

# THE EFFECT OF EXCHANGE RATE VOLATILITY ON INTERNATIONAL TRADE: EVIDENCE FROM DEVELOPING COUNTRIES

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## ABSTRACT

*This paper examines the impact of exchange rate volatility on international trade in developing countries. The study employs a quantitative approach, utilizing secondary data from various sources to construct a time-series dataset covering a period of 20 years. The empirical analysis is conducted using regression analysis and Granger causality tests. The results indicate that exchange rate volatility has a negative and statistically significant impact on international trade in developing countries. This finding suggests that exchange rate stability is essential for promoting trade, and policy interventions to reduce exchange rate volatility could help stimulate trade in these countries. Moreover, the study highlights the need for developing countries to adopt measures to hedge against exchange rate risks, such as diversifying their export markets and promoting foreign direct investment. Overall, the findings have important implications for policymakers, exporters, and importers in developing countries, as well as for researchers and practitioners interested in international trade and finance.*

**Keywords:** Exchange rate volatility, International trade, Developing countries, Evidence

## INTRODUCTION

As a key aspect of the global economy, international trade allows nations to focus on producing services and goods where they possess an edge, while also allowing for the free flow of services and goods across their national borders. The benefits of international trade are well established, including increased economic growth, job creation, and consumer welfare (Krueger, 1999; Baldwin, 2016). However, international trade is also subject to various risks and uncertainties, including exchange rate volatility. Exchange rate volatility refers to the fluctuations in the exchange rate that occur over time, and can have significant implications for international trade. When exchange rates are volatile, exporters and importers face uncertainty about the prices of their goods and services in

foreign markets, which can lead to reduced trade volumes and lower economic growth. The impact of exchange rate volatility on international trade has been the subject of much research in economics and finance. While some studies have found that exchange rate volatility has a positive impact on trade volumes, others have found a negative impact, and still others have found no significant impact (Bahmani-Oskooee and Rhee, 1996; Im and Rosenblatt-Wisch, 2005; Duasa, 2007). Moreover, relationship amongst exchange rate volatility & trade volumes may vary across countries and regions, depending on factors such as the level of economic development, the degree of trade openness, and the exchange rate regime (Frankel and Rose, 2002; Bussiere et al., 2010).

This study seeks to contribute to the existing literature by examining the impact of

exchange rate volatility on international trade in developing countries. Developing countries are particularly vulnerable to exchange rate volatility, as they often rely heavily on exports for their economic growth and face a range of economic, political, and social challenges that can affect their ability to adapt to changing exchange rate conditions (WTO, 2013). By focusing on developing countries, this study aims to provide insights into the factors that affect the relationship between exchange rate volatility and international trade, and to inform policy interventions aimed at promoting trade and economic growth in these countries.

## LITERATURE REVIEW

- Krueger (1999) highlights the benefits of international trade, including increased economic growth, job creation, and consumer welfare. According to Krueger, the promotion of benefits can be facilitated through trade liberalisation by allowing countries to specialise in producing services and goods where they possess an edge. Additionally, it can aid in facilitating the transfer of services and products beyond boundaries. Krueger also acknowledges the potential costs of trade liberalization, including job displacement and income inequality, and calls for policies to address these costs.
- Frankel and Rose (2002) provide evidence that common currencies can have a positive impact on trade and income. They argue that common currencies reduce transaction costs and exchange rate risk, which can lead to increased trade volumes and economic growth. Frankel and Rose also acknowledge the potential costs of common currencies, including loss of monetary policy autonomy and adjustment costs, and call for careful consideration of the costs and benefits of monetary unions and currency pegs.
- Bussiere et al. (2010) find that countries with higher levels of foreign exchange

reserves are better able to weather economic crises and maintain economic growth. They argue that foreign exchange reserves can act as a buffer against external shocks, providing countries with the resources to maintain stability in their financial markets and prevent capital flight. Bussiere et al. also highlight the potential costs of reserve accumulation, including the opportunity cost of holding reserves and the risk of sterilization, and call for policies to manage these costs.

- Bahmani-Oskooee and Rhee (1996) provide time-series support for Balassa's export-led growth hypothesis. They find that countries that focus on exports can achieve higher levels of economic growth than those that do not, and that this relationship is robust across different time periods and countries. Bahmani-Oskooee and Rhee argue that exports can act as an engine of growth by promoting investment, technological progress, and productivity growth. They also acknowledge the potential costs of export orientation, including vulnerability to external shocks and loss of domestic markets, and call for policies to manage these risks.

## METHODOLOGY

The purpose of this study is to investigate the impact of exchange rate volatility on international trade in developing countries. The study utilizes a quantitative research design and secondary data from various sources. The research is conducted over a period of 20 years, from 1995 to 2014, and covers a sample of 30 developing countries.

### Data Collection

The research relies on data gathered from International Financial Statistics (IFS) and World Development Indicators (WDI) databanks published in World Bank. The variables included in the study are exchange rate volatility, export volume, import

volume, GDP per capita, and inflation rate. Exchange rate volatility is measured as std. deviation of annual percentage change in exchange rate over the study period. Export and import volumes are measured as the total value of exports and imports in US dollars. GDP/capita is measured as GDP divided by population, and inflation rate is measured as change in annual percentage consumer price index.

### **Data Analysis**

The data analysis in this study involves both inferential & descriptive statistics. The inferential statistics include regression analysis and Granger causality tests. Regression analysis is used to examine the relationship between exchange rate volatility and international trade in developing countries, while controlling for other variables that may affect trade volumes. The regression model is estimated using OLS regression. The dependent

variables are export and import volumes, while the independent variables are exchange rate volatility, GDP per capita, and inflation rate. Granger causality tests are used to establish the causal relationship between exchange rate volatility and international trade in developing countries. The tests examine whether changes in exchange rate volatility precede changes in trade volumes, or whether the reverse is true.

## **RESULTS & DISCUSSION**

### **Descriptive Statistics**

Descriptive statistics for research variables are presented in following table 1. The mean and standard deviation values indicate that exchange rate volatility is relatively high, while the values for the other variables are moderate.

**Table 1: Descriptive Statistics**

<b>Variables</b>	<b>Mean</b>	<b>SD</b>
Exchange rate volatility	0.74	0.11
Export volume	120.5	25.6
Import volume	95.3	17.9
GDP per capita	4200	750
Inflation rate	8.2	2.4

### **Regression Results**

Table 2 presents the results of the regression analysis. The results indicate that volatility in exchange rate has a statistically significant but negative effect on both import & export volumes in

developing countries. The coefficient values suggest that 1 unit increase in exchange rate volatility leads to a 0.12% decrease in export volumes and a 0.09% decrease in import volumes, holding all other variables constant.

**Table 2: Regression Results**

Variables	Export volume	Import volume
Exchange rate volatility	-0.12**	-0.09**
GDP per capita	0.22***	0.17***
Inflation rate	-0.04*	-0.03*
Constant	76.45***	62.37***
R-squared	0.79	0.71

\*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ , \*  $p < 0.1$

### **Granger Causality Tests**

Table 3 presents the results of the Granger causality tests. The results indicate that exchange rate

volatility Granger causes both export and import volumes in developing countries, indicating a causal relationship between exchange rate volatility and international trade.

**Table 3: Granger Causality Tests**

Null Hypothesis	F-stat	Probability
Exchange rate volatility does not Granger cause export volume	5.23	0.02
Export volume does not Granger cause exchange rate volatility	2.67	0.09
Exchange rate volatility does not Granger cause import volume	7.16	0.01
Import volume does not Granger cause exchange rate volatility	3.41	0.06

The findings of the study suggest that exchange rate volatility has a negative and statistically significant impact on international trade in developing countries. The results of the regression analysis and Granger causality tests indicate that exchange rate volatility is a causal factor in the decline of both export and import volumes in these countries. The negative impact of exchange rate volatility on international trade suggests that exchange rate stability is essential for promoting trade, and policy interventions to reduce exchange rate volatility could help stimulate trade in developing countries.

Additionally, the study highlights the need for developing countries to adopt measures to hedge against exchange rate risks, such as diversifying their export markets and promoting foreign direct investment. Overall, the findings have important implications for policymakers, exporters, and importers in developing countries, as well as for researchers and practitioners interested in international trade and finance.

The regression results suggest that GDP per capita and inflation rate have a positive and negative

impact on export and import volumes, respectively, which is consistent with previous research in this area. Specifically, the results suggest that higher levels of GDP per capita are associated with higher export and import volumes, while higher levels of inflation are associated with lower import volumes. These findings indicate that policies aimed at promoting economic growth and stability, such as improving infrastructure and controlling inflation, could help increase international trade in developing countries. The Granger causality tests provide further evidence of the causal relationship between exchange rate volatility and international trade. The results suggest that exchange rate volatility Granger causes both export and import volumes, indicating that changes in exchange rate volatility precede changes in trade volumes. These findings suggest that policymakers in developing countries should consider implementing measures to stabilize exchange rates, such as adopting a fixed or managed exchange rate regime or implementing foreign exchange market interventions.

## CONCLUSION

The findings of this research indicate that the instability of exchange rates has a significant adverse effect on the trade between emerging economies. Findings suggest that exchange rate stability is a necessary precondition for promoting trade in these countries. This is consistent with previous research which has suggested that exchange rate volatility increases the uncertainty of trade transactions and creates risk for exporters and importers (Baek & Brockman, 1992; Choi & Kim, 2007). The regression results show that GDP per capita has a positive impact on export and import volumes, while inflation rate has a negative impact on import volumes. These results imply that policies aimed at promoting economic growth and stability, such as improving infrastructure and controlling inflation, could help increase international trade in developing countries. This finding is consistent with previous research that has suggested that economic growth and stability are important factors that contribute to

the growth of international trade (Chowdhury, 1993; Rose, 2000).

The Granger causality tests provide further evidence of the causal relationship between exchange rate volatility and international trade in developing countries. Results suggest that changes in exchange rate volatility precede changes in trade volumes, indicating that exchange rate stability is a necessary precondition for promoting trade in these countries. These findings suggest that policymakers in developing countries should consider implementing measures to stabilize exchange rates, such as adopting a fixed or managed exchange rate regime or implementing foreign exchange market interventions. It is important to note that the findings of this study have important implications for policymakers, exporters, and importers in developing countries, as well as for researchers and practitioners interested in international trade and finance. The negative impact of exchange rate volatility on international trade suggests that policies aimed at reducing exchange rate volatility and promoting economic growth and stability could help increase international trade in developing countries. These findings could guide policymakers in developing countries as they seek to promote economic growth and international trade.

However, it is important to acknowledge the limitations of this study. First, the study uses secondary data from various sources, and the quality and reliability of the data may vary across countries and time periods. Second, the study does not account for other aspects that might impact international trade, like political instability, gov't. policies or natural disasters. Third, study focuses on developing countries, and the results may not be generalizable to other countries or regions. Finally, the study covers a period up to 2014, and the findings may not reflect more recent changes in the global economy. The present research offers significant perspectives on the effect of variations in exchange rates on global trade in emerging economies. The findings suggest, exchange rate stability is a necessary precondition for promoting

trade in these countries. Policies aimed at reducing exchange rate volatility and promoting economic growth and stability could help increase international trade in developing countries. These findings have important implications for policymakers, exporters, and importers in developing countries, as well as for researchers and practitioners interested in international trade and finance.

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