8	0.0183

Table 6. Results of Granger causality test between variables CPI, M2, EX, IM to GDP

The results of Table 6 with a significance level of 5% Prob.= 0.0076 < 0.05 reject the hypothesis that IM has no impact on GDP. The remaining factors have Prob>0.05, at the 5% significance level proving that the variables EX, CPI, M2 have a relationship with GDP.

- Residual Heteroskedasticity Tests

Table 7. Test for heteroskedasticity of residual	ls
--------------------------------------------------	----

VEC Residual Heteroskedasticity Tests					
Number of observations: 55					
Test results					
Chi-sq	Df	Prob.			
340.3604	300	0.0541			

The results of Table 7 show that with the significance level Prob = 0.0541 > 0.05, the research model does not have the phenomenon of heteroskedasticity.

- Testing the stability of the model

Figure 2. AR test results



Testing the AR characteristic root is to ensure the stability of the model. The test results show that the polynomial roots are all less than 1 and all lie within the unit circle. This shows that the VECM model ensures stability and sustainability.

- Vector Error Correction Model

GDP=230211.6+1.84E-0.5* β_2 +7.25E-06* β_3 -31369.91* β_4 -0.077112* β_5 + ε

The VECM model estimation results show that R-squared = 0.975, the fluctuation of the dependent variable GDP has 97.5% of the fluctuation due to the independent variables EX, IM, CPI, M2, the rest is due to errors. F-statistics 153.0007 shows that the reliability of the equation is relatively high. Prob (F-statistics) =0.0000< 0.05 (significance level =5%) we have this model exists. Standard error S.E of regression = 5686212. The model fits quite well.

V. CONCLUSION AND IMPLICATIONS

The research results on the impact of import and export on economic growth in Vietnam show that both import and export have an impact on economic growth, which is similar to the research of Khaled R.M. et al. (2010), Hussain M. and Afaf A. (2014), Isaac O. and Liu J. (2020).

To stimulate import and export growth in Vietnam in line with the economic growth target in the next period, it is necessary to understand the advantages and disadvantages when Vietnam participates in free trade associations to minimize negative impacts on Vietnam's import and export activities, thereby overcoming the loopholes of Vietnamese enterprises when they do not fully understand the regulations of the associations. Moreover, it is necessary to maximize opportunities to further develop Vietnam's import and export activities.

Strengthening control of input factors, avoiding over-dependence on one or several markets, along with negotiating, signing and implementing FTAs with partners, the Government and Vietnamese enterprises must truly consider good implementation of FTAs as the best way to diversify markets and import-export partners.

Encourage banks to support enterprises so that enterprises can be more confident in importing and exporting goods.

Open more training courses on knowledge and skills in import-export, documents, and update the latest trade laws for enterprises to avoid unnecessary incidents.

Simplify documents and procedures for import and export to still comply with the law but not too cumbersome. The Government should include in economic policies materials that increase production and improve the production capacity of the economy with the aim of positively impacting Vietnam's export scale.

Developing production to increase exports and imports, while meeting domestic demand, exploiting the comparative advantages of the economy, improving efficiency, competitiveness of imports and exports, and shifting the economic structure towards industrialization and modernization, solving employment issues to balance the trade balance.

Building and consolidating strategic cooperation partners to develop a sustainable market, harmoniously combining the immediate and long-term interests of the country, and being proactive in international economic integration.

Diversifying import and export markets, actively and proactively participating in production networks in the global value chain, focusing on building and developing high-value-added goods with brands in domestic and foreign markets.

On the business side, it is necessary to have a suitable production and business development strategy to effectively exploit export and import opportunities thanks to joining free trade associations. In addition, it is necessary to fully study the commitments to join and international practices related to production and business activities, develop production and business strategies for each stage and prepare necessary conditions to deal with risks. Focus on building product quality standards and technical barriers in accordance with the regulations of free trade associations for goods that need to limit imports. Continue to deploy a number of new import management tools in accordance with the regulations of free trade associations, reorganize production and business, and improve competitiveness in the context of increasingly deep international economic integration.

REFERENCES

- Ajmi, A. N., Aye, G. C., Balcilar, M., & Gupta, R. (2015). Causality between exports and economic growth in South Africa: Evidence from linear and nonlinear tests. *The Journal of Developing Areas*, 49(2), 163-181.
- [2]. Auro, K. S., Dukhabandhu, S. and Naresh, C. S. (2014): Mining export, industrial production and economic growth: A cointegration and causality analysis for India. *Resources Policy*, 42, 27–34.
- [3]. Chirwa, T. G., & Odhiambo, N. M. (2016). Macroeconomic determinants of economic growth: A review of international literature. *South East European Journal of Economics and Business*, 11(2), 33-47.
- [4]. Dilawar, K. and al. (2012). Exports, imports and economic growth nexus: Time series evidence from Pakistan. *World Applied Sciences Journal*, 18 (4), 538-542.
- [5]. Geanina C., Tincuta V., Aura C. and Laurentiu C. (2019). Analysis of the Impact of Cereal Product Import-Export on GDP in Romania. *Economics and Applied Informatics*, 25, 169-175.
- [6]. Güngör, T. & Bernard, K. (2014). An empirical study on import, export and economic growth in Albania. *Academic Journal of Interdisciplinary Studies*, 3(3), 14-24.
- [7]. Hussain, M. A. and Afaf, A. J. S. (2015). Impact of exports and imports on economic growth: Evidence from Tunisia. *Journal of Emerging Trends in Economics and Management Sciences*, 6(1), 13-21.
- [8]. Iballi, N., Smajli, R., & Ziberi, B. (2022). Key macroeconomic indicators of economic growth in the case of developing countries. *Journal of Governance & Regulation*, 11(4), 147–153.
- [9]. Isaac, O. and Liu, J. (2020). The Impact of Export and Import to Economic Growth of Ghana. *European Journal of Business and Management*, 12(2), 130-138.
- [10]. Khaled, R.M.E., Abdulbaset, M.H., Vladimir, G. (2010). The Relationship between Export and Economic Growth in Libya Arab Jamahiriya. *Theoretical and Applied Economics*, 18(1), 69-76.
- [11]. Kojo, M., Saban N. & Yemane, W. R. (2014). Financial development, trade openness and economic growth in African countries: New insights from a panel causality approach. *Economic Modelling*, 37, 386–394.
- [12]. Mounir, B. (2014). The relationship between trade, FDI and economic growth in Tunisia: An application of the autoregressive distributed lag model. *Economic Systems*, http://dx.doi.org/10.1016/j.ecosys.2013.09.002.
- [13]. Qazi, M.A.H. (2012). Exports, imports and economic growth in China: an ARDL analysis. *Journal of Chinese Economic and Foreign Trade Studies*, 5(1), pp. 42-55
- [14]. Sharma, B. (2012). Government expenditure and economic growth in Nepal a minute analysis.

*Corresponding Author: Quyen Do Phuc Bui¹

www.aijbm.com

79 | Page

Basic Research Journal of Business Management and Accounts, 1(4), 37-40.

- [15]. Subrata, D. N., Mosammat, A. B., and Abdul, M (2024.). Effect of Macroeconomic Factors on Economic Growth: A Case Study of Banglades. *Journal of Asian Development Studies*, 13(2), 1-12
- [16]. Tom, J., Rincy R., and Stebiya M.V. (2021). The impact of economic factors on the economic growth of Bangladesh: An auto regressive distributed lag bounds testing approach. *Journal of smarth economic growth*, 6(2), 101-118.
- [17]. Velnampy, T. & Achchuthan, S. (2013). Export, import and economic growth: Evidence from Sri Lanka. *Journal of Economics and Sustainable Development*, 4(9), 20-33.

*Corresponding Author: Quyen Do Phuc Bui¹ ¹Dr. of Finance and Banking, Accouting Department, University of Labour and Social Affairs (Campus II), Vietnam. ORCID ID: 0009-0009-2288-4197