Impact of Exchange Rate on Balance of Payment:
An Investigation from Pakistan

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Abstract
The purpose of the study is to determine the impact of exchange rate on Balance of Payment, through investigation of Pakistan Economy. Thus in order to ascertain the volatility of exchange rates & its tendency on balance of payment, monthly data was collected of Exchange rate and Balance of Payment from the official website of State Bank of Pakistan. The data comprised of seven year time period from January 2007 to October 2013. In order to achieve the purpose various test such as unit root, ARDL and Granger causality test are employed which helped us reached to the conclusion that there is a significant and positive relation between Exchange rate and BOP, therefore we could conclude that Stability of exchange rates may create a positive environment by encouraging the investment, and this can improves balance of payment.
Keywords: Balance of Payment, Exchange rate, Pakistan, Volatility; State Bank

1. Introduction
1.1 Back ground of the study
Exchange rates submit for the cost of a currency system in position of a different (foreign currency) EXRT assumes a part with global investment business as refusal country preserve stay in autarky (a structure or strategy of economic self-support aimed at removing necessitates for imports) because of unreliable aspect bequest. Developments in the exchange rate contain expansive influences further investment aspects, for example, interest rate, inflation rate, unemployment, money supply, and so forth. The actualities emphasize the significance of exchange rate to the financial security of every country their releases its routes to global exchange of commodities and services. The value of EXRT infers through the way that it join outcome structure with two separate states creation conceivable for global exchange to create through correlation of exchanged merchandise. In additional ways, its interface domestic costs through global costs. During its impacts on the volume of trade and export, exchange rate pushes an influential impact on a nation's BOP position. The country's Balance of payment examines for at least two causes. First, Balance of payment offers exhaustive information about the supply and demand of the nation's currency. Second, balance of payment information could be utilized to assess the performance of the nation in global budgetary competition.

The "Exchange Rate between two currencies is the rate at which one currency will be exchanged for another." Exchange rates have important impact on the profits of international administration. The modifying in exchanges rate also manipulate the worth of overseas investments apprehended by entity investors. If the Pakistan exchange rate is Rupees 100 to $1, subsequently it gets 100 Rupees to buy a dollar or a dollar's cost of goods and services. From the opposite perspective, a dollar buys 100 Rupees, used to pay for Pakistani goods and services.

A nation is more inclined to have a shortfall in its existing description the elevated its cost level, the higher its GNP the advanced its interest rates, the easier its boundaries to trade in, and the more alluring its speculation possibility all contrasted and conditions in different nations and the higher its exchange rate. The impacts of a change in one of these factors on the current account balance can't be anticipated without presuming the impact on the other casual elements, if the regime expanding duties, public will purchase fewer imports, subsequently lessening the current account deficit. Yet this diminishment will happen just if one of alternate factor changes to achieve a reduction in the capital account surplus. In the event that none of these different factors changes, the lessened imports from the duty increment will cause a decrease in the demand for overseas currency, which thus will raise the worth of the dollar. The expansion in the worth of the dollar will make exports more costly and imports cheaper, offsetting the impact of the duty increment. The net effect is that the duty increment acquires no change the current account balance.

"Balance of Payment it records and summarizes international financial transaction for a specific period. It primarily encircle of three accounts; current account, capital account and reserve account. It also tells us how many goods and services the country has been exporting and importing and whether the country has been borrowing from or lending money to the rest of the world. Balance of payment keeps the complete record of a country trade, net foreign asset, imports and exports of goods, financial transfer and financial capital. The balance of payments is one of the most important statistical statements for any country. The balance of payments was proposed to measure a nation's capacity to reach its assurance to exchange its currency for other currency or for gold at fixed exchange rates." To meet this assurance, country supported a load of Federal Reserve as gold or other currencies forms that they could use to help their currency. A decrease in this stock was viewed as a significant balance of payments deficiency because it undermined the capability of the nation to reach its obligation. Besides that specific sort of deficiency, with itself, was never a true indicator of the nation's financial position. The explanation for why is that it unseen the probability that the nation might be approached to reach its obligation and the readiness of external or international financial foundations to support.

1.2 Scope of the study

Our research report is about to analyze EXRT impact on BOP. So, the scope of our study is to investigate that either there is any exchange rate impact on balance of payment or not. If the research would results in exchange rate impact on balance of payment, we have to find out that how does it would happen. This study is limited to the context as per the consequences of our effort and struggle. It covers the segment from 1980 to 2012. Therefore this study aims to find out how exchange rate can impact on the balance of payment.

1.3 Objectives of the study

The general objective of this examine is to inspect the collision of "exchange rate on balance of payment" of a country with special reference to Pakistan. The specific objectives are to:

- Figure out the reasons, which influences exchange rate.
- Is there a significant impact of EXRT on BOP?
- How can we maintain the exchange rate?
- What factors include in trade deficit except exchange rate.
- Recommending ways of improving Pakistan Balance of payment positions.

1.4 Statement of the Problem

The intention to compile the study is, to ascertain the vulnerability & volatility of exchange rates & its tendency on balance of payment conditions and contradiction between them in all the adverse and favorable conditions.

1.5 Hypotheses

Considerable connection found between the EXRT and BOP

- H1: Exchange rate lags have no impact on balance of payment.
- H2: BOP lags have no impact on BOP

2. Literature Review

Over the period of time currency crises in Pakistan has shift the attention of economist towards exchange rate, as it play a significant role in determine the economic performance of a country. For instance according to Oladipupo and Ogheneovo (2011) the impact of exchange rate to the appearance of distribution the BOP situation utilizing the (OLS) system of inference used for information facing stage from 1970 to 2008. They exposed to EXRT had an enormous impact on the BOP situation. The exchange rate devaluation preserve essentially guide to enhanced balance of payment situation if economical control drives. He additionally figured out the inappropriate distribution and exploitation of domestic credit, fiscal irregular, and deficiency of appropriate expenditure because of centralized regime, is some of the causes for constant balance of payment shortfall in Nigeria. It was suggested that proper overseeing hardwearing system be set up to make sure sensible utilize of credit and accessible overseas exchange. Exchange rate strategies must be used in addition to the monetary and fiscal instruments to get valid consequence. This intimation that our balance of payment issues might be tackled instantaneously from two edges, specifically, increasing delivery and dealing with demand. The Diversification and encouragement of export, import replacement and constraint to trivial import can't be above stressed. The EXRT is depending of BOP place, and their variances persistently influence the BOP position.

According to Sachs (1982) Strategy for Exchange rate can emphasize or obstruct domestic growth and accordingly influence the power of protectionist's burden. Rapid development of domestic yield is liable toward decrease identify for additional assurance whereas judicious development is prone to empower them. If growth is not allied by balance of payments challenges or among an ascent in unemployment, protectionist weights are liable to exist moderately little. There is additionally a developing agreement to established exchange rates have executed to a great degree helpful part in stabilizing rouse economies

Onyinye (2012) observed that exchange rate policies fluctuate occasionally hinging upon the progressions in domestic essentials. Thus, protectionist weights could be cyclical, and this seems to have been the situation in

the move economies under deliberation because they encounter a few movements in trade strategy over this moderately concise instance of time.

As per perusal by Froot and Stein (1991) the exchange rate change is unreasonable enough to legitimacy government mediation. In spite of the fact that the sort of wastefulness talked about above can accelerate quite huge expressions on the stage of EXRT, mediations, such as, transactions taxes or an exchange rate peg additionally include expenses to welfare.

Rogoff (1999) said that EXRT adoptability creates extensive issues for both inbound and outbound trading. Doganlar (2002) examined and observed the effect of exchange rate volatility on the export of five Asian country together with Pakistan presume that extensive correlation exist between true export and exchange rate.

Suggested by Obadan (1996) there are two extensive approaches for exchange rate administration specifically flat and flexible EXRT. The flexible framework is single which the exchange rate on several times is state through the collaboration of promoting sector powers of demand and supply in favor of overseas rate. The fixed EXRT are empower efficiency on overseas trade advertises as well enormously in global exchange transactions.

According to Ghei and Kiguel (1993) the exchange rate influences BOP, utilize the proportion of non-gold store to trade in to study their effect of depreciation on the balance of payments. Its outcome indicates to the store position of the declining state enhances as effect of degrading. This implies that depreciation enhances the balance of payments, because a modifying on the store place comprises a modifying on the balance of payments place.

As mentioned by Oladipupo and Onotaniyohuwo (2011) the less advanced nations those are exporters of raw materials and essential items, the importers requirements might not effectively relate depreciation while a method of remedying balance of payment disequilibrium, as a result of lower cost for the flexibility of require.

According to Anifowose (1994) the foreign exchange as a economic asset utilized consistently to resolve worldwide dealings and to economics shortfall in country BOP he emphasize as, it's a significant part of a nation's supply as well exterior stock. Distinctive parts incorporate investment of monetary, gold and (SDRs). They acknowledge overseas trade regime an aware exertion to manage with exploit accessible foreign assets optimum whereas pledge to construct positive and exterior assets in other to evade external stocks aspect able to reducing of overseas exchange acceptance.

Obaseki (1991) said that the overseas exchange market as an after cause of insufficient supply of overseas services, it can push the weight taking place overseas exchange reserves, if foreign assets are not sufficient; it might collapse into balance of payments issues.

According to Obaseki (1991) it seems that broad exchange possession are determined and employ over the span of implementing economic dealings between the inhabitants for one nation and all over world. They considered to there a secure relation with overseas exchange dealings.

Cooper (1978) observed the effect of exchange rate depreciation on the BOP of several increasing nations. He determines the several sector cases to analyze and indicated the current description of BOP in progressed. The conclude that deflation prompts eminence exports and brings down imports, that in the long run might enhance on BOP situation of a nation. Bird (1984) observed the enrichments of balance of payment after reduction doesn't essentially recommend that the balance of payments dependably enhance on account of reduction.

According to researchers the EXRT of domestic currency with the currencies of individual nations, it's evident the circumstances of the current account impacts directly in the expense of the narrow currency adjacent to the currencies of different countries, along these lines in the exchange rate. The solidness of EXRT, throughout the move phase had a crucial part in keeping the inflation in typical levels.

Froot and Klemperer (1989) investigated the exchange rate pass-through with foreign firms market shares in an energetic model. They inspected estimating practices of export firms under impermanent and perpetual exchange stun situations. Export firms have a tendency to transmit less exchange rates stagger to costs when they observe that the exchange rate progressions are transitory. Then again, lasting exchange rate variations will urge export firms to bring down their prices when the nearby currency value upholding their market shares.

Arize, Osang, and Slottje (2000) examines exchange rate fortitude was the floating exchange rates adaptation of the financial method. As per financial method, unreservedly floating exchange rates manage stable steadiness in the balance of payment.

Humphrey and Keleher (1982) empirically investigates result is the BOP shortfall or excess. On account of floating exchange rate direction, a modification occurs through sequence in exchange rate and not through the accumulate stream or BOP. At long last, under the supervision of managed floating, slithering peg or creeping band, modifying occurs both through the foreign reserve (BOP) and exchange rate changes. Under this circumstance, the powers mediate time to time in the foreign exchange souk to control the discrepancy in the exchange rates and to keep the rate in the steadiness level. Additionally they have to prefer the proportionate measure of exchange rate burden, instigate through disequilibrium in the money market, ought to be assuaged through the exchange rate expansion and through the reserve streams. Thus, both the variables will change and help the restoration of economic equilibrium.

Anyanwu (1993) explained throughout his study But as put through it's a deliberate live of shifting the exchange rate against the comprise currency. The explanation for devaluation is that the rise in import prices would balance finance import bill whereas the exports can increase price owing to a fall in their costs and a bigger increase in export volume. In different words imports become less engaging as a result of them become dearer within the terms of the domestic currency. It's recognize exist of correcting state of affairs during a deficit balance of payments. They are completely different approaches adopted in discussing devaluation two of such approaches are the elastics approach and therefore the absorption approach.

According to Ahmed (1992) the stability in EXRT is identified in overseas trade marketplace on a position wherever demand and supply of overseas exchange compared. Demand of currency arrives from grid trade whereas supply of money arrives from grid overseas investment. Several adjustments in demand and supply of currency impact their worth the same to a well-known industry, but order to a currency boosted its worth EXRT will be improved however raise in supply of currency will diminish their worth of exchange rate in the overseas exchange marketplace.

According to Onyinye (2012) the most extensively used technique for exacting instability in the BOP. Exchange manage pass on to manage ended this exploit of overseas trade through organize bank. Exceeding this system whole exporters are bound through the central bank it capitulate their foreign earnings. Forex licensed with certified importers, just vital importers are authorize. He also examined that exchange rate shift with differing supply and demand condition however it's dependably conceivable to accumulate an equilibrium exchange rate which clears the foreign exchange market and makes external equilibrium. This is enormous with decrease in imports. Subsequently the balance of payment deficit is reducing.

According to the analysis of Makin (2005)empirically investigated the exchange rate and the balance of payment is Utilizing a acquiesce use structure, it indicates their domestic fiscal can able to force a crowd flanked by nationwide consumption & preparation are produce early and present record inequities through EXRT and BOP suggestions. Exchange rate to the assessment stage, as opposed to from currency of the value stage to the exchange rate. The EXRT toward a significant well spring of boosting burden for progressively liberate economies. By carrying discrepant yield use to conduct the front line, the currency related imitation plot beyond furnishes an elective method of comprehension the transmission of financial stuns to local and worldwide macroeconomic variables. As well, in floating EXRT, however in opposition to MAER, it bears the real part of yield use inequity in figuring out the exchange rate. Thus, its indicate how causation rush of currency throughout consumption to the EXRT to value stage burden, as opposed from currency toward the value stage on exchange rate, even though buying force equality forced as a long run condition. The EXRT and BOP specifically in the course of national use and handling totals. The fixed exchange rate administration successfully kills the effect of a financial stun on true yield and livelihood, with the present record and by and large balance of payments turning into the stun absorber. It likewise proposes, in opposition to MF display to exchange rate decision is not vital to difficulty of their adequacy of financial strategy like a earnings stabilization implement in excess of the distinctive period. Ultimately, the model intimates that, different matters being equivalent, economy's vulnerable to prominent expansion might as well embrace fixed, as opposed to a floating EXRT, specifically low and constant growth their primary exchanging accomplices.

2.1 Exchange system in Pakistan

According to Zakaria & Ghauri (2011) Pakistan's foreign exchange rate government has been stimulating towards the irregularities and marketplace crooked way. When the 1970s,Pakistan connected its money, Pak-rupee, to the British Pound Sterling, With expanding budgetary impact of the USA, in 1971 Pakistan interfaced rupee to the US Dollar. After the fall down of Bretton Woods system in 1972, numerous modern country of globe exchanged from settled to flexible exchange rate system, Pakistan was no more exemption. Consequently, Pakistan received the synchronized flexible exchange rate system in January 1982 with its coin interfaced to an exchange weighted money crate. In 1998, to allay the money related emergency in Pakistan, the powers embraced a different exchange rate structure, which embodied a usual rate (peg to US dollar), a floating between bank rate, a compound rate (synthesis of authority and floating between bank tariff). With the market recuperating from emergency in 1999, the three EXRT were brought together and attach the US dollar inside a distinct crowd. This crowd was uprooted in 2000. Presently, Pakistan is dealing with a floating rate. Under the contention that Pakistan's fares are inelastic and need devaluation of local coin, Pak-rupee was enduring devalued while the selection of regulated floating exchange rate system in 1982. Pak-rupee devalued from Rs 12.84 for each US dollar in 1982 to Rs 86.35 in December 2010.

2.1.1 Floating Exchange Rate System

According to Onyinye (2012) this System of floating exchange rates which begin to exist in 1973 showcases the attributes an exchange rate which differ uninhibitedly consistent with progressions in the demand and supply of foreign exchanges; BOP alteration dominatingly through EXRT and interest rate modify, the nonexistence of universal resources of gold and foreign exchange, it necessitate more great exchange rate unsteadiness than under a fixed rate structure in which official mediation hoses the level of exchange rate disparity.

2.1.2 Flexible Exchange Rate System

According to Jhingan (1997) the system of flexible exchange is simple in its representative instrument, the exchange rate move immediately and uninhibitedly to liken supply and demand. It doesn't permit a deficiency or surplus to advance and dispenses with the issue of shortage of surplus of any one currency. It also evades the necessity to instigate change in prices and income to support or restore equilibrium in a critical balance of payment. Under an arrangement of flexible exchange rates, immediately of the domestic financial approaches is secured. Advanced governments are resolved to uphold full employment and push dependability with growth. They are now needed to consent these destinations of full employment and economic development to evacuate balance of payment disequilibrium under a government of flexible exchange rate. The flexible exchange rate argue that endeavors at fixing or controlling exchange rates are particularly dreadful since the control of exchange rate is often and trusted to experts who are proficiently away of achieve of some populist control. The Flexible exchange rate avoids disturbance of pressure on the balance of payment under the method of fixed EXRT. Since under an arrangement of flexible exchange rates disequilibrium in the balance of payment is instantly adjusted there is no compelling cause to ensemble gold expansions and capital flows good and done with the country.

2.1.3 Fixed Exchange Rate System

As per Anyanwu (1993) fixed exchange rates system is not essentially self-equilibrating for occurrence the co-existence of export blockages and dependence of un strategized parts such as energy impressive contribute to a circumstances in which the modification procedure is incapable to eradicate persistent payment deficits at existing exchange rates. The stiffness of fixed exchange rates might worsen the distortions which result from structural modifying in economic activities.

2.2 Types of Exchan.ge Rate

According to Onyinye (2012) the foreign exchange marketplace at a fastidious instance, near survived, not single distinguish exchange rate other than the diversity of rates depending in the guide of credit appliances exploited in the transmit purpose.

2.2.1 Spot Rate

"Spot rate of exchange is the rate at which foreign exchange is made available on the spot. It is also known as cable rate or telegraphic transfer rate because at this rate cable or telegraphic sale and purchase of foreign exchange can be arranged immediately. The spot rate is quoted differently for buyers and sellers. This discrepancy is due to the transport charges, insurance charges, dealer's commission, etc. These costs are to be borne by the buyers"

2.2.2 Forward Rate

"Forward rate of exchange is the rate at which the future contract for foreign currency is made. The forward exchange rate is settled now but the actual sale and purchase of foreign exchange occurs in future. The forward rate is quoted at a premium or discount over the spot rate"

2.2.3 Long Rate

"Long rate of exchange is the rate at which a bank purchases or sells foreign currency bills which are payable at a fixed future date. The basis of the long rate of exchange is the interest on the delayed payment. The long rate of exchange is calculated by adding premium to the spot rate of exchange in the case of credit purchase of foreign exchange and deducting premium from the spot rate in the case of credit sale"

2.2.4 Fixed Rate

"Fixed or pegged exchange rate refers to the system in which the rate of exchange of a currency is fixed or pegged in terms of bullion or another currency"

2.2.5 Flexible Rate

"Flexible or floating exchange rate refers to the system in which the rate of exchange is determined by the forces of demand and supply in the foreign exchange market. It is free to fluctuate according to the changes in the demand and supply of foreign currency"

2.2.6 Multiple Rates

"Multiple rates refer to a system in which a country adopts more than one rate of exchange for its currency. Different exchange rates are fixed for importers, exporters, and for different countries"

2.2.7 Two-Tier Rate System

"Two-tier exchange rate system is a form of multiple exchange rate system in which a country maintains two rates, a higher rate for commercial transactions and a lower rate for capital transactions"

2.3 Currency Devaluation

The value of the EXRT in the global market its mean economic power officially situate a new rate with reverence to overseas allusion currency it vice versa is revaluation, through which financial control properly situate a new fixed rate with esteem to a foreign allusion currency whereas depreciation mean that unofficial reduce the exchange rate of the countries maintaining floating EXRT its reverse scenario define appreciation of currency several countries grip floating exchange rate as some countries hold fixed interest rate against U.S.

dollar or any other strong currency countries usually maintain fixed exchange rate policy when their government want to manipulate the money supply by trading the foreign currency reserves.

2.3.1 Reason for devaluation of currency

Analyst conform that there are many reason for the continuous devaluation in the currency of Pakistan such as Reduction in the foreign Exchange reserves at $800 to $900 million per month as result of huge gap between import and export bill poor infrastructure to manage law order situation due to which foreign investor not prefer to trade with Pakistan , heavy borrowing by the government of Pakistan to finance a budget deficit and $500 million euro bond debt obligation due in February are the major factors in the erosion of Pak rupee. Depreciating rupee is the biggest challenge for Pakistan economy but our leaders are busy in just politics and are least bothered like financial managers to chalk out affective policies to take Pakistan out of these economic crises.

2.4 Modern theory of Balance of Payment

According to Onyinye (2012) "The balance of payments is a systematic record of all economic transactions, visible as well as invisible in a period between one country and the rest of the world." It illustrates the attachment between a nation's in whole payments to rest of the countries and its complete accounts as of them. Bop, therefore is a description of expenses with invoices and global transactions. The stability of expenses concept is contemporary and primarily satisfying concept of purpose for the return amount.

As well classify the demand and supply concept of EXRT. As per this concept, the rate of return in the international marketplace is indomitable through the stability of expenses in the logic of provide and requirement of currency trading in marketplace. The stability of transaction is used in the logic of marketplace stability, if the requirement of a country's exchange reduces at a given amount of exchange; we could converse of a shortfall and its balance of payment. In the same way if the requirement for a nation's currency increases at a given amount of return, we can talk of excess in its stability of expenses. A lack stability of transaction results in a reduction on the external worth of the nation's exchange. An excess stability of transaction results in a raise in the external worth of the nation's currency.

2.4.1 Features of Balance of Payment

Anyanwu (1993) investigated the balance of payment concern of a country's constricted on the most crucial of double-entry book-keeping. Such payment is entered on the debit and credit score ranking aspect of the balance part, but balance of payments accounting differs from business accounting in one respect. In business accounting debits are display on the left surface and credit score ranking on the right aspect of the balance piece. But in balance cope accounting to the practice is to demonstrate credits on the left aspect and debits on the right aspect of the balance piece. When a transaction is received from overseas it is a credit score transaction. The major items display on the money ranking aspect are exporters of products or services, unrequited (or transfer receipt in the form of gift etc. from individuals from other countries borrowing from abroad, investment strategies by individuals from other countries in the country, and official sale of source resources including gold to worldwide countries and worldwide agencies). The major item on the charge aspect include imports of products or services, transfer transaction to individuals from other countries lending to worldwide countries, investment strategies by resident to foreign countries and global institutions. These debit and credit score ranking items are shown vertically in the balance of transaction concern of a country according to the most crucial of charge access book-keeping. Horizontally they are divided into three categories: the current concern, the capital concern and the official settlement concern or the official source resources account.

2.4.2 Components of Balance of payment

2.4.2.1 Current Account

"According to Antiam (1996) the current account shows the net amount a nation is earning, if it is in surplus or spending if it is in deficit. The sum of the balance of trade (net earnings on exports minus payments for imports), factor income (earnings on foreign investments minus payments made to foreign investors) and cash transfers. It is called the current account"

2.4.2.2 Capital Account

"The Capital Account is (also known as financial account) is one of two primary components of the balance of payments, the other being the current account. Whereas the current account reflects a country's net income, the capital account reflects net change in ownership of national assets. A surplus in the capital account means money is flowing into the country, but unlike a surplus in the current account, the inbound flows will efficiently represent borrowings or sales of assets rather than payment for work. A deficit in the capital account means money is flowing out the country, and it suggests the nation is increasing its ownership of foreign assets. The term "capital account" is used with a narrower meaning by the International Monetary Fund (IMF) and affiliated sources. The IMF splits what the rest of the world calls the capital account into two top level divisions: financial account and capital account, with by far the bulk of the transactions being recorded in its financial account"

2.4.2.3 Official Reserve Account

"The financial account of the balance of payments includes official reserves. Central banks, like the United

States Federal Reserve System, maintain reserves of foreign currency or official reserves. The purpose of official reserves is to provide a stabilizing influence in the foreign exchange market. If a balance of payments deficit occurs, the Federal Reserve reduces its foreign reserves in order to zero out the balance. In the case of a balance of payments surplus, the Federal Reserve acquires additional foreign reserves to zero out the balance''

3. Methodology
3.1 Source of data
Data of this research is being collected from the official website of State Bank of Pakistan. In this study we have focused on secondary type and time series of data. It is comprised of seven year time period from January 2007 to October 2013; on monthly basis. The data was manipulated and results were obtained using Microsoft Excel and specialized package of E-views.
3.2 Variables
The exchange rate and balance of payment (BOP) are the Variables in this study where exchange rate is used as independent variable and BOP is used as study variable.
3.3 Model
The econometric model of ARDL – Auto Regressive Distributed Lag model is used figure out the relationship between the dependent and independent variables and their respective lags.

$$BOP_t = \beta_0 + \beta_1 * Exrt_{t-1} + \beta_2 * Exrt_{t-2} + \beta_3 * Exrt_{t-3} + \beta_4 * Exrt_{t-4} + \alpha_1 * BOP_{t-1} + \alpha_2 * BOP_{t-2} + \alpha_3 * BOP_{t-3} + \alpha_4 * BOP_{t-4} + \varepsilon_t$$

4. Result and Discussion
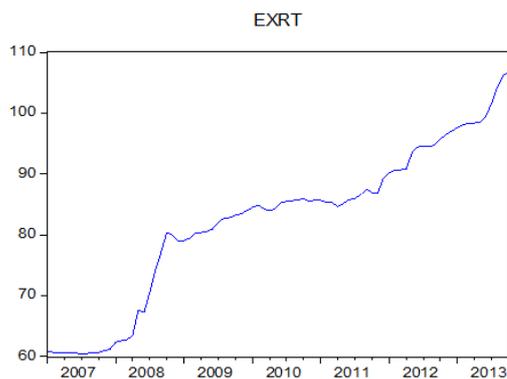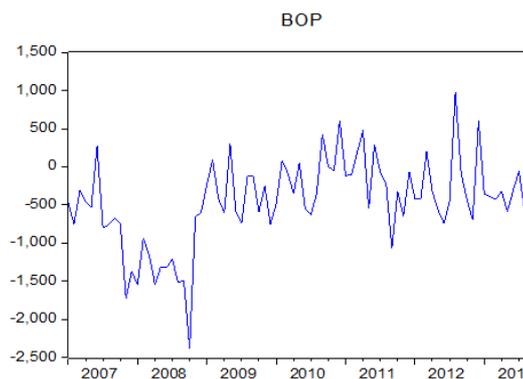### 4.1 Graphical Analysis

Figure 1: Exchange Rate

Figure 2: BOP

At first step, we draw graphs of exchange rates and balance of payments. It's evident that exchange rate has unit root i.e. Non-stationary whereas BOP series has no unit root thus it is stationary.
4.2 Unit Root Test (ADF Test)
Table 1: Unit Root Test (ADF Test)

Variable	Level	1st Difference	Integration
EXRT	-0.261	-5.892***	I(1)
BOP	-4.941***	_	I(0)

In order to conduct formal investigation of unit root, ADF test is conducted which shows exchange rate is getting rid of unit root at first difference and BOP has no unit root at level thus it is stationary . Hence, the series are integrated of order 1 and 0 respectively.

4.3 Descriptive Analysis
Table 2: Descriptive Analaysis

	BOP	D(EXRT)
Mean	-453.5309	0.565984
Median	-424.0000	0.248800
Maximum	981.0000	4.045300
Minimum	-2374.000	-1.000100
Std. Dev.	573.9556	0.998666
Skewness	-0.501467	1.772675
Kurtosis	3.969495	5.887499
Jarque-Bera	6.567060	70.56164
Probability	0.037496	0.000000
Sum	-36736.00	45.84474
Sum Sq. Dev.	26354000	79.78674
Observations	81	81

In order to test normality Jarque-Bera test is used. The output shows a p-value of BOP is less than 0.05 thus we reject H0 and p-value of EXRT is also less than 0.05 thus we again reject Ho concluding that that data of both BOP and EXRT is not normal. Further the Skewness value BOP and EXRT show that BOP is negatively skewed meaning that it has a long tail toward small value whereas EXRT is positively skewed meaning it has a long tail toward large value. Moreover as the value of kurtosis is greater than 3 of both are leptokurtic.

Table 3: Tests of Normality

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Ex_Rt	.142	82	.000	.918	82	.000
BOP	.127	82	.002	.969	82	.047

a. Lilliefors Significance Correction

A couple of tests are conducted as formal investigation of Normality and both the tests declare that both the series are not normal as the p-value of both variable is less than 0.05 thus rejecting H0.

Table 4: Lag Length Selection
VAR Lag Order Selection Criteria
Endogenous variables: BOP
Exogenous variables: C D(EXRT) D(EXRT(-2)) D(EXRT(-3)) D(EXRT(-4))
Date: 01/21/14   Time: 17:14
Sample: 2007M01 2013M10
Included observations: 75

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-573.6343	NA	294362.9	15.43025	15.58475	15.49194
1	-564.8274	16.20477	239074.0	15.22206	15.40746	15.29609
2	-561.8796	5.345268	227019.3	15.17012	15.38642	15.25649
3	-559.0578	5.041653	216312.2	15.12154	15.36874	15.22024
4	-556.1929	5.042177*	205889.7*	15.07181*	15.34991*	15.18285*
5	-555.4989	1.202955	207666.9	15.07997	15.38897	15.20335
6	-555.3700	0.219939	212660.9	15.10320	15.44310	15.23892
7	-555.2685	0.170489	217957.9	15.12716	15.49796	15.27522

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

In time series, lags of series play a significant role. Before conducting ARDL, in order to determine the relevant order of lag, VAR (vector auto regression model) was employed which in the above given table suggest 4th lag.

4.4 Autoregressive Distributed Lag Model (ARDL)

Table 5: Autoregressive Distributed Lag Model (ARDL)

Dependent Variable: BOP
Method: Least Squares
Date: 03/05/14   Time: 20:32
Sample (adjusted): 2007M06 2013M10
Included observations: 77 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-90.01309	74.28096	-1.211792	0.2298
BOP(-1)	0.175311	0.121031	1.448486	0.1521
BOP(-2)	0.144392	0.120043	1.202830	0.2332
BOP(-3)	0.281916	0.120710	2.335473	0.0225
BOP(-4)	0.310070	0.118859	2.608727	0.0112
D(EXRT(-1))	-110.7170	59.52702	-1.859945	0.0672
D(EXRT(-2))	-38.61218	62.63056	-0.616507	0.5396
D(EXRT(-3))	131.3986	63.12778	2.081470	0.0412
D(EXRT(-4))	150.4310	64.92582	2.316967	0.0235

R-squared	0.476186	Mean dependent var		-450.5325
Adjusted R-squared	0.414561	S.D. dependent var		587.5869
S.E. of regression	449.5862	Akaike info criterion		15.16400
Sum squared resid	13744685	Schwarz criterion		15.43795
Log likelihood	-574.8140	Hannan-Quinn criter.		15.27358
F-statistic	7.727139	Durbin-Watson stat		1.796842
Prob(F-statistic)	0.000000			

After determining the appropriate lag length through VAR, ARDL test was employed. The above table of ARDL shows that there will be a significant impact of exchange rate on balance of payment at Lag 3 since the p-value is less than 0.05 concluding that exchange rate will impact BOP after 3rd Quarter. Further table also show that the data has no auto correlation since the value of Durbin-Watson statistic is close to 2.

4.5 Granger Causality Tests

Table 6: Granger Causality Tests

Pair wise Granger Causality Tests
Date: 03/05/14   Time: 20:38
Sample: 2007M01 2013M10
Lags: 4

Null Hypothesis:	Obs	F-Statistic	Prob.
D(EXRT) does not Granger Cause BOP	77	3.57495	0.0105
BOP does not Granger Cause D(EXRT)		2.03823	0.0987

To get a clear understanding of whether Exchange rate impact BOP or BOP has an impact on Exchange rate, granger causality test was conducted. Since the p value of null hypothesis "D (EXRT) does not Granger Cause BOP" is less than 0.05 thus we reject null concluding that EXRT Cause BOP. Whereas on the other hand BOP does not cause EXRT as the p-value is greater than 0.05and therefore satisfying our study.
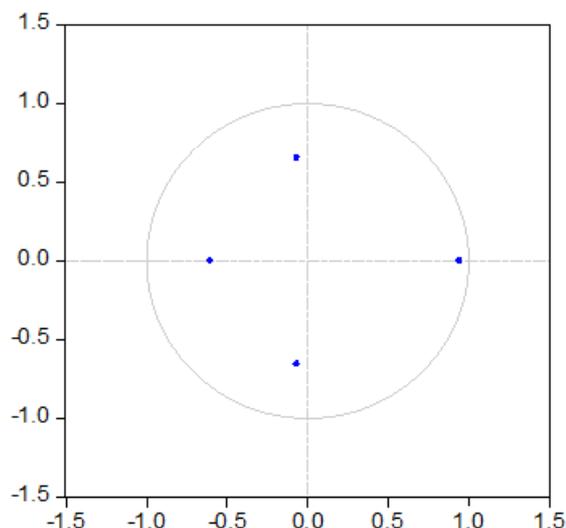
Table 7: Roots of Characteristic Polynomial

Roots of Characteristic Polynomial

Endogenous variables: BOP
Exogenous variables: C D(EXRT) D(EXRT(-2))
D(EXRT(-3)) D(EXRT(-4))

Lag specification: 1 4

Date: 01/21/14 Time: 17:18

Root	Modulus
0.944376	0.944376
-0.066973 - 0.655465i	0.658878
-0.066973 + 0.655465i	0.658878
-0.603609	0.603609

No root deceit outside the unit circle.

VAR gratify the immovability circumstance.

Inverse Roots of AR Characteristic Polynomial

Figure 3: Inverse Root of AR Characteristic Polynomial

In order to compute stability of the model, Roots of polynomial are computed whether they fall within the unit range or not. The results show that all the roots fall within the unit range which is further clarified through the circular diagram which shows all the four roots fall within the unity and that's how we conclude stability of the model.

5. Recommendation and Conclusion
5.1 Recommendation
Following recommendations are considerable by our side.
- Management should address how to bring better focus to the analytical work on exchange rates.
- Management should clarify responsibility and accountability for exchange rate policy issues and activity use as a forum like that surveillance committee to ensure proper focus on key issues, and to discuss a variety of different views and perspectives.
- The integration of financial sector work would be an important element. A key role over the structure should be to prioritize exchange rate policy issues and initiatives from across the IMF, including multi-year agenda for policy, research and statistical work.

5.2 Limitation of the Study
All the studies ultimately refer some sort of outcomes in different perspective or angles, however it cannot be taken as the absolute statement, because material and method are always been welcome for criticism and precision, thus to ensure the transparency and relevancy. In this regard analysis and manipulation of data is the key section of any research. It will be evident and qualitative. Submission of the said discipline will lead to more productive consequences. In this study we put our energetic fulfillment as required until the finishing point, however we cannot obviously confess this as qualified or constraint free, but as an unbiased & enthusiastic effort.

5.3 Conclusion
Stability of exchange rates may create a positive environment for encouraging the investment, and this can improves balance of payment. As per study findings, it has been established that exchange rate and balance of payment has a vital correlation to each other. It must be perceive that how can be an effective exchange rate policy. We used autoregressive distributed lags (ARDL) model to estimate the connection between these two variables, the consequence show the significant and positive relationship. It has seen that exchange rate lags is statistically significant and has a positive effect on BOP, accordingly result we accept the hypothesis that present is significant correlation between EXRT and BOP.

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