Ad-Deenar: Jurnal Ekonomi dan Bisnis Islam, VOL: 10/No: 01 2026 **P-ISSN: 2356-1866**
DOI: 10.30868/ad.v10i01.9509 **E-ISSN: 2614-8838**

Date Received	:	**January 2026**
Date Revised	:	**March 2026**
Date Accepted	:	**March 2026**
Date Published	:	**March 2026**

EXCHANGE RATE VOLATILITY AND IMPORT ON ASEAN-5 EXPORT PERFORMANCE (2000-2024) (Panel Analysis and Islamic Economic Implication)

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Keywords:
Exchange rate volatility , Import, Export, ASEAN, Islamic Economic

ABSTRACTS

This study analyzes the effect of exchange rate volatility and imports on exports in five ASEAN countries during the period 2000–2024. The methods used are
This study analyzes the effect of exchange rate volatility on exports in five ASEAN countries during the period 2000–2024. Exchange rate volatility and imports are important factors that affect export performance in the five ASEAN countries, reflecting economic stability and the effectiveness of trade policies. This study uses annual secondary data from the World Bank. A quantitative approach is applied using VAR (Vector Autoregressive) and VECM (Vector Error Correction Model) models to capture short-term and long-term relationships between variables, and a GARCH (Generalized Autoregressive Conditional Heteroscedasticity Model) model to measure exchange rate volatility dynamically. Based on the GARCH model results, it shows that the impact of exchange rate volatility in each country differs, and the policies taken to deal with exchange rate volatility also vary between countries. The best FEM (Fixed Effect Model) results show that exchange rate volatility has a positive and significant effect on exports with a coefficient of 0.730434 (p = 0.0000), while imports also have a significant positive effect with a coefficient of 0.183232 (p = 0.0000). The t-test and F-test show that both variables are simultaneously significant (p = 0.0000), confirming their significant contribution to export growth in the five ASEAN countries. These findings emphasize that well-managed exchange rate stability and the availability of productive imports are key to improving international trade performance. From an Islamic economic perspective, this policy is in line with the principles of justice, prudence, and avoidance of speculation (gharar), thereby supporting sustainable economic welfare while strengthening export competitiveness in the ASEAN region.

A. INTRODUCTION

In the era of globalization, countries have become increasingly dependent on open trade. Exports play an important role as a source of foreign exchange and as a means of opening up international markets. They also encourage an increase in national production capacity, which contributes to economic growth. (Hodijah, S. N., & Angelina 2021). International trade activities are a key pillar of economic growth in the ASEAN region, where synergy between incoming and outgoing goods flows is key to regional economic stability(Yulistia devi 2024). However, over the past two decades, the global economy has faced various shocks, including the 2008 crisis, the US-China trade war, the COVID-19 pandemic, and geopolitical tensions since 2022, which have led to increased exchange rate volatility, especially for developing countries whose currencies are sensitive to external changes (Arfiani 2019). Theoretically, although *Purchasing Power Parity* (PPP) provides a direction for long-term exchange rate movements based on price differences, short-term dynamics are difficult to predict because they are shaped by market expectations as described in the asset market approach (Jeffrey A. Frankel dan Andrew K. Rose 1995).

This uncertainty is consistent with classical findings (Richard A. Meese dan Kenneth Rogoff 1983) that exchange rate models cannot outperform random walks, while contemporary evidence from (Yin-Wong Cheung, Menzie D. Chinn, Antonio Garcia Pascual 2019) shows that even though modern models are increasingly complex, exchange rate volatility patterns remain unstable and risky for international trade. International trade literature such as (Andrew K. Rose 2000) and (Maurice Obstfeld dan Kenneth Rogoff 1995) emphasizes that exchange rate volatility tends to suppress exports because it increases price uncertainty, whereas (Mohsen Bahmani-Oskooee dan Muhammad Aftab 2017) found that the effect is asymmetric between appreciation and depreciation, so that the effect is not uniform across countries.

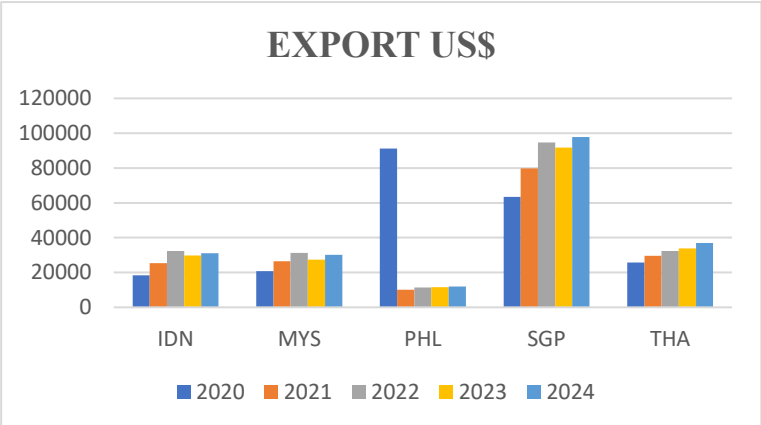

Figure 1. **Data Chart: Exports of 5 ASEAN Countries**

Source : World bank

Based on the graph, Singapore recorded the highest export value and showed a consistent upward trend from USD 60 billion in 2020 to USD 95 billion in 2024, reflecting its role as a trading and re-export hub in the ASEAN region. Indonesia,

Malaysia, and Thailand also experienced gradual and relatively stable export growth, with Indonesia rising from USD 15 billion to USD 30 billion, indicating a recovery in post-pandemic trade activity. Unlike other countries, Philippine exports experienced a sharp decline after 2020, mainly due to high dependence on the electronics sector, which is sensitive to the slowdown in global demand, and weak diversification of the export structure. However, differences in economic structure have led to uneven exchange rate volatility. Indonesia and the Philippines tend to be the most volatile, Thailand is moderate, Malaysia is relatively stable due to strong foreign exchange reserves, and Singapore is the most stable through the Monetary Authority of Singapore's exchange rate policy.

This heterogeneity is the main reason for selecting these five countries, in addition to their contribution as trade centers and the largest contributors to the region's GDP, so that their exchange rate and export dynamics represent the ASEAN situation more comprehensively. Exchange rate stability in ASEAN countries is inseparable from foreign sector stability and proper exchange rate management, which are crucial for maintaining the competitiveness of domestic products in the international market (Suryanto 2022). This explains that high volatility tends to suppress export performance, especially in countries that are heavily dependent on imported inputs in the global supply chain.

Empirical research results show inconsistency in findings (Rasbin, R., Yunita, A., & Gunawan 2024) found that currency depreciation does not always increase exports due to dependence on global value chains. (Colarika and Zahro 2023) found that volatility had a significant negative effect on short-term exports in Indonesia and Thailand, but not significantly so in the Philippines, and that in the long term it remained negative but not significant for Indonesia and Thailand, and significantly positive for the Philippines. Meanwhile, (Gatot Nazir Ahmad, 2021) found a significant negative impact of exchange rate volatility on exports and imports in Indonesia, Thailand, Vietnam, and Cambodia. These differing results indicate a gap in research, namely that the impact of exchange rate volatility is highly dependent on a country's economic structure and level of integration into global trade, thus requiring broader analysis and a longer time frame.

From an Islamic economic perspective, exchange rate volatility is not only a macroeconomic issue, but also relates to transaction ethics. Sharia rejects gharar (*excessive uncertainty*) and maysir (speculation) which can create injustice in exchange (Habiburrahman,2020). Sharp fluctuations open up opportunities for foreign exchange speculation that are contrary to the principles of fairness and transactions that are free from fraudulent practices (Bambang Iswanto 2022). Islam views international trade as permissible as long as it maintains public interest and justice, and does not cause harm to any party (Muhammad 2020). Therefore, exchange rate stability is an important prerequisite for realizing a fair and sustainable trading system. Based on these arguments, this study contributes by analyzing the impact of

exchange rate volatility and imports on the exports of ASEAN countries in the period 2000–2024 and integrating the Islamic economic perspective to provide a more comprehensive understanding of exchange rate stability and economic welfare. This principle is in line with the words of Allah in Surah An-Nisa verse 29 :

يٰٓاَيُّهَا الَّذِيْنَ اٰمَنُوْا لَا تَأْكُلُوْٓا اَمْوَالَكُمْ بَيْنَكُمْ بِالْبَاطِلِ اِلَّآ اَنْ تَكُوْنَ تِجَارَةً عَنْ تَرَاضٍ مِّنْكُمْ ۗ وَلَا تَقْتُلُوْٓا اَنْفُسَكُمْ ۗ اِنَّ اللّٰهَ كَانَ بِكُمْ رَحِيْمًا

Artinya : *"O you who believe, do not consume one another's wealth unjustly, except in a manner that is mutually agreed upon. Do not kill yourselves. Indeed, Allah is Most Merciful to you"*.(Q.S. An-Nisa : 29)

This verse emphasizes the importance of a fair transaction system that is free from excessive uncertainty, so that exchange rate stability becomes part of efforts to maintain economic welfare. In Islamic economics, international trade, including exports, is based on the principles of justice (al-'adl) and benefit (al-maslahah). The implementation of economic activities in Islam must be in line with the objectives of Maqashid Syariah, namely carrying out activities in accordance with Sharia law, avoiding maysir, gharar, riba, zulm, and obtaining wealth through unlawful means (Muhammad Iqbal Fasa 2017).

B. METHOD

This study uses a quantitative approach with a sample of five ASEAN countries, namely Indonesia, Malaysia, the Philippines, Singapore, and Thailand, during the period 2000–2024. Data were obtained from the World Bank and selected using purposive sampling based on the criteria of relevance and data availability. The analysis was conducted using EViews 10, beginning with a data validity check through a stationarity test to ensure that the variables did not contain biased trends, and a cointegration test to identify long-term relationships between variables. Next, the *Vector Error Correction Model* (VECM) and VAR (*Vektor Autoreggresive*) was used to analyze the short-term and long-term relationships between cointegrated variables. To measure exchange rate volatility, the GARCH model was applied, with the following formula:

$$\sigma_t^2 = \alpha_0 + \alpha_1 e_{\{t-1\}}^2 + \lambda_1 \sigma_{\{t-1\}}^2$$

Residual variance $\sigma_t{}^2$ model GARCH influenced by residuals from previous periods $e_{t-1}{}^2$ and residual variants from the previous period $\sigma_{t-1}{}^2$. The residual model of equation (4.10) is known as the GARCH (1,1) model because the residual variance is only influenced by the previous period's residual and the previous period's residual variance (Agus Widarjono 2023).

The best panel model used is the Fixed Effect Model (FEM), and the Chow Test is performed to test whether there are differences in coefficients between countries. The hypothesis testing stage is carried out in the following order:

1. T-test: to test the significance of each independent variable on the dependent variable.
2. F-test: to test the simultaneous significance of all independent variables in the model.
3. R-squared (R^2): to measure how much of the variation in the dependent variable is explained by the independent variables.

C. RESULT AND DISCUSSION

1. Stationarity Test

Table 1. Result of Stasionarity Indonesia

Data	Nilai Kritis	Level		First Difference	
		ADF Stat	P Value	ADF Stat	P Value
Export	5%	-5.302660	> 0.05	-5.302660	0.0000
Exchange rate Volatility	5 %	-10.21015	> 0.05	-4.484346	0.0000
Import	5 %	-4.930247	> 0.05	-5.474687	0.0007

Source: Analyzed results from Eviews 10

The Augmented Dickey–Fuller (ADF) test results show that all variables, namely Exports, Exchange Rate Volatility, and Imports, are not stationary at the level because the ADF value is higher than the critical value of 5% and the p-value is > 0.05. After applying first differences, all variables become stationary with ADF values lower than the critical value and p-values < 0.05. Thus, all data meet the stationarity requirement and are suitable for further analysis.

Table 2. Result of Stasionarity Malaysia

Data	Nilai Kritis	Level		First Difference	
		ADF Stat	P Value	ADF Stat	P Value
Export	5%	-5.653037	> 0.05	-5.302660	0.0001
Exchange rate Volatility	5 %	-4.949418	> 0.05	-4.949418	0.0001

Import	5 %	-3.672788	> 0.05	-3.672788	0.0016

Source: Analyzed results from Eviews 10

The Augmented Dickey–Fuller (ADF) test results show that all variables, namely Exports, Exchange Rate Volatility, and Imports, are not stationary at the level because the ADF value is higher than the critical value of 5% and the p-value is > 0.05. After applying first differences, all variables become stationary with ADF values lower than the critical value and p-values < 0.05. Thus, all data meet the stationarity requirement and are suitable for further analysis.

Table 3. Result of Stasionarity Philiphines

Data	Nilai Kritis	Level		First Difference	
		ADF Stat	P Value	ADF Stat	P Value
Export	5%	-6.421410	> 0.05	-6.421410	0.0000
Exchange rate Volatility	5 %	-3.854700	> 0.05	-3.854700	0.0009
Import	5 %	-5.026531	> 0.05	-5.026531	0.0001

Source: Analyzed results from Eviews 10

The Augmented Dickey–Fuller (ADF) test results show that all variables, namely Exports, Exchange Rate Volatility, and Imports, are not stationary at the level because the ADF value is higher than the critical value of 5% and the p-value is > 0.05. After applying first differences, all variables become stationary with ADF values lower than the critical value and p-values < 0.05. Thus, all data meet the stationarity requirement and are suitable for further analysis.

Table 4. Result of Stasionarity Singapore

Data	Nilai Kritis	Level		First Difference	
		ADF Stat	P Value	ADF Stat	P Value
Export	5%	-4.807422	> 0.05	-4.807422	0.0001
Exchange rate Volatility	5 %	-3.872165	> 0.05	-3.872165	0.0009
Import	5 %	-4.803569	> 0.05	-3.672788	0.0016

Source: Analyzed results from Eviews 10

The Augmented Dickey–Fuller (ADF) test results show that all variables, namely Exports, Exchange Rate Volatility, and Imports, are not stationary at the level because the ADF value is higher than the critical value of 5% and the p-value is >

0.05. After applying first differences, all variables become stationary with ADF values lower than the critical value and p-values < 0.05. Thus, all data meet the stationarity requirement and are suitable for further analysis.

Table 5. Result of Stasionarity Thailand

Data	Nilai Kritis	Level		First Difference	
		ADF Stat	P Value	ADF Stat	P Value
Export	5%	-5.302660	> 0.05	-5.408550	0.0000
Exchange rate Volatility	5 %	-10.21015	> 0.05	-4.484346	0.0002
Import	5 %	-4.930247	> 0.05	-5.474687	0.0000

Source: Analyzed results from Eviews 10

The Augmented Dickey–Fuller (ADF) test results show that all variables, namely Exports, Exchange Rate Volatility, and Imports, are not stationary at the level because the ADF value is higher than the critical value of 5% and the p-value is > 0.05. After applying first differences, all variables become stationary with ADF values lower than the critical value and p-values < 0.05. Thus, all data meet the stationarity requirement and are suitable for further analysis.

2. Cointegration Test

Table 6. Result of Cointegration Indonesia

Hypothesized No. of CE (s)	*Eigenvalue*	*Trace Statistic*	*0.05 Critical Value*	*Prob. **
*None **	0.507526	30.65915	29.79707	0.0397
*At Most 1**	0.369048	14.36794	15.49471	0.0734
*At Most 2**	0.151400	3.775846	3.841466	0.0520

Source: Analyzed results from Eviews 10

Model selection was performed by examining the long-term relationship between variables. The table shows that the trace statistic value in the None hypothesis (30.65915) exceeds the critical value of 5% (29.79707). This condition indicates that there is at least one cointegration vector in the model. Thus, the existence of a long-term relationship between the research variables has been proven. Therefore, the most appropriate model to use in this study is VECM.

Table 7. Result of Cointegration Malaysia

Hypothesized No. of CE (s)	*Eigenvalue*	*Trace Statistic*	*0.05 Critical Value*	*Prob. **
*None **	0.363977	18.21203	29.79707	0.5504
*At Most 1**	0.283114	7.804043	15.49471	0.4866

*At Most 2**	0.006447	0.148750	3.841466	0.6997

Source: Analyzed results from Eviews 10

Model selection was performed by examining the long-term relationship between variables. The table shows that the trace statistic value in the None hypothesis (18.21203) is less than the critical value of 5% (29.79707). This condition indicates that there is at least one cointegration vector in the model. Thus, it is proven that there is no long-term relationship between the research variables. Therefore, the most appropriate model to use in this study is VAR.

Table 8. Result of Cointegration Philiphines

Hypothesized No. of CE (s)	*Eigenvalue*	*Trace Statistic*	*0.05 Critical Value*	*Prob. **
*None **	0.779103	44.11111	29.79707	0.0006
*At Most 1**	0.259737	9.379719	15.49471	0.3314
*At Most 2**	0.101532	2.462483	3.841466	0.1166

Source: Analyzed results from Eviews 10

Model selection was performed by examining the long-term relationship between variables. The table shows that the trace statistic value in the None hypothesis (44.11111) exceeds the critical value of 5% (29.79707). This condition indicates that there is at least one cointegration vector in the model. Thus, the existence of a long-term relationship between the research variables is proven. Therefore, the most appropriate model to use in this study is VECM.

Table 9. Result of Cointegration Singapore

Hypothesized No. of CE (s)	*Eigenvalue*	*Trace Statistic*	*0.05 Critical Value*	*Prob. **
*None **	0.563251	26.73480	29.79707	0.1083
*At Most 1**	0.283862	7.681689	15.49471	0.5000
*At Most 2**	0.000104	0.002388	3.841466	0.9588

Source: Analyzed results from Eviews 10

Model selection was performed by examining the long-term relationship between variables. The table shows that the trace statistic value in the None hypothesis (26.73480) is less than the critical value of 5% (29.79707). This condition indicates that there is at least one cointegration vector in the model. Thus, it is proven that there is no long-term relationship between the research variables. Therefore, the most appropriate model to use in this study is VAR.

Table 10. Result of Cointegration Thailand

Hypothesized No. of CE (s)	*Eigenvalue*	*Trace Statistic*	*0.05 Critical Value*	*Prob. **
*None **	0.588819	35.86370	29.79707	0.0088
*At Most 1**	0.345280	15.42310	15.49471	0.0513
*At Most 2**	0.218877	5.681523	3.841466	0.0171

Source: Analyzed results from Eviews 10

The model selection was conducted by examining the long-term relationship between variables. The table shows that the trace statistic value in the None hypothesis (35.86370) exceeds the critical value of 5% (29.79707). This condition indicates that there is at least one cointegration vector in the model. Thus, it is proven that there is a long-term relationship between the research variables. Therefore, the most appropriate model to use in this study is VECM.

3. GARCH *(Generalized Autoregressive Conditional Heteroscedasticity Model)* Test

Table 20.Result of Variance Equation Indonesia

Variable	Coefficient	Prob.	Ket.
Resid(-1)^2	0.581600	0.0064	Significant
Resid(-2)^2	-0.191040	0.8446	InSignificant
Garch(-1)	0.328010	0.8475	InSignificant

Source: Analyzed results from Eviews 10

The results of the variance equation estimation show that the ARCH coefficient is statistically significant at lag 1 but not at lag 2. This indicates that short-term shocks or disturbances in residual-1 directly affect volatility in the following period. However, the GARCH(-1) coefficient is positive at 0.328010 and insignificant with a probability value of 0.8475. The insignificant GARCH results for the 2000–2024 period indicate that the 2008 and Covid-19 crises were temporary shocks and did not cause persistent volatility. The strengthening of monetary policy after the 1998 crisis stabilized exchange rate fluctuations quickly, so it was not significantly reflected in the GARCH variance equation. The GARCH model estimation results show high and persistent exchange rate volatility during the crisis period. This finding is consistent with the rupiah exchange rate conditions in 1997–1998, when the rupiah depreciated sharply from a range of IDR 2,400–IDR 2,600 per US dollar in early 1997 to around IDR 14,900 per US dollar in June 1998. This surge in volatility was triggered by the contagion effect of the Thai financial crisis and the government's decision to abandon the intervention band system on August 14, 1997, which caused even sharper exchange rate fluctuations(Faadilatu Rahmatilah, Hasanah 2025).

Table 22. Result of Variance Equation Malaysia

Variable	Coefficient	Prob.	Ket.
Resid(-1)^2	-0.584855	0.3617	InSignificant
Resid(-2)^2	0.037430	0.9232	InSignificant
Garch(-1)	1.176811	0.0064	Significant

Source: Analyzed results from Eviews 10

The results of the variance equation estimation show that the ARCH coefficients, both at lag 1 and lag 2, are not statistically significant. This indicates that short-term shocks do not directly affect volatility in the following period. However, the GARCH(-1) coefficient is positive at 1.176811 and significant with a probability value of 0.0064. The significant results of the Malaysian variance equation for the period 2000–2024 indicate that the volatility of the ringgit exchange rate is persistent in the long term. After the 1997–1998 Asian crisis, the relaxation of capital controls and reintegration with global financial markets made the ringgit more responsive to external shocks such as the 2008 crisis and the Covid-19 pandemic.

Table 24. Result of Variance Equation Philiphines

Variable	Coefficient	Prob.	Ket.
Resid(-1)^2	3.019014	0.0354	Significant
Resid(-2)^2	-0.956316	0.4016	InSignificant
Garch(-1)	0.248112	0.5927	InSignificant

Source: Analyzed results from Eviews 10

The results of the variance equation estimation show that the ARCH coefficient is statistically significant at lag 1 but not at lag 2. This indicates that short-term shocks or disturbances in residual-1 directly affect volatility in the following period. However, the GARCH(-1) coefficient is positive at 0.248112 and insignificant with a probability value of 0.5927. The insignificance of the Philippine variance equation results for the 2000–2024 period indicates that exchange rate volatility is not persistent. The post-Asian crisis economic recovery, marked by increased foreign investment, strengthened economic stability and dampened exchange rate fluctuations. The impact of global crises such as 2008 and Covid-19 was temporary and quickly subsided, thus not forming sustained volatility.

Table 26. Result of Variance Equation Singapore

Variable	Coefficient	Prob.	Ket.
Resid(-1)^2	-0.216053	0.8200	InSignificant
Resid(-2)^2	-0.213475	0.7995	InSignificant
Garch(-1)	1.459906	0.1441	InSignificant

Source: Analyzed results from Eviews 10

The results of the variance equation estimation show that the ARCH coefficients, both at lag 1 and lag 2, are not statistically significant. This indicates that short-term shocks do not directly affect volatility in the following period. However, the GARCH(-1) coefficient is positive at 1.459906 and is not significant with a probability value of 0.1441. The insignificance of the Singapore GARCH results for the 2000–2024 period shows that exchange rate volatility is not persistent. After the

1998 Asian crisis, a strong monetary and financial policy framework by the government and MAS enabled a rapid response to external shocks such as the 2008 crisis and the Covid-19 pandemic, so that exchange rate fluctuations were temporary and quickly returned to stability.

Table 28. Result of Variance Equation Thailand

Variable	Coefficient	Prob.	Ket.
Resid(-1)^2	0.486578	0.6390	InSignificant
Resid(-2)^2	-0.874588	0.2143	InSignificant
Garch(-1)	1.260708	0.0015	Significant

Source: Analyzed results from Eviews 10

The results of the variance equation estimation show that the ARCH coefficients, both at lag 1 and lag 2, are not statistically significant. This indicates that short-term shocks do not directly affect volatility in the following period. However, the GARCH(-1) coefficient is positive at 1.260708 and significant with a probability value of 0.0015. The significance of Thailand's variance equation in the 2000–2024 period shows that the volatility of the baht exchange rate is persistent. After the 1997–1998 Asian crisis, increased economic openness and exchange rate flexibility made the baht more sensitive to external shocks such as changes in global interest rates, the 2008 crisis, and the Covid-19 pandemic. In contrast to the 1998–1999 period, which was marked by strict stabilization through the IMF's LoI, in the 2000–2024 period, exchange rate fluctuations occurred more frequently and repeatedly, although not always to an extreme degree.

4. Chow Test

Table 30. Outcomes of the Chow Test

Effect Test	Statistic	D.F.	Prob.
Cross-section F	4.075722	(4,118)	4464.985
Cross-section Chisquare	0.902757	4	5628.055

Source: Analyzed results from Eviews 10

Berdasarkan Based on the Chow Test results, the probability value of *Cross-section F* is 0.0039 and *Cross-section Chi-square* is 0.0028. Both probability values are smaller than the significance level of 5% ($\alpha = 0.05$), so it can be concluded that H_0 is rejected. The rejection of H_0 indicates that the Fixed Effect Model (FEM) is more appropriate than the Common Effect Model (CEM). This indicates that there are significant differences between cross-section units, so that each country in the study has its own characteristics that influence the relationship between the independent and dependent variables. Thus, the use of FEM is more appropriate because it can describe the variation between countries more accurately than CEM, which assumes the same intercept for all observation units.

5. Hausman Test

Table 31. Result Hausman Test

Effect Test	Chi-Sq Statistic	Chi-Sq. d.f.	Prob.
Cross-section Random	14.405283	2	0.0007

Source: Analyzed results from Eviews 10

Based on the results of the Hausman test, a Chi-Square Statistic value of 14.405283 was obtained with a probability value of 0.0007. This probability value is smaller than the significance level of 5% ($\alpha = 0.05$), so H_0 is rejected. This means that the Fixed Effect Model (FEM) is more appropriate to use than the Random Effect Model (REM). The rejection of H_0 indicates that there is a significant difference between the FEM and REM estimates, so that the variation between cross-section units is not random, but has specific characteristics that influence the relationship between variables. Therefore, the FEM model is considered more appropriate for use in this study because it is able to capture the heterogeneity of each country more accurately than the REM.

Discussion

1. Analysis of Exchange Rate Volatility in ASEAN-5 Countries

The results of the GARCH model estimation show that exchange rate volatility in ASEAN countries varies between countries and periods, reflecting differences in government policy responses to mitigate the impact of the 1998 Asian crisis and post-crisis economic dynamics. In **Indonesia**, significant volatility with a probability value (0.0064 < 0.05) in 1999 reflects the continued impact of the adjustment process after the crisis, even though the government had implemented monetary tightening policies, banking restructuring and recapitalization, and cooperation with the IMF (International Monetary Fund). Meanwhile, the insignificant probability value (0.8475 > 0.005) of volatility in the 2000–2024 period shows that the strengthening of monetary policy credibility and financial system stability successfully prevented exchange rate fluctuations from developing into persistent volatility. In **Malaysia**, volatility was insignificant with a probability value of (0.9232 > 0.05) in 1998 and (0.3617 > 0.05) in 1999, in line with the implementation of capital controls and the setting of a fixed exchange rate against the US dollar, which effectively restrained exchange rate volatility. However, in the period 2000–2024, volatility became significant with a probability value of (0.0064 < 0.05) as capital controls were relaxed and economic openness increased, making the ringgit exchange rate more responsive to external shocks. The **Philippines** showed insignificant volatility with a probability value (0.4016 > 0.05), where exchange rate pressures in 1998 were mitigated through macroeconomic policy adjustments and the recovery of investment flows. while in the 2000–2024 period, volatility was insignificant with a probability value (0.5927 > 0.05) because the stability of remittance flows and the strengthening of the service sector helped mitigate exchange rate fluctuations despite global shocks. **Singapore** consistently showed insignificant volatility both during the

1998 crisis with a probability value (0.7995>0.05) and in 1999 (0.8200>0.05) as well as in the 2000–2024 period with a probability value (0.1441>0.05), reflecting the success of measured interventions and the high credibility of the Monetary Authority of Singapore (MAS) in maintaining exchange rate and financial system stability. **Thailand**, despite being the epicenter of the Asian crisis, showed insignificant volatility in 1998 with a probability value (0.2143>0.05) and in 1999 (0.6390>0.05). Thailand was able to reduce volatility in 1998–1999 through the IMF (International Monetary Fund) stabilization program, fiscal tightening, and financial sector restructuring, but in the 2000–2024 period, it showed significant volatility with a probability value (0.0015<0.05) in line with the implementation of a more flexible exchange rate regime and increased linkage with global financial markets. The finding of significant volatility indicates the persistence of exchange rate volatility, where shocks in a given period tend to affect exchange rate fluctuations in the following period. Conversely, insignificant volatility indicates that exchange rate shocks are temporary and that the exchange rate relatively quickly returns to normal conditions or long-term equilibrium.

Overall, the GARCH model estimation results confirm that the volatility of exchange rates in ASEAN countries is greatly influenced by differences in stabilization policies, the credibility of monetary institutions, and the exchange rate regimes applied.

2. The Effect Of Exchange Rate Volatility On Exports ASEAN-5

Based on the best model, namely FEM (*Fixed Effect Model*) , exchange rate volatility has a positive and significant effect on exports with a coefficient value of 0.730434 and a probability of 0.0000 (<0.05). The exchange rate volatility variable, which has a positive and significant effect on exports in the ASEAN-5 region, shows that exchange rate fluctuations do not always hamper export performance. Under certain conditions, particularly when there is a depreciation of the domestic currency, exchange rate volatility can actually increase the price competitiveness of export products in the international market, thereby encouraging an increase in export volume. This finding is in line with the *Marshall–Lerner Condition proposed* by *Alfred Marshall* and *Abba P. Lerner*, which states that exchange rate depreciation will improve trade performance if export and import demand is sufficiently elastic to price changes (Kamila Nasywa Hafizhah et.,al 2025).

In line with these findings, the lack of an immediate response in exports following exchange rate depreciation reflects an adjustment process as described *in the J-Curve Hypothesis* introduced by *Magee* (1973) and further developed by *Bahmani-Oskooee*. This hypothesis explains that in the short term, exchange rate depreciation tends not to have a positive impact on trade, but in the medium to long term, an increase in exports begins to materialize (Muntaz Ndaru Apsari 2023). In addition, the positive effect of exchange rate volatility on exports also shows that exporters in ASEAN countries are relatively capable of managing exchange rate uncertainty through trade contracts, foreign currency-based pricing, and the use of hedging instruments. Thus, exchange rate volatility that

can be anticipated and managed effectively acts as a supporting factor for export growth in the ASEAN-5 region and strengthens the empirical relevance of the *Marshall–Lerner Condition* and the *J-Curve* phenomenon in the context of international trade. Overall, these findings confirm that the impact of exchange rate volatility on exports in ASEAN is largely determined by the level of volatility persistence, the credibility of monetary policy, and the economic structure of each country.

3. The Effect Of Imports On Exports ASEAN-5

Based on the best model, namely FEM (Fixed Effect Model), imports have a positive and significant effect on exports with a coefficient value of 0.183232 and a probability of 0.0000 (<0.05) on exports in ASEAN countries. This finding indicates that the composition of imports in the ASEAN region is dominated by productive imports, in the form of raw materials, semi-finished goods, and capital goods that serve as essential inputs in the production process of export goods. Theoretically, these results are consistent with the *Heckscher–Ohlin* theory introduced by *Eli Heckscher* (1919) and further developed by *Bertil Ohlin* (1933), which states that a country tends to import relatively scarce production factors and export goods that utilize relatively abundant production factors (Mahyus ekananda 2014). In the context of ASEAN countries, domestic capital and technology constraints encourage dependence on imported production inputs, which are then combined with the relatively abundant availability of labor to produce export-oriented commodities.

In addition, the positive effect of imports on exports also reflects the active involvement of ASEAN countries in *Global Value Chains* (GVC) as stated by *Gereffi* and *Fernandez-Stark* (2011), where the production process takes place in a fragmented manner across countries and each stage of production generates added value. From a GVC perspective, intermediate imports are an integral part of the value creation process because these inputs are further processed into value-added products that are then re-exported (Muhammad Izzul Fahmi 2024). Thus, productive imports play a major supporting role in increasing exports in ASEAN countries and reinforce the empirical relevance of the Heckscher–Ohlin theory and the Global Value Chains approach in explaining modern international trade patterns. However, these positive effects are highly dependent on the domestic industrial structure and the ability of each country to manage imported inputs efficiently so that they can be converted into high value-added products.

4. Exchange Rate Volatility and Import on Export of ASEAN-5 Countries from an Islamic Economic Perspective

In Islamic economics, export and import activities are regulated to be in line with the principles of justice and public interest, including in facing global economic dynamics such as exchange rate volatility among ASEAN countries. Exchange rate fluctuations between Indonesia and its five trading partners in

ASEAN, namely Indonesia, Malaysia, Thailand, Singapore, and the Philippines, can affect trade stability and regional economic balance. Therefore, Muslims are reminded to be cautious in conducting international transactions to avoid uncertainty and potential losses that can cause harm. (Tesa Wirda Nita, 2024). As long as trade activities are conducted based on the principles of fairness, honesty, and without harming any party, then international exports and imports are considered to be in accordance with Islamic economic values. Every transaction must remain based on sharia by trading halal and beneficial goods, avoiding elements of usury and gharar, and not trading in basic necessities (Agilistya Rahayu 2020).

Monetary policy from an Islamic perspective focuses on three main objectives, namely the achievement of full employment, social justice, and monetary stability. Unlike conventional systems that emphasize economic growth and stability alone, Islamic monetary policy emphasizes a balance between economic aspects and distributive justice. Thus, the Islamic approach is considered more comprehensive because it pursues not only economic efficiency but also equitable distribution of welfare (Uddin M.A. 2019). The Islamic economic system emphasizes social welfare, fair distribution, and sustainable resource management, including in monetary and trade policies. In relation to this study, these principles support the importance of exchange rate stability and import management so that exports can increase without causing injustice to vulnerable groups, in line with the findings that exchange rate volatility and import strategies have different impacts across ASEAN countries and need to be managed so that export growth remains inclusive (Chapra 2000). In this case, international trade regulations in Islam are not intended to restrict, but rather to maintain balance, fairness, and economic stability in society amid uncertain exchange rate fluctuations between ASEAN countries.

D. CONCLUSION

Based on the findings of this study, the following conclusions can be drawn:

1. Exchange rate volatility in the ASEAN-5 countries shows differences between countries and between periods. Indonesia experienced significant volatility in 1999 (p-value 0.0064 < 0.05) as a continuing impact of the Asian crisis, but in the 2000–2024 period, volatility was insignificant (p-value 0.8475 > 0.05), indicating the success of monetary policy in maintaining exchange rate stability. Malaysia and Thailand showed significant volatility in the 2000–2024 period, while the Philippines and Singapore tended to be stable with insignificant volatility throughout the study period.
2. Exchange rate volatility partially has a positive and significant effect on exports in ASEAN-5 with a coefficient value of 0.730434 and a probability of 0.0000 (< 0.05), thus accepting the alternative hypothesis (H1). This indicates that exchange rate fluctuations can increase export competitiveness, especially when there is domestic currency depreciation.

3. Imports partially have a positive and significant effect on exports with a coefficient value of 0.183232 and a probability of 0.0000 (< 0.05), thus accepting the alternative hypothesis (H2). This finding indicates that imports in the ASEAN region are dominated by productive imports as inputs in the production process of export goods.
4. From an Islamic economic perspective, export and import activities are part of muamalah (transactions) that are permissible as long as they are carried out in accordance with the principles of justice, honesty, and the benefit of the people. International trade needs to be managed carefully to avoid uncertainty (gharar) and practices that are detrimental to society, so that it remains in line with Islamic economic values.

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