Title-Study on Impact of exchange rate on India's export price and GDP

C G ACCAMMA

Cg.accamma@mcom.christuniversity.in

PG RESEARCH SCHOLAR

CHRIST (DEEMED TO BE UNIVERSITY)

MILAN UTHUP MATHEW

Milan.mathew@mcom.christuniversity.in

PG RESEARCH SCHOLAR

CHRIST (DEEMED TO BE UNIVERSITY)

ANSON K J

anson.kj@christuniversity.in

ASSISTANT PROFESSOR

DEPARTMENT OF COMMERCE

CHRIST (DEEMED TO BE UNIVERSITY)

Abstract

This study analyses the impact of exchange rate volatility on India's export and GDP of the country with the help of time series data for a period of five year from the financial years 2012-13 to 2017-18. The paper uses regression correlation to know the impact of exchange rate volatility on India's export and GDP and to know the relationship among the variables. In addition, this paper also aims on the existence of momentum in exchange rate and export. This study finds that exchange rate and GDP as well as export and exchange rate have a negative relationship. However, significant impact arises among exchange rate and GDP, but lower significant impact between export and exchange rate and the results indicate that there is an existence of momentum in exchange rate and India's export.

Keywords: Exchange rate , GDP , Momentum, Volatility

Introduction

In the period of globalized world, the association among nations has expanded the capital flow extensively with regard to global trade of goods and services. The progress of growth in the economy is mainly relying upon the rate of exchange due to expanded trade activities worldwide. According to the study (Broll & Eckwert, 1999)the rate of exchange impact on worldwide trade has gained significant consideration in economy worldwide.

In the Last couple of decades, the major countries followed Bretton wood system of fixed exchange rates. But due to failure of Bretton wood system many countries shifted from fixed rate of exchange rule to floating rate of exchange system (kumar & Whitt, 1992). The approach of floating rate of exchange around the globe has incited more noteworthy enthusiasm to know the rate of exchange variation and contingency on global trade volume. It's been argued (Caporale & Doroodian, 1994) that uncertainty in rate of exchange has undesirable and significant effect on trade flows, but there are few articles which discusses in favor of positive relationship (Broll & Eckwert, 1999).

Economy in India is effected significantly by the falling rupee. In the recent days India's rupee is falling against US dollar losing 12 percent this year. This has made the currency one of Asia's worst performers. In this situation we predict that imports will decrease, and exports will increase which boosts the economy of our country because imports from other countries will become more expensive and exporters will get more rupees for the goods they export. But in realism, repeated depreciation of rupee is bothering importers, in order to avoid paying

higher price in coming days importers are buying more stock in advance. Due to decline in rupee value economy in India is affected remarkably.

In financial market price momentum has been the focal point of various studies since the early 1990's, anyways it remains a permanent market anomaly which can't be clarified by standard finance theory. Empirical research has discovered the inclination for asset prices that have ascended in the past to keep on doing as such in the future, and the asset prices which have fallen will regularly diminish further. This momentum in price changes after some time has been found to deliver more risk adjusted returns and has been noted to differing across, fixed income, commodity, equity and currency markets (Grewal, 2015) In this study the presence of momentum in rate of exchange and export in India to know the reason behind appreciation and depreciation in rupee against us dollar and its impact on export and GDP.

The general opinion is that higher the exchange rate instability the higher will be the risk and in turn creates more uncertainty. Therefore, global trade is effected hugely by risk. The key focus of this study is to know the relationship among export, GDP and rate of exchange and exchange rate instability impact on export and GDP. In addition, this study focuses on testing the existence of momentum in exchange rate and India's export during the period 2012 - 2017.

Literature review

Real exchange rate is positively integrated with imports and negatively integrated with the exports. This signifies that devaluation can be useful in enhancing the trade balance. Quick change in the rate of exchange does not effect the exporters. This indicates that if there are sufficient orders to meet then the exporters does not retort to the changes originated due to real exchange rate. (ALI KEMAL & QADIR, 2005) Similarly, it states that the relationship between export exchange rate fluctuation and growth rates does not show any movement; it implies that real exchange rate fluctuation has a bad impact on export in India and export in India has good effect on the world GDP. The insignificant change of Exchange rate has an impact on all commodities of export and it is found that GDP has considerably positive effect on all commodities except chemicals and allied product (haider & Adil, 2017) contradicting these articles there are few articles which argues in favour of positive relationship. The appreciation for the rupee in relation to the US dollar raises concern with respect to its unfavorable outcome on export accomplishments. This paper finds that rate of exchange

movement and export has positive relationship. Rather than treating these circumstances as unreasonable, as in the literature, the paper underscores the significant role of direct or indirect subsidiaries and market structure. This paper contends for a reorientation of India's export procedure (Mallik, 2005) similarly, by encouraging export and discouraging import current account deficit can be improved. Due to depreciation of Indian rupee huge foreign exchange losses are incurred by Indian companies, in spite of having growth in the exports and sales. Because of rate of exchange pressure economy in India is suffering from large fiscal and current account deficit . To put it on a correct direction many hard decisions are taken by government of India (Singh, Mishra, & Singh, 2016) the increase in the REER prompts a decline in the value of dollar of stocks in India for exports. In addition to this it also predicts over the medium terms the increase of goods for exports (Veeramani, 2008) Indian firms react irregularly to exchange rate; firms that have smaller export shares are less influenced by rate of exchange instability compared to firm which export service (Cheung & Senguptab, 2013).

During the financial crisis, the shocks transferred over the financial markets resulted in structural changes in commodity volatility. It was proved that during and after the crisis, compared to idiosyncratic risk, it is market risk that conferred remarkably to the volatility patterns of Indian commodity markets. Similarly, it was proved that rate of exchange fluctuation is unfavourable to those countries who adopt financial openness and flexible rate of exchange sovereignty and the rate of exchange instability impact rely on the financial openness and exchange rate sovereignty (Barguellil, -Salha, & Zmami, 2018)

This study examines the rate of exchange fluctuation impact on worldwide trade volumes for MINT countries i.e Mexico, Indonesia, Nigeria and turkey and it was found that in the long term only turkey has a linkage among rate of exchange instability and worldwide trade. In short term Indonesia and Mexico are found as a causal connection. In the event of Nigeria, one way causality from demand for export to instability is found (Asteriou, Masatci, & Pılbeam, 2016) The author discovers that when compared to advanced economies, emerging market economies has higher export price elasticity and macroeconomic factors effect trade elasticity's and also the export and import price elasticity's incline to be associated across countries (Bussière, Chiaie, & Pelto, 2014). Exchange rate uncertainty and higher instability of the real rate of exchange has a bad effect on demand for export in less developed countries compared to developed countries (Arize, Osang, & Slottje, 2000).

This paper studies trade flows and external exchange rate risk among countries. It has found that, there is a positive effect of external rate of exchange risk on exports. Nevertheless , there is more impact in advanced countries, the countries which has low bilateral rate of exchange instability in conflict to external rate of exchange instability and nation in which export is determined between a small number of firms (Tunca, Solakoglu, Babuscu, & Hazar, 2018) Here, the article focuses on rate of exchange instability effect on Pakistan's export in bilateral sector. Exchange rate volatility may become weak due to the aggregate and bilateral aggregate export data and the impact of exchange rate instability may possibly be more reactive to the nature of industry manufacturing exportable goods.

This study investigates the exchange rate instability effect on agricultural trade among developed and developing nations and this article contradicts the actual findings that due to fluctuation in exchange rate agricultural trade is largely affected. It was found that developing country exporters are effected by exchange rate volatility than for developed country exporters (Kandilov, 2008) and also its been proved that service exports are more effected by exchange rate shocks compared to agricultural exports (Ojede, 2015).

This paper recommends that media coverage can worsen the investor's potential, offering return predictability to be powerful for firm in the spotlight of public attention. These outcomes simultaneously provide reliability to an overcompensation-based clarification for the momentum effect (Hillert , Jacobs , & Müller, 2014)

In momentum investment strategies, profits made by buying and selling the stocks which performed well and made loss in the past respectively, are remarkably less profitable once there is a control for industry momentum. In difference it states that in industry movement investment strategies, buying past winning stocks of industries and by selling past losing stocks of industries are more profitable, even after controlling industry momentum (Moskowitz & Grinblatt, 1999). By opposing the above statement (Jegadeesh & Titman, 2001) investigates the momentum portfolio returns in the past holding period. By studying the past holding period performance it states that momentum portfolio returns in the past holding period should be remarkably positive.

The earliest of research work is concentrated more on exchange rate instability impact on international trade but there are less studies done on impact of falling rupee on export and Indian economy. In the era of globalized world, it is very important to know the effect of depreciating rupee on Indian economy. So, this aims on depreciating rupee and its impact on

export and GDP of the country from the Indian economy perspective and also this study is conducted to test the existence of momentum in exchange rate and India's export.

Objective of the study

- To study the impact of exchange rate on export and GDP and also to find the relationship between exchange rate, export and GDP.
- To study the existence of momentum in exchange rate and India's export price.

Data and Methodology

The research is analyzed with the help of time series data to know the long-term relationship among exchange rate fluctuations in India on its exports, for a period from 2012-2017 are used. The data is used to test the existence of momentum in exchange rate and India's export from past five years due to rise in the level of appreciation and depreciation in rupee against US dollars. Data are obtained from Indiastat and Reserve Bank of India website. The variables used in this study include exchange rate being independent variable and export and GDP being dependent variable. In this study we used unit root test under that we use Augmented Dickey-Fuller (ADF) and Phillip-Peron (pp) test to study whether the time series data used in this study are stationery or not. To conduct this study we used regression.

UNIT ROOTS TESTS: Augmented Dickey Fuller (ADF) and Phillips-Peron (PP) tests are conducted in this study to check if the time series data is stationery or not. If at all the data is found to be non-stationary then further analysis has to be conducted. Here, variables taken are export, exchange rate (exrate), GDP to check the stationarity of the given data. The results of unit root tests are presented in Table 1.

	ADF TEST		PP TEST	
VARIABLES	**LEVEL**	**1ST DIFFERENCE**	**LEVEL**	**1ST DIFFERENCE**

Exchange rate	-3.666375		-3.691777	
Export	-4.109888		-4.109888	
GDP	0.129408	-13.318572	-2.947047	

Using Augmented Dickey Fuller (ADF) test the Exchange rate (exrate) and export rate are stationery at level but GDP is stationery at 1st difference (0.05 level of significance). In the event of Phillips-Peron's test for unit root shows that Exchange rate (exrate), export and GDP rate are stationery at level.

Regression

Dependent Variable	**Coefficient**	**t-statistics**	**R-squared**	**Probability Value**
GDP	-0.297723	-2.176310	0.212820	0.0417
EXPORT	-1.017826	-0.754750	0.026410	0.4588

The inferences from the table above show that:

The coefficient of exchange rate is -0.297723 which states that there is a negative relationship between exchange rate and GDP. It also implies that for every one rupee increase in exchange rate is accompanied by -0.297723 decrease in GDP. The probability value (p-value) of exchange rate is 0.0417 < 0.05 which signifies that the exchange rate is positively significant at 5% confidence level. Therefore, we can see that there is a significant impact of exchange rate on GDP.

The coefficient of export rate is -0.025377which implies for every one percentage of export being carried on the GDP rate decreases by -0.025377. The p-value for the export rate is 0.25 which is less than 5% indicating insignificant to the GDP. The Adjusted R-square value is 0.134102 which means 13% of factors which effects the GDP have been identified.

From the above regression analysis we can infer that there is a negative relationship among rate of exchange and GDP. One of the main reasons for this is the fall in the value of the Indian Rupee when compared to U.S Dollars thus resulting in the decrease in exports due to fluctuations in exchange rate during the study period.

An immense obverse relation occurs between export price and exchange rate. By examining the coefficient value of -1.017826, we can infer that exchange rate and export has a negative relationship, which points out that for every one percentage rise in exchange rate, it will result in 1.017826 units decrease in the export rate. This has effected the income earned from export activities as it is prone to currency rate fluctuation risk.

As the probability value is 0.4588 which is more than 0.05; there is an insignificant relationship between the variables. Hence the strength of relationship between the variables, exchange rate and export are very minimal.

Correlation

Correlation t-Statistic Probability	EXPORTR	EXRATER	GDPR
EXPORTR	1.000000		

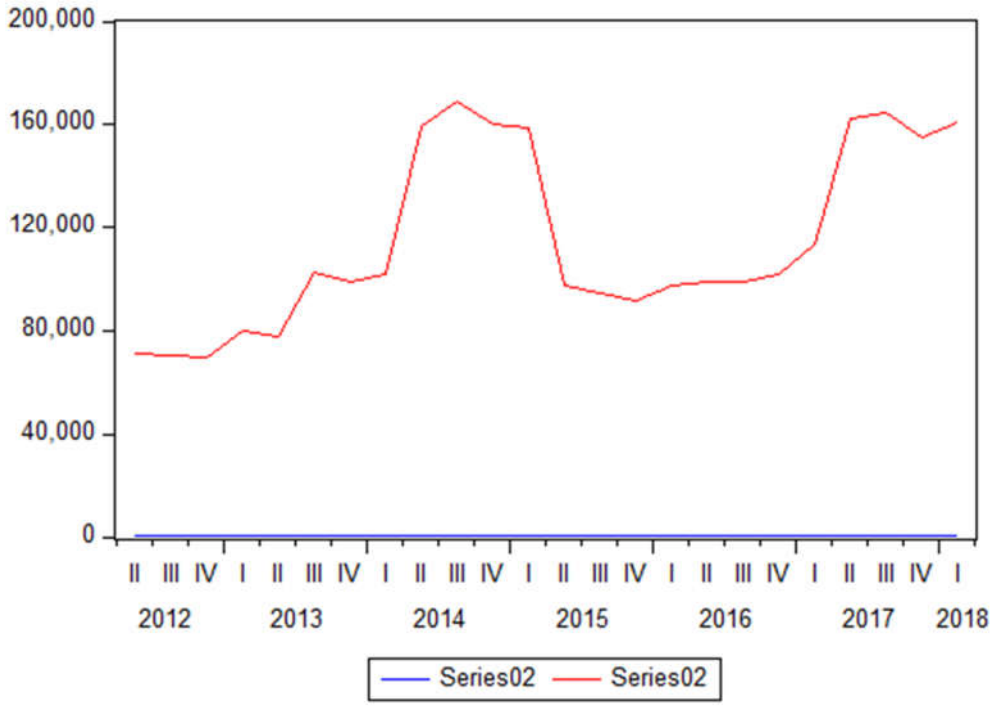
EXRATER	-0.162511	1.000000	
	-0.754750	-----	
	0.4588	-----	
GDPR	-0.162490	-0.399614	1.000000
	-0.754653	-1.997706	-----
	0.4588	0.0589	-----

There was a low negative correlation between rate of exchange and GDP rate in the year 2012-17. This implies that Exrate and GDPr moves in opposite direction during the year 2012-2017. It shows a low negative relation among exchange rate and export rate ie., -0.162511 due to changes in exchange rate fluctuations resulting in low exports.

There also exists a low negative relation between export rate and GDP rate ie.; -0.162490 inferring that due to the instability in exchange rate, the exports have become negative which resulted to GDP of the economy to decline.

Thus in comparison of the two years, it is concluded that due to the fluctuations of the exchange rates, it has an effect on the economies GDP as well as the export rate.

Export



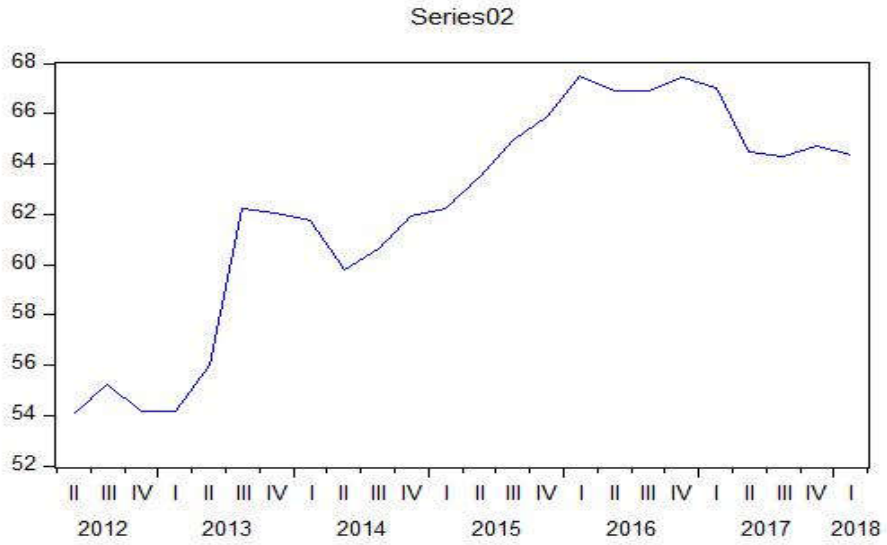
In 2013-14 the first half the year India's export growth was in the declining stage due to sluggishness in the world wide economy, but in the month of July it has seen a significant change and healthy growth, excluding November because in November there was strikes at ports and shipment were effected. The current account deficit comes down to $5.2 billion or 1.2 percent of GDP in the quarter July-September which helped in increasing exports and decreasing imports in the second half of the year.

In 2015-16 we can see steep drop in exports, accounted by three sectors, gems and jewellery, petroleum products and agricultural products, due to global slowdown and decline in crude oil prices that effected shipments of petroleum products.

In the year 2017 there was an increase in exports, 25 out of 30 sectors showed increase in export led by iron ore.

In 2018 exports declined nearly one percent, India's trade deficit increases compared to F.Y 2017 amid rise in global tensions, such a trade deficit is a worry because crude prices move northwards and we need to check for an alternative energy sources.

Exchange rate



In 2013, due to recession in the euro market and because of strong position of dollar in the global market we could see that rupee value is weakening, because of this decline in rupee value and euro crisis investors started selling Euros and buying dollars. One of the main reasons for falling in rupee is due to high oil price. In 2014 and 2015, the value of the rupee declined against the dollar. Economic analysts are of the opinion that the monetary policies of the Reserve Bank of India (RBI) has helped the rupee, which allowed banks to accept deposits from overseas Indians and borrow loans from other countries. Government invited Foreign Direct Investment (FDI) with the aim to attract billions of dollars of foreign money and further easing pressure on the Indian currency. In December 14, 2015, the price of the crude oil in India was at $34.39 per barrel, down by 68.5% since August 2013, where the oil prices were at a high level. So the reason for the fall of the rupee in 2014-15 was the high oil price, where 80 percent India imports. Oil is acquired by the oil marketing companies in India from worldwide market in dollars. This hikes the demand for dollars.

In 2016-17 mostly, the Indian rupee has gained value against the US dollar in 2016-17. In early February 2017, one dollar was worth around Rs 67.50. Thus, fewer rupees can be bought against one US dollar. Therefore, the rupee has gained in value against the dollar. A major reason for this is the fact that foreign institutional investors (FIIs) were driving in money into the Indian stock market with an average investment of Rs 408 billion and invested Rs 314 billion in Indian debt markets. When these investors bring their dollars into India, they need to convert these dollars into rupees, to be able to buy stocks. Hence, they

need to sell their dollars, to buy rupees. When this happens, the demand for the rupee goes up and pushes up its value against the dollar. This is precisely why the rupee has appreciated or gained in value against the dollar, during this period. RBI has intervened by selling rupees and buying dollars in the foreign exchange market during the appreciation of rupee against the dollar. During this period, the Indian banking system had surplus of money and banks were not aggressive about lending the money, which eventually ended up as deposits with banks. Due to this situation, the RBI decreased lending rates to protect the value of the rupee against the dollar. Also, another possible reason for strengthening of rupee is that India imports 80 per cent of the oil and any appreciation in the value of the rupee reduces the oil bill, which will lead the exports to be uncompetitive.

Conclusion

The study examined the relationship between exchange rate, export and GDP as well as the existence of momentum in exchange rate and India's export. As per the results, it is observed that exchange rate and GDP as well as export and exchange rate have a negative relationship. However, there is a significant impact arises among exchange rate and GDP and lower significant impact between export and exchange rate.

In 2012 to 2018, we can observe high fluctuations in the profits and deficits with regard to exports. The exports of natural products played a major role in deciding the profits in the year 2015-2016. The price of crude oil in the international market has been a great factor effecting exports. Moreover, in case of Exchange Rates, when the Indian rupee was falling down the RBI took great steps to protect, by allowing FII into the country in 2015-2016. The monetary policies adopted by RBI in the previous year showed better results in value of Indian rupee in 2016-17.

The value of currencies varies, when the supply and demand for their currencies are different. When the value of dollar in U.S.is weak, exports seems favourable. If rate of interest in outside nation are more than that of other foreign countries, then demand for the currency of other foreign country rises. In order to invest in the other nation's securities, people buy more of that currency where the interest rate is lower.

A fall in the exchange rate certainly diminishes the purchasing power of income and capital gains obtained from any returns or investments. Therefore, a trade surplus occurs as the result of a weak U.S. dollar. Hence, importers always prefer a strong dollar whereas exporters prefer a weak dollar. When there is fall in the value of rupee export raises likewise where

there is rise in the value of money export decreases which can be proved from the above momentum trend.

Reference

Hillert , A., Jacobs , H., & Müller, S. (2014). Media Makes Momentum. *The Review of Financial Studies*, 3467–3501.

Jegadeesh , N., & Titman, S. (2001). Profitability of Momentum Strategies: An Evaluation of Alternative Explanations. *Journal of Finance*, 699-720.

ALI KEMAL, M., & QADIR, U. (2005). Real Exchange Rate, Exports, and Imports. *The Pakistan Development Review*, 177-195.

Arize, A. C., Osang, T., & Slottje, D. J. (2000). Exchange-Rate Volatility and Foreign Trade: Evidence from Thirteen LDC's. *Journal of Business & Economic Statistics*, 10-17.

Asteriou, D., Masatci, K., & Pılbeam, K. (2016). Exchange rate volatility and international trade: International evidence from the MINT countries. *Economic modelling, 58*, 133-140.

Barguellil, A., -Salha, O. B., & Zmami, M. (2018). Exchange Rate Volatility and Economic Growth. *Journal of Economic Integration*, 1302-1336.

Broll, U., & Eckwert, B. (1999). Exchange Rate Volatility and International Trade. *Southern Economic Journal*, 178-185.

Bussière, M., Chiaie, S. D., & Pelto, T. A. (2014). Exchange Rate Pass-Through in the Global Economy: The Role of Emerging Market Economies. *IMF Economic Review*, 146–178.

Caporale, T., & Doroodian, K. (1994). Exchange rate variability and the flow of international trade. *economics letters elsevier*, 49-54.

Cheung, Y. -W., & Senguptab, R. (2013). Impact of exchange rate movements on exports: An analysis of Indian non-financial sector firms. *Journal of International Money and Finance*, 231-245.

haider, s., & Adil, M. h. (2017). An Analysis of Impact of Exchange Rate Volatility on the Indian Manufacturing Exports. *The Empirical Economics Letters*, 1376-1382.

Kandilov, I. T. (2008). The Effects of Exchange Rate Volatility on Agricultural Trade. *American Journal of Agricultural Economics*, American Journal of Agricultural Economics.

kumar, v., & Whitt, J. A. (1992). Exchange Rate Variablity and International Trade. *economic review*, 17-32.

Mallik, J. K. (2005). India's Exports: Policy Defeating Exchange Rate Arithmetic. *Economic and Political Weekly*, 5486-5496.

Moskowitz , T. j., & Grinblatt, M. (1999). Do Industries Explain Momentum? *The Journal of Finance*, 1249-1290.

Ojede, A. (2015). Exchange Rate Shocks and U.S. Services and Agricultural Exports: Which Export Sector is More Affected? *The International Trade Journal*, 228-250.

Panda, S., & Mohanty, R. K. (2015). Effects of Exchange Rate Volatility on Exports: Evidence from India. *economics bullentin*, 305-312.

Sidheswar Panda, R. K. (2015). Effects of Exchange Rate Volatility on Exports: Evidence from India. *economics bulletin*, 305-312.

Singh, A., Mishra, V., & Singh, A. B. (2016). Impact of Rupee- Dollar Fluctuations on Indian Economy. *Research gate*, 1-8.

Tunca, C., Solakoglu, M. N., Babuscu, S., & Hazar, A. (2018). Exchange rate risk and international trade: The role of third country effect. *Economics Letters*, 152-155.

Veeramani, C. (2008). Impact of Exchange Rate Appreciation on India's Exports. *Economic and Political Weekly*, 10-14.