



# A Study of Foreign Exchange Rate Instability and International Trade: A Review Article

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## Abstract:

*In this study, different theories and explanation has been given to explain the relationship between exchange rate instability and international trade but none of the theory could be universally applicable. Different factors like type of hedging instruments prevalent, time period taken into consideration etc. affects the findings. In most of the immense literature there has been no universally accepted measure of volatility. The general presumption that trade is adversely affected by an increase in exchange rate fluctuations depends on a number of specific assumptions and at an aggregate level there is no major evidence of a negative effect of exchange rates on world trade.*

**Keywords:** *Floating exchange rate, Foreign exchange rate, international trade, Trade openness*

## 1. Introduction

*“Countries engage in international trade for two basic reasons, each of which countries to their gain from trade. First, countries trade because they are different from each other. Nations, like individual, can benefit from their difference by reaching an arrangement in which each does the things it does relatively well. Secondly, countries trade to achieve economies of scale in production. That is, if each country produces only a limited range of goods, it can produce each of these goods at a larger scale and hence more efficiently than if it tried to produce everything. In the real world, patterns of international trade reflect the interaction of both these motives.”* - **Paul Krugman**

In Present scenario each and every country is moving global for trading activities so as to achieve the fast pace of development through International trade. The big globalized firms source capital from where it is cheapest, sourcing talent from where it is best available, producing where it is most efficient and selling where the markets are without constrained by national boundaries. International trade is nothing but a voluntary exchange of goods and services between any two countries, persons, organization, etc. There are many international organization which are there to enhance, observe , research on international trade like World Trade organization , International Monetary Fund, UNCTAD etc. Though international trade and movement of people are increasing rapidly, there is not a single or unique currency that is acceptable across the globe. Whether you go for import from UK, US, China or Japan you have to pay for services and goods in the currency that is accepted in the country. In spite of reduction in tariff and non- tariff trade barriers across the world the fluctuation in currency creates a problems to trade and do business with other countries.

Exchange rate is the rate at which one currency is converted into another currency and international monetary system establishes the rules by which countries value and exchange their currencies. India has a managed floating rate system where exchange rates fluctuate, but central banks attempt to influence the exchange rates by buying and selling currencies. International trade of a country is affected by many factors; fluctuation in exchange rates is one of them. The variation in exchange rates are responsible for the determination of trade volume and trade balance in a country. The foreign exchange rate for conversion of currencies depends on the market scenario and the exchange rate being followed by the countries. Floating exchange rates, or flexible exchange rates, are determined by market forces without active intervention of central governments. For instance, due to heavy imports, the supply of the rupee may go up and its value fall. In contrast, when exports increase and dollar inflows are high, the rupee strengthens. The present paper discusses the impact of change in the value of rupee on the international trade.

## 2. Objectives

The following objectives have been formed for current study:

1. To find out the reasons behind the fluctuation in currency by studying the past trend.
2. To find out the impact of change in the value of currency on trade deficit.
3. To find out the relationship between change in the value of currency and trade openness.
4. To find out the impact of change in the value of rupee's on overall international trade.

Data on exchange rate, exports, imports, foreign exchange reserves, imports of intermediate consumer good, imports of intermediate capital goods will be taken from export-import data bank.

## 3. Literature Review

In reviewing the literature, there have been many empirical and theoretical theories regarding the same. In 1984, IMF produced an article on relationship between exchange rate volatility and international trade for GATT. But the article gave consideration to only G7 countries.

Then 20 years later due to immense changes in world economies, a paper was presented by Peter Clark, Natalia Tamirisa, and Shang-Jin Wei, with Azim Sadikov, and Li Zeng which was approved by Raghuram Rajan (May 2004). This paper examines the effect of exchange rate volatility on trade, which was prepared in response to a request from the Director General of the World Trade Organization to the IMF. It covered all the IMF fund member countries for which data was available and India was considered in rest of world classification having negligent relevance on the study. This study explored a range of different exchange rate volatility

Measures and in addition to examining aggregate trade, the study also divides all products into two groups—differentiated and homogeneous products—and tested whether volatility has a differential effect on them.

Estimating the aggregate trade model requires data on bilateral total trade, incomes, population, distance, as well as geographical, cultural, and historical information. The study uses a panel data set which covers 178 Fund member countries every fifth year from 1975 to 2000.

The empirical analysis in this study is based on the standard “gravity” framework, whereby trade between two countries is modeled as a function of incomes (economic mass) of these countries and distance between them. Using an array of alternative formulations involving different measures of exchange rate volatility, estimation techniques, different country groupings and disaggregation by type of product, one does find fairly systematic evidence of a negative effect of volatility on trade. To be more precise, the study reports some evidence that is consistent with a negative effect of volatility on trade. However, such a relationship is not robust to certain reasonable perturbation of the specification. Specifically, when time-varying country fixed effects are allowed, which are suggested by recent

theoretical work on the gravity model specification, the analysis does not reveal a negative association between volatility and trade.

Mohsen Bahmani-Oskooee, Scott W. Hegerty, (2007) in article "Exchange rate volatility and trade flows: a review article", examines the vast empirical literature, up to 2005, to assess the main trends in modeling and estimating these trade flows at the aggregate, bilateral, and sectoral levels. The empirical literature reviewed in this paper supports both views i.e uncertainty could deter or boost trade flows.

The finding of this paper suggested that the increase in exchange-rate volatility since 1973 has had indeterminate effects on international export and import flows. Although it can be assumed that an increase in risk may lead to a reduction in economic activity, the theoretical literature provides justifications for positive or insignificant effects as well. Similar results have been found in empirical tests. While modeling techniques have evolved over time to incorporate new developments in econometric analysis, no single measure of exchange-rate volatility has dominated the literature. In the article by Alfred Steinher and Eric on Exchange Rate Uncertainty and foreign Trade which suggested that when exchange rate uncertainty is defined over a medium term period, it does not affect adversely trade flows of the industrial countries

Exchange rate volatility and trade a survey by Agathe Cote (May 1994). This paper provides an extensive survey of the literature on exchange rate volatility and Trade, examining both the theory that underlies the work in this area and the results of empirical Studies published since 1988. Despite the widespread view that an increase in volatility will reduce the level of trade, this review reveals that the effects of volatility are ambiguous. There is no real consensus on either the direction or the size of the exchange rate volatility - trade level relationship. Overall, a larger number of studies find that volatility tends to reduce the level of trade, but when the effect is measured, it is found to be relatively small. Microeconomic theory does not allow one to draw any firm conclusion on the consequences of exchange rate volatility for international trade. To obtain the result that exchange rate volatility necessarily reduces the level of trade, one has to rely on a rather stringent set of assumptions. Price effects are always ambiguous, depending on the market structure, the currency denomination of contracts, and the availability of forward cover.

Their review of the most recent empirical studies leads to conclude, as others have done in the past, that the evidence on the effect of exchange rate volatility is mixed. Results of the different studies are difficult to compare since the sample period, countries and more importantly, the measure of risk vary widely. In several cases, long-run measures are used that may be a better proxy for trend changes in the exchange rate than volatility. Overall, a larger number of studies appear to favour the conventional assumption that exchange rate volatility depresses the level of trade (De Grauwe and Verfaillie 1988, Koray and Lastrapes 1989, Perée and Steinherr 1989, Bini- Smaghi 1991 and Savvides 1992). With the exception of De Grauwe and Verfaillie, the magnitude of that effect would be rather small. On the other hand, Asseery and Peel (1991) and Kroner and Lastrapes (1993) find evidence of a positive effect of volatility on export volumes of some industrial countries (the two studies, however, get conflicting signs for the United Kingdom). There is some indication that unanticipated volatility has a more significant impact.

The absence of strong effects may be related to the use of aggregate data, although the only study focusing on sectoral trade volumes provides insignificant results as well (Bélanger et al.). Even though a sectoral approach would be more appropriate, the difficulty in obtaining good quality disaggregated data has presumably limited research. The VAR approach is interesting in that it does not impose exogeneity on the variables in the system. We are not aware of any study, however, that tries to account for the other sources of uncertainty faced by the firms. The recent literature suggests that exchange rate volatility, rather than having a direct effect on trade volumes, may well have a greater

influence through investment location decisions. It would therefore affect trade through its effect on capacity and the lags could be fairly long. It has been argued, however, that a reduction in the costs of transacting between two regions may lead to more, rather than less, geographical concentration of industries. Therefore, a reduction in exchange rate volatility or, in the limiting case, the adoption of a common currency, would not necessarily lead to stronger inward investment.

Christian Broda and John Romalis in article 'Identifying the Relationship between Trade and Exchange Rate Volatility' (Feb 2011), used a model of bilateral trade to structurally estimate the effect on trade of exchange rate volatility and exchange rate regimes such as fixed exchange rates and currency boards. The model highlights the role of trade in determining bilateral real exchange rate volatilities (the source of reverse causality), and the differences in the impact of real exchange rate volatility on trade in different types of goods. These features of the model constitute the main building blocks of our identification strategy. First, real exchange rate volatility affects trade in differentiated products, but does not affect where a commodity gets sold. Second, trade in all products affects real exchange rate volatility. These two results will enable us to identify how exchange rate volatility affects trade in differentiated products. The reason for this is that commodity trade can be used to pinpoint how trade affects exchange rate volatility. This enables identification of how volatility affects trade in differentiated products. Since the model predicts that commodity trade is only affected by relative price levels and not by volatility, we identify the effect of volatility on total trade.

The empirical findings of this chapter provide support for the view that trade depresses real exchange rate volatility. In their model, trade acts as an automatic stabilizer of real exchange rates.

The model implies that, *in equilibrium*, proximate countries have more similar consumption baskets than more distant countries. They develop a model in which both directions of causality are considered, and that allows us to structurally identify the impact of exchange rate volatility on trade. We exploit our identification structure by using disaggregate product trade data for a large number of countries for the period 1970 to 1997. We find that deeper bilateral trading relations dampen real exchange rate volatility and are much more likely to lead to a currency union. In fact, our empirical model attributes most of the correlation between trade and volatility to the effect that trade has in depressing volatility.

It is this effect that had been assumed away in the previous literature. The chapter finds some evidence that real exchange rate volatility depresses trade in differentiated goods. The size of the effect is fairly small and unevenly distributed.

Kazunobu Hayakawa, Fukunari Kimura (Dec 2008):

This paper also employs a gravity equation approach. They estimated the gravity equation for bilateral trade values in the world by the ordinary least squares (OLS) method. Then, by introducing an East Asia dummy interacting with the real exchange rate volatility, they examine the impact of exchange rate volatility on trade in East Asia relative to that in the other regions. The sample included bilateral trade between 60 countries from 1992 to 2005 and data on international trade values are obtained from UN Comtrade.

In this paper, they empirically investigated the relationship between exchange rate volatility and trade, focusing on East Asia. The findings are summarized as follows: first, intra-East Asian trade is discouraged by exchange rate volatility more seriously than trade in other regions. Second, one important source for the discouragement is that intermediate goods trade in international production networks, which is quite sensitive to exchange rate volatility compared with other types of trade, occupies a significant fraction of East Asian trade. Third, the negative effect of the volatility is greater than that of tariffs and smaller than that of distance-related costs in East Asia. Fourth, the sources of such negative impacts of the volatility are time-variant country-specific elements. Last, our simulation

analysis shows that the introduction of a basket currency or a common currency would have a larger positive impact on international trade than free trade.

Some of the articles in this field shows us that there is existence of both short run and long run relationship between nominal effective exchange rates (NEER) and trade balances of South Asian countries and some also showed us that there exists a unidirectional causality between the exchange rate and interest rate and between the exchange rate return and demand for money and there is no Granger's causality between the exchange rate return and stock return. There have also been studies conducted which showed us the importance of flexible exchange rate regimes over fixed regimes in their ability to insulate more effectively the economy against real shocks.

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In most of the immense literature there has been no clear cut relationship between exchange rate volatility and trade flows and no universally accepted measure of Volatility.

## 5. Conclusion

The presumption that trade is adversely affected by exchange rate volatility depends on a number of specific assumptions and does not necessarily hold good in all cases, especially in a general equilibrium setting where other variables change along with exchange rates. And looking at the various economy dynamics like the type of economy it is, hedging techniques prevalent and level of trade, type of products been studied, time period been taken into consideration, etc different theories showed different results. While reviewing different papers we observed that no universal method was used to measure the exchange rate volatility. The study does not deal with determining the level of exchange rates nor with choosing the optimal exchange rate arrangement, e.g., fixed versus floating.

In most of the immense literature there has been no clear cut relationship between exchange rate volatility and trade flows. There have also been studies conducted which showed us the importance of flexible exchange rate regimes over fixed regimes in their ability to insulate more effectively the economy against real shocks. Looking from the perspective of enhancing trade, exchange rate volatility is probably not a major policy concern. This does not necessarily rule out the possibility that large exchange rate volatility could affect an economy through other channels.

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