DETERMINATION OF A LONG RUN RELATIONSHIP BETWEEN BALANCE OF PAYMENTS AND EXCHANGE RATES OF INDIA

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Introduction

The exchange rate is a hugely discussed topic in macroeconomics because of its impact on the economy. A fluctuation in the exchange rate influences wages, interest rates, prices, production, and levels of employment in a country. These variables have a huge bearing on everyday life and the standard of living. Thus, its effect on trade, national income, and welfare of a nation is of importance for policymakers. Economists have put emphasis on the relation between exchange rates and the balance of payments. Since the twentieth century, there have been developments in macroeconomics that shows results on this issue. For a globalised economy, the effect of the exchange rate fluctuations on the overall balance of payments is critical to understand so that the balance of payments can be targeted to obtain the optimal national income.*(Krugman, P. R., Obstfeld, M., & Melitz, M. J. 2015)* Devaluation under a fixed exchange rate regime is expected to have the effect of eliminating persisting trade balance deficits. A devaluation of the currency will reduce prices of the domestic exports abroad and raise the price of imports domestically, leading torise in export quantity and fall in import quantity, thereby leading to a surplus in the trade balance. The impact of the exchange rates can be different in the long-run and that in the short-run due to gradual process of adjustment of the quantity of trade to the new exchange rate. *(Flanders, M. J. 2009)*

The theory of J-curve explains this relationship and makes it possible for researchers to predict the outcome of a devaluation or depreciation of the exchange rate on the current account balance. According to the theory, after a real depreciation or devaluation the trade balance is expected to deteriorate at first due to increase in the value of import in the terms of domestic currency due to retaliatory action of other countries and sticky prices. Subsequently, the volume of export will increase gradually and that of import will decline leading to improvement in the trade balance. (*Sharan V., 2011*). Classical economists opine that the balance of payments 'disequilibrium is self-adjusting. Their view was based on the price specie-flow mechanism- which stated that an increase in money supply will raise domestic prices. As a result, exports become uncompetitive and export earnings fall. Foreign goods become cheaper, and imports increase, leading to the automatic correction of the deficit in the balance of payments. *(Mundell, R. A. 1961)*

After the collapse of the gold standard, the classical view was no longer tenable. The correction in the balance of payments disequilibrium was thought in terms of fixed exchange rate that is through devaluation or upward revaluation rather than flow of precious metals in and out of the country. But its success was dependent upon the elasticity of demand for export and import. This phenomenon was explained by Marshall through the elasticity approach *(Marshall, 1924; Lerner, 1944)*. The purpose of this study is to study the relationship of India's Balance of Payments with exchange rates in the complete 25 years commencing from 1990- 91 to 2015-16. Relationships between two variables may exist in the short run due to various social, economic, political, technological and even legal factors but whether or not there is a long run relationship between two macro- economic variables is a concept of huge interest for academicians, researchers and is of huge importance for policy makers because if this relationship is known, then future behaviours of a dependant variable can be predicted with fair accuracy and thus macro- economic policies can be designed to capitalise the opportunities and ward off the negative happenings. Balance of payments account, as said earlier is a combination of two major accounts the capital account and the current account. Any change in the balances of these accounts affects the overall balance of payments. But the question that arises here is that what causes changes in the balances of these accounts. One may say that again a huge number of factors cause ups and downs in the balances but we feel that any change in the international marketing scenario is translated to the exchange rates due to efficient market hypothesis as exchange rates are considered as one of the most important indicators of the health of an economy. Not only this, the exchange rates are one of the biggest influencers of international transactions. Now, it is common knowledge that the balance of payments account is the sum total of the financial transactions of one country with the rest of the world. So, thus an analysis of the nature of relationship between exchange rates and the balance of payments would be of huge importance.

Literature Survey

Balance of Payments Account

Balance of Payments systematically records all the international transactions of economic nature during a given period of time, usually a year as defined by the International Monetary Fund. According to (*Investopedia, 2013*) balance of payments account is a sum of balance on the current account, the capital account and the official settlements account. While the current account measures incomes and expenses occurring in a particular year, the capital account accounts for capital movements in a particular year. The official settlements account measures the transaction of financial assets and deposits by the government and its agencies. The overall balance of payments is the adjustments of sum total of credits and debits in these three accounts and the statistical discrepancy to balance it out. If the debit and credit balances of balance of payments, match, the official settlements account is zero (*Arkolakis C. & Y., 2011*). If the official settlement is not zero, the debit and credit balances of the balance of payments do not match. A Deficit arises when there is a positive balance of official settlements and a surplus is denoted by a negative balance. (*Digital Economist, 2017*). This is the static approach to balance of payments. Balance of payments is an important piece of information for any policy maker and analysts to predict the future strength of the economy in comparison to other economies. Any model forecasting exchange rate should be based on all the three accounts comprising balance of payments. (*Phoolchand, 2013*). Surplus on current account reflects the strength of exports over imports and the recurring current account surplus reflects strengthening of domestic currency over foreign currency. The capital account reveals the financial flows and inflows beyond one year, and is an important indicator of the health of the economy. *(Lindert, 2002)*

Components of Balance of Payments

According to the Handbook of Statistics on Indian Economy 2016; Reserve Bank of India and The Indian Budget, Economic Survey, 2011, Balance of Payments account has three major components, the current account balance, capital account and the official reserves.

Table 1 India's Balance of Payments

1. Imports 2. Exports 3. Merchandise balance (2-1) 4. Invisible • Receipt • Payments(inclusive of interest and service payments on loans and credit) • Net 5. Current account (4/-3)	6. Capital accounts 1. Foreign investments (net) 2. Loans (net) • External assistance • Commercial borrowings • Banking (net) • Rupee debt service(net) • Other capital (net) • Errors and omissions 7. Total capital (6 a) +b))	8. Overall Balance (5+7) 9. Monetary movements a) IMF transactions • Purchases • Repurchases • Net b) Reserves • Increase (-) • Decrease (+) 10. Total (9a) to b))

Source: Reserve Bank of India, balance of payments manual (2016)

Note: Items 1-8 are autonomous flows, whereas item 9 is accommodating flows.

The balance of current account and capital account rarely match, therefore, it is necessary to add an item of errors and omissions so as to ensure that balance of payments always matches in the accounting sense. (*Phoolchand, 2013*)

Fluctuations in Exchange Rate

The exchange rate or the foreign exchange rate is the price of a country's currency in terms of another country's currency. In other words, it represents the value of a currency in terms of another currency. In international businesses, the exchange rate for the two trading countries' currencies plays an important role. Exchange rates, in fact, are one of the most important determinants of the level of country's economic health. Exchange rates play a vital role in a international trade, which has now become critical to every free market economy in the world today. Consequently, exchange rates are among the most watched, analyzed, and manipulated economic measures.*(Evans, G. R., 2014)*

History of Exchange rates and the Indian experience

Prior to 1971, foreign exchange rates were determined by the Bretton Woods Accord entered into after World War II. It was an agreement between the central banks of the world. The world economy was crumbling and the Bretton Woods Accord helped to stabilize the volatile situation by pegging the U.S. dollar to gold and all other currencies to the dollar.In 1971 a new agreement replaced the Bretton Woods Accord but it was short lived. 1973 was the first time when the world's currencies began to be valued based on a free-float system.

The free-float system is a default system of currency trading based on the demand and supply of currencies in the international market. The currencies can appreciate or depreciate in value upto any extent against other currencies. ("*International Exchange Rate, 2016).*

According to Bergen, J. V. (2004) many factors influence exchange rates, some of which may be differentials in inflation, differentials in interest rates, current account deficits, public debt, terms of trade, political stability, economic performance, growth of domestic money supply, size and trend of a country's balance of payments, dependency on outside energy sources, central bank intervention, etc. In addition to these measures of economic activity, the overall perception about the overall strength of one country's currency of a majority of countries can have a significant impact on the currency valuation of a country.

The following section deals with the transition to regime shift and the experience of Indian economy with the same. (Phoolchand, 2013)

1. **External sector**

Short term disequilibrium in balance of payments is generally tended to by the IMF. Such credits are normally available in four instalments on the condition that the

borrower would follow a policy to overcome the balance of payments difficulties within a reasonable time period. The instalments are released based on the performance of the borrower on those austerity measures. Generally, the conditions impose relate to: achievement of a realistic exchange rate, elimination of subsidies so as to allocate resources efficiently, reduction of trade and investment barriers and reduction of government expenditures so as to eliminate excess demand. So, to satisfy all the above conditions and avail assistance from the IMF, India shifted its focus to the external sector.

2. Open Economy

Indian economy was basically a closed economy prior to 1991. It was based on export pessimisms argument and import substituting trade and industrialisation. It required a lot of restriction and an empowering role of the state. IMF wanted India to open the economy. Therefore India shifted to an open economy framework, in 1991.

Liberalisation of Exchange Rate

Due to the adoption of liberalisation, privatisation and globalisation (LPG) paradigm, the exchange rate regime was switched from fixed to flexible.

Impact of the Above Policies

Due to the above measures, foreign investment started flowing into India. Liberalisation also allowed operation of market forces and t was expected that BoP would improve due to devaluation of currency. But, it would also become more volatile due to flexible exchange rate.

Exchange rates constantly fluctuate which means that they float freely. Currencies are valued based on the flow of currency in and out of a country. A particular currency which is high in demand will usually have a high value.*(Arkolakis, C. & Y. 2011)*

It is of utmost importance to understand how exchange rate movements affect a country's trading relationships with other countries of the world. A stronger currency will make a country's exports more expensive and imports cheaper in foreign markets and vice versa.

In the international marketing scenario today, the supply and demand for currencies and the resulting relative values of currencies (the exchange rate) can affect the demand for imports and exports. For example, if the rupee is strong, the rupee is very valuable as compared to other currencies which appear cheaper to us. Because we can buy the currency more cheaply, the prices of the country's products appear lower to us. And at lower prices, quantity demanded rises. So when India has a strong rupee, we will imports more from foreign countries. This helps Indian importers as when they can buy goods at a lower prices, offer those goods to their customers at lower prices, increasing the quantity demanded for their products and potentially increasing their profits.

An important negative effect of the strong rupee, however, exists. When we have a strong rupee, buyers from other countries find the rupee very expensive; and are forced to spend more of their currency to buy rupees. As a result, Indian products appear more expensive to them leading to a fall in our exports. This harms Indian exporters, such as computer companies, auto manufacturers, and farmers, as the only option left with them is to lower their prices to try to attract demand for their products, resulting in lower profits. This might force some firms out of business completely. The resulting impact of a strong rupee is a trade deficit. Imports rise, while exports fall.The interesting thing about this entire phenomenon of changing exchange rates is that they can be self-correcting over time.

In the cycle of international trade, fluctuations in relative incomes, inflation rates, product prices, and interest rates can affect the international value of currencies. And at the same time, changes in the international value of currencies can affect the demand for products and securities in the international marketplace. ("Exchange Rates and Exchange: How Money Affects Trade, 2014.")

Exchange Rate Volatility and Balance of Payments

The exchange rate policy of any country is one of the most important determinants for analysing the pattern of balance of payments. The impact of currency depreciation on the balance of payments has been extensively examined in the context of the Marshall Lerner condition and the J- curve theory. According to the former, currency devaluation improves the balance of payments position only if the sum of the absolute values of import and export demand price elasticities exceeds unity. However, due to lag dynamics, the structure can worsen in the short run because of the inelastic demand for imports and exports in the immediate aftermath of the exchange rate change. Recently, numerous papers tested the Marshall- Lerner condition and the J- curve. Bahamani – Oskoee and Niromand (1999) have tested the Marshall- Lerner condition for 30 developed and developing countries for the period 1960-1992. T.Sek (2006) find the existence   of a long run relationship between the trade balance, RER, foreign and domestic income for Brazil and Malaysia during 1965-2002. Bahamani – Oskoee and Ratha (2004) provide a good survey on the Marshall- Lerner condition and J- curve, showing inconclusive results.

Rose (1991) has examined the empirical relationship between the real effective exchange rate and trade balance for five major OECD countries and finds that the exchange rate is a statistically insignificant determinant of the balance of payments similarly; Rose and Yellen (1989) do not find any significant relationship between the RER and balance of payments. They examined bilateral trade flows between the US and other OECD countries using quarterly data. Most studies relating the exchange rate to trade balance have found weak statistical evidence of such a relationship, i.e. Greenwood (1984), , Rahman and Mustafa (1996) and Muhammad, Shahbaz and

Mohammads, MafizurRahman (2011), and Bahamani- Oskooee (2001) have found weak statistical evidence connecting exchange rate changes and balance of payments. Mahmud et al. (2004) suggest that, although the Marshall Lerner condition holds during fixed exchange rate periods, it is less likely to do so in flexible exchange rate periods. Furthermore, Singh (2002) finds that the RER and domestic income explain a significant influence while foreign income shows an insignificant impact on the trade balance in India. Singh's study also demonstrates a very significant effect (=2.33) of the RER and domestic income (-1.87) on the Indian balance of payments. This is not a direct estimate of the partial elasticity of X and I, with respect to REER. There is also the question of whether we should use NER or RER. According to this thesis, the concept of elasticity is defined with respect to NER as BoP is measured in nominal terms. Also, the economic agents react to changes in NER directly. Moreover, M-L condition must be estimated by separately adding E_x and E_i, not directly obtaining ECAB with respect to NER. In this thesis auxiliary regression is used.

Aqeeland Nishant (2006) has concluded that exchange rate fluctuations are negatively related with exports in the long run. Additionally, the exports in Pakistan are also driven by the volume of world trade and world exports price as the coefficient of these factors are positive and statistically significant during the study period. Loto (2011) investigates the effect of devaluation/depreciation of the Nigerian naira on the country's trade balance for the period 1986 to 2008 using the ordinary least square (OLS) method to estimate the import and export demand functions. The results show that devaluation does not improve the Nigerian trade balance.

Mohsen Bahamani-Oskooee and AmrSadek Hosnya (2012) test for the effect of devaluation of currency at a bilateral level between Egypt and European Union by disaggregating the trade data between two countries and estimating the ML condition at commodity level for 59 industries that trade between the two regions only to find out devaluation improves the trade balance in 39 industries. Yin-Wong Cheung, Menzie D. Chinn and XingwangQian (2014) examine Chinese-US trade flows and find that the value of China's exports to the US responds negatively to currency appreciation, while import responds positively. Further, the combined empirical price effects on exports and imports imply an increase in the real value of the Chinese currency will reduce China's trade balance.

Kwalingana, Simwaka, Munthali and Chiumia (2012) show that a real depreciation does not have a significant impact on the trade pattern in the long-run. Further, a J-curve is observed in the short and medium term and the improvement that follows deterioration of the trade balance is not significantly different from the old level. But, the trade balance seems to respond more positively to shocks in domestic income. Eric B. Kamoto (2006) illustrates that a positive relationship between the trade balance and the real effective exchange rate indicating that a real depreciation will improve the trade balance in the long run. The researcher also finds evidence of the J-curve on the

South Africa. However, Malawi does not exhibit a J-curve. Chowdhury, Emu, Samim and Farhana (2014) find that devaluation improves the balance of trade in the long run as elicited by the Marshall- Lerner condition for Bangladesh.

Dergi (2012) reveals that real exchange rate elasticity of trade balance is negative in the short run for Turkey and Germany's bilateral trade and positive in the long run. This indicates that Marshall-Lerner condition does not hold in the short run. Dr. R. Bhattarai and K. Armah (2005) find that devaluation only deteriorates the trade balance of Ghana even though the price elasticities of export and import add up to one.

Bahmani-Oskooee&Bolhasani (2008) show that real depreciation of the Canadian dollar has short-run effects on the trade balance of only two thirds of the Canadian industries. However, only in 50% of the industries, the short-run effects translate into the long-run favourable effects. Wen (2014) finds that devaluation deteriorates the trade balance of the U.S. in the short run. Ogundipe, Ojeaga and M. Ogundipe (2013) illustrate that in Nigeria, no short run effects of devaluation are found on the balance of trade. Buscagli, Fornari and Osbat (2009) find that the configuration of trade elasticities for many countries is such that the current account response to real effective exchange rate changes is very sluggish, sometimes even paradoxical, with an appreciation leading to a current account improvement. Bleaney and Tian (2010) assess the response of the trade balance to exchange rate fluctuations across a large number of countries. Fixed-effects regressions are estimated for 87 countries on annual data from 1994 to 2010. The trade balance improves significantly after a real depreciation, and to a similar degree, in the long run for all countries, but the adjustment is significantly slower for industrial countries.

Objectives

The study aims to examine the relationship between exchange rates and balance of payments.

Hypotheses

The Null hypothesis for the above objective is:

Ho: There is no significant relationship between balance of payments account and exchange rates.

Research Methodology

In order to establish the relationship between exchange rates and the balance of payments account of India, co- integration method is used. To establish a relationship between exchange rates and balance of payments, it is essential to know whether both exchange rates and the overall balance of payments are invariant with respect to time or not i.e. there is a need to check stationarity of the series. A time series is

strictly stationary if all the moments of its probability (such as mean, variance, skewness, kurtosis, etc.) are invariant over time. In short, if a time series is stationary, its mean and variance remain the same no matter at what point we measure them; they are time invariant. Since, we are dealing with Balance of Payments data which is dependent on several variables in and out of the country, there is a high chance that variables might be non stationary.. If this is the case, it points out the need for invoking co – integration as a method for understanding long run trend of BoP and the nature of relationship between exchange rates and the overall balance of payments.

Co- integration means, in spite of being individually non stationary, a near combination of two or more time series is stationary. It suggests that there is a long run relationship between them. It is quite possible that the two time series share the common trend so that the regression of one on the other will not necessarily be spurious. Regression of one time series variable on one or more time series variables often can give nonsensical or spurious results, if the time series properties are not tested. This is known as spurious regression. One way to save ourselves from it is to find out if the time series are co- integrated. However the minimum requirement of co- integration test is to know the order of integration (unit root) of time series variables. This thesis would use the **Augmented Dickey- Fuller Test** for testing Stationarity of the series and finally **Auto- Regressive Distributed Lag Method** would be employed to draw inferences on the relationships.

Findings
Testing for Stationarity through ADF Test
Unit roots testing for Overall balance of Payments

To carry out the unit root testing, the overall balance of payments data would first be graphed so as to get an idea about the essential assumptions to be made while using the ADF test for testing unit roots which looks as under:

Figure 1: Overall Balance of Payments for 1991-2016
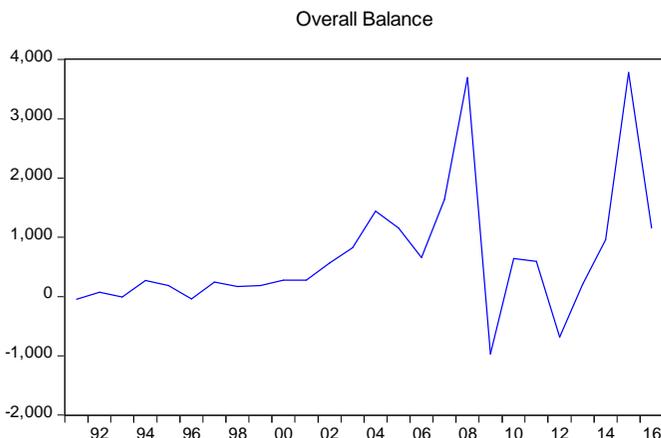
Overall Balance

Two Assumptions are to be Made for the ADF Test

Presence of an intercept or that the data revolves around the zero line and presence of trend. As can be seen by the graph above and preliminary analysis of the graph of the overall balance of payments, the assumptions can be made with confidence that no trend is present

in balance of payments. An intercept is present or that the data does not hover around the zero line. This is corroborated by the average values as seen in the preliminary stage. But since these assumptions need to be further strengthened, a second analysis was conducted for the ADF test assuming the presence of a trend and an intercept which gave the following results:

Variable	Coefficient	Std error	Probability
Overall balance	1.005584	0.213448	0.0001
Constant	-54.76304	432.6312	0.9004
Trend	57.66248	31.69375	0.0825

As Signified by the P Value, the following Conclusions can be made

If the ADF test assumes the presence of both intercept and trend the chance of error is as high as 90.04% for the first assumption and 8.25% for the second assumption. Therefore, a further analysis was done to estimate the ADF test by assuming the presence of only an intercept and no trend and the result was as follows:

Variable	Coefficient	Std. Error	Probability
Overall Balance	-0.850091	0.205179	0.0004
Constant	594.8460	252.2763	0.0295

Figure 2: Structural break in the overall balance of payments

Dickey-Fuller t-statistics
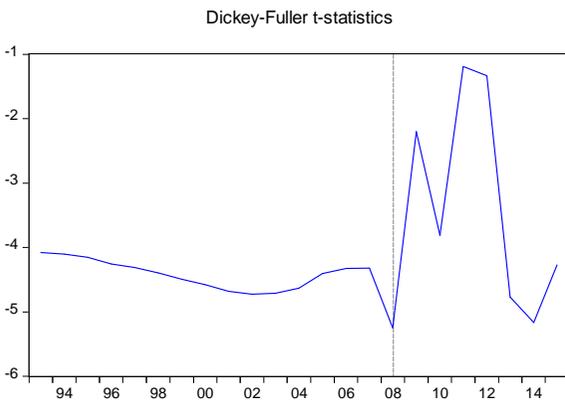
Thus, it became clear, that there exists an intercept but no trend is found in the overall balance of payments as the p value is not more than 0.05. Further, we have also tested for unit roots with the presence of a structural break and found out that no unit roots exist even in the case of a structural break which is present in 2008 shown by the following:

### After the Assumptions were Clear, the ADF Test was run which gave the following Result

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.143178	0.0038
Test critical values:	1% level	-3.724070	
	5% level	-2.986225	
	10% level	-2.632604	

In the most general form of Augmented Dickey- Fuller test for the overall balance series, we do not accept the null- hypothesis that the series contains a unit root

since the calculated value of t- statistic is higher than the critical values at 5% significance level. That means that this series is stationary at the level 0 of integration.

Unit Roots Testing for Exchange Rates
Figure 3: Exchange rate of INR with USD for 1991-2016


US Dollar
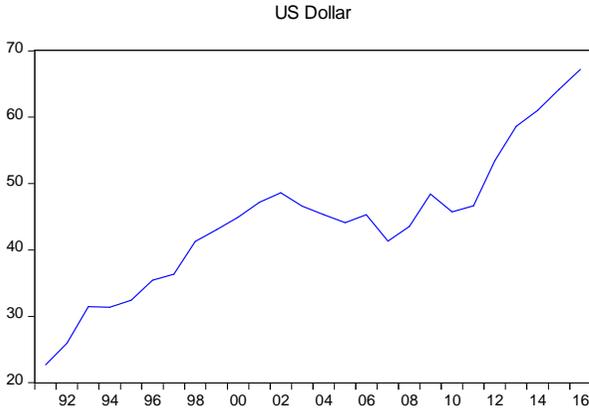
To carry out the unit root testing, the exchange rate data would first be graphed so as to get an idea about the essential assumptions to be made while using the ADF test for testing unit roots which looks as under:

Two Assumptions are to be Made for the ADF Test

Presence of an intercept or that the data revolves around the zero line and presence of trend. As can be seen by the graph above, it can be said with confidence that a trend line can be fitted to the exchange rate data showing upward trend and also that an intercept is present or that the data does not hover around the zero line.

This can be corroborated by the plotting of data in MS- Excel which shows an upward trend line and an intercept.

Figure 4: Exchange rate: growth and trend
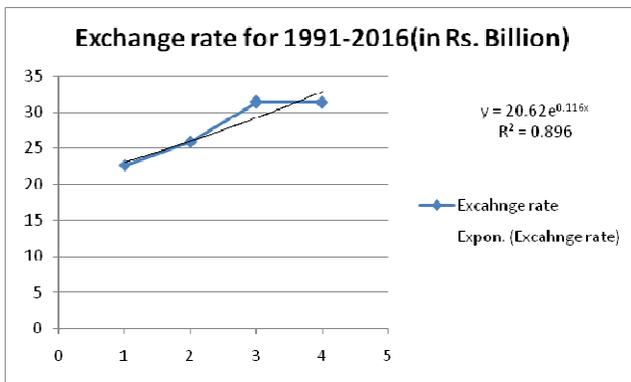
Exchange rate for 1991-2016(in Rs. Billion)

$y = 20.62e^{0.116x}$
$R^2 = 0.896$

But since these assumptions need to be further strenghthened, a second analysis was conducted for the ADF test assuming the presence of a trend and an intercept which confirmed the presence of both trend (p= 0.0124) and intercept (p= 0.0205). After the assumptions are clear, the test was carried out and the result was obtained as under:

In the most general form of Augmented Dickey- Fuller test for the exchange rate series, we accept the null- hypothesis that the series contains a unit root since the calculated value of t- statistic is lower than the critical

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.758157	0.2260
Test critical values:	1% level	-4.467895	
	5% level	-3.644963	
	10% level	-3.261452	

values at 5% significance level. That means that this series is not stationary at the level 0

of integration. We tested the data after relaxing both the assumptions and the result was obtained as under:

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		3.100841	0.9990
Test critical values:	1% level	-2.660720	
	5% level	-1.955020	
	10% level	-1.609070	

Thus, even after relaxing both the assumptions, exchange rate data continues to be non-stationary at the 0 level of integration. Then, we tested Exchange rate data again at first difference level for both intercept and trend. At first level of integration, the exchange rate data ceases to have an intercept (p= 0.4375) and trend (p= 0.7169) both together. So, we relaxed the assumption of trend being present and tested for the assumption of only intercept and found out that, the exchange rate data has no trend but an intercept is present at the first level of integration. (p= 0.0422)

Thus, moving forward with this assumption, testing for unit roots revealed the following result:

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.963185	0.0060
Test critical values:	1% level	-3.737853	
	5% level	-2.991878	
	10% level	-2.635542	

The result indicates that the first difference series of the exchange rate data is stationary since the calculated value of t- statistic is higher than the critical value at 5% significance level. Further breakpoint unit root testing also revealed that exchange rate becomes stationary at 1st level of integration as. Additional information available from this analysis is that a structural break exists in the exchange rate in the year 2003 as shown by the following graph:

Figure 5: Structural break of exchange rate of INR/USD for 1991-2016

Dickey-Fuller t-statistics
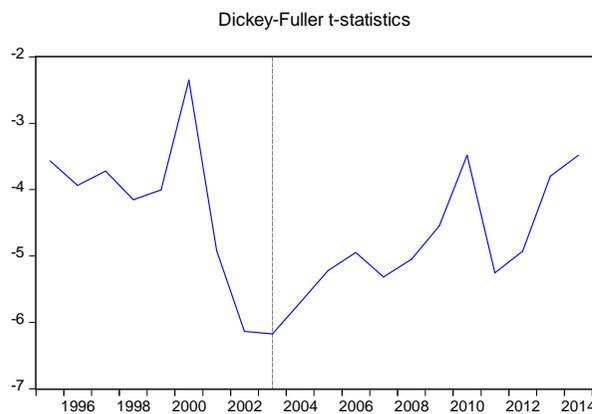
Thus the following Conclusions are Made from the ADF Test

The Overall balance of payments data is stationary with an integration level of 0 (with an intercept but no trend) and The exchange rate data is non stationary at 0 level of integration but becomes stationary at the first level of integration (with an intercept but no trend).

Establishment of a Relationship between the Overall Balance of Payments and Exchange Rates

In order to run the ARDL model, a logarithmic version of the variables was taken. In order to determine the relationship by ARDL model, we need to know the degree of integration of the series with and without structural break which has been found out in the section above. After, the Order of integration is found out, the ARDL model is run using overall balance of payments as the dependent variable and exchange rate as the independent variable (or the regressor) and the following results are obtained:

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	14.98276	10%	4.04	4.78
k	1	5%	4.94	5.73
		2.5%	5.77	6.68
		1%	6.84	7.84

t-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
t-statistic	-5.348085	10%	-2.57	-2.91
		5%	-2.86	-3.22
		2.5%	-3.13	-3.5
		1%	-3.43	-3.82

The ARDL model confirms the existence of co integration between the I(0) level of overall balance of payments and the I(1) level of exchange rate data as the F- statistic and

t- statistic is higher than the critical value at 10%, 5% as well as 1% level. Also regression coefficients could be known from the ARDL model which were as under:

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LOGOVERALLBAL(-1)	-0.087856	0.203410	-0.431917	0.6712
LOGEXCHRT	-7.003111	3.158255	-2.217399	0.0405
LOGEXCHRT(-1)	3.817106	4.709125	0.810576	0.4288
LOGEXCHRT(-2)	10.96565	4.113379	2.665849	0.0163
LOGEXCHRT(-3)	-6.510395	2.573875	-2.529414	0.0216
C	1.363153	1.600167	0.851882	0.4061

Further, we know that Overall balance is regressed by the past values of itself (one year back), current year's exchange rate and the exchange rates of three previous years and the regression equation can be written as: Logoverallbal = 1.361353 – 0.0878Lag1 logoverallbal -7.0311 logexchrt +3.81706 lag 1 logexchrt+ 10.965 lag 2 logexchrt – 6.51 lag 3 exchrt

Summary and Conclusions

The exchange rate policy of any country is one of the most important determinants for analysing the pattern of balance of payments. The impact of currency depreciation on the balance of payments has been extensively examined in the context of the Marshall Lerner condition and the J- curve theory. According to the former, currency devaluation improves the balance of payments position only if the sum of the absolute values of import and export demand price elasticities exceeds

unity. However, due to lag dynamics, the structure can worsen in the short run because of the inelastic demand for imports and exports in the immediate aftermath of the exchange rate change. This paper has tried to test the inter- mixing of two interesting phenomenon, long run and free- float currency. Since mostly all the countries around the world now use a free- float form of currency except a few like China, there is a presence of an equilibrium in the exchange rates values and it so happens that the free- float of currency always helps the exchange rates to return to the equilibrium position through market forces of demand and supply. But this adjustment of exchange rates takes place in the long run and it is our contention that every time a new equilibrium position is reached. Since, the exchange rate is so dynamic and is closely related to a country's balance of payments' position, it is interesting to know the relationship between the two as economic forecasts can be made once relationship is established.

We know that fluctuations in exchange rates cause temporary changes in balance of payments' position but we are interested to know the nature of this relationship in the long run. The paper has tried to establish this relationship by using the Auto Regressive Distributed Lag approach and found out the presence of a strong co-integrating relationship between balance of payments and exchange rates. Not only this, it is also found out that balance of payments data is auto- regressive and depends on lags of itself and the exchange rates too. Thus, it can be said that the transmission of the effect of exchange rate changes to the balance of payments data is a slow process and happens over time as the balance of payments is sticky and does not adjust quickly. This is justified as though, exchange rates are one of the major determinants of a balance of payments account, it is dependent on several other macro- economic factors and phenomenon which if identified and structured, a comprehensive structure for predicting the change in the balance of payments account can be arrived at.

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