# IMPACT OF BALANCE OF PAYMENT COMPONENTS ON EXCHANGE RATE DETERMINATION


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A thesis submitted in partial fulfillment of the requirements for the Degree of Master of Philosophy/Science in Management with specialization in Finance at
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## FORWARDING SHEET

The thesis entitled "Impact of Balance of Payment Components on Exchnage Rate Determination" submitted by Ms.Mariam Javed in partial fulfillment of M.S degree in Management Sciences with specialization in Finance, has been completed under my guidance and supervision. I am satisfied with the quality of student's research work and allow her to submit this thesis for further process as per IIU rules & regulations.

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IN THE NAME OF
ALLAH, THE MOST MERCIFUL AND BENEFICIENT

# Dedication

"To my great parents who are praise worthy for their sustenance of me on right lines because I am today, only due to their untidy efforts for my sake"

# ABSTRACT

This thesis represents the effect of Balance of Payment components on the Exchange Rate. In order to use the correct approach we have targeted only the real variables for balance of payments instead of using all monetary variables. Here the main variables used include Terms of Trade & other variable like technological growth, commercial policy, capital inflow, and financial liberalization as supporting variables. The data sample taken for the variables is from 1980-2009 on quarterly basis where used simple linear regression along with 2SLS method has used to analyze the results. Results show that all variables are positively related to real exchange rate which is according to theory except one variable. Results further clarify that balance of payment play a strong role of in determination of real exchange rate. On the other hand result findings for other exogenous variables including technological growth, commercial policy, capital inflow clear that exchange rate is positively related with the these variables while negatively related with financial liberalization.



**Keywords:** Terms of Trade, Technological Growth, Commercial Policy, Capital Inflow, Financial Liberalization, Exchange Rate

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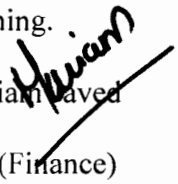
No portion of the work, presented in this thesis, has been submitted in support of any application for any degree or qualification of this or any other university or institute of learning.



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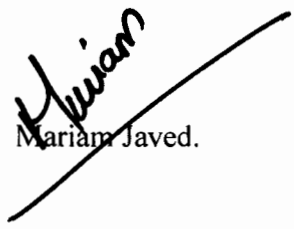

Mariam Javed.

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# ABBREVIATIONS

**OLS:** Ordinary least square

**2SLS :** Two Stage Least Squares Method

**IMF:** International Monetary Fund

**BOP:** Balance of Payment

**WDI:** World Development Institute

**RER:** Real Exchange Rate

# *CHAPTER_1*

# *INTRODUCTION*

# CHAPTER 1

## INTRODUCTION

This research work has been done in order to find out the impact of Balance of Payment on the exchange rate in Pakistan. Exchange Rate describes exchange of the currency of one country to the currency of another country. In addition to the concept of exchange rate there is concept of real exchange rate very important from any country point of view which means the purchasing power of one country currency relative another country currency. For example an interbank exchange rate of one US dollar for 88 Pak rupees or exchange of 88 Pak rupees for one US dollar means exchange rate between US and Pak currency. Like all other markets where buyers and sellers meet and fix the prices of goods, the foreign exchange market a place where currency exchange rate is determined and it is open for huge number of buyers and sellers and the trading is continued for 24 hours except on weekends from 20:15 GMT - 22:00 GMT (Thouraya, 2008). There are two main types of exchange rates i.e.

(i). Spot exchange rate where currency is exchanged on the spot. (ii): Future Exchange Rate where trading is done on spot and delivery of payment is made on some specified future date.

Research on exchange rates shows that numerous macroeconomic models have been developed to analyze the exchange rate behavior, including traditional monetary and portfolio balance models as well as a variety of dynamic general equilibrium models (Muller, N.A. 2009). Exchange Rate for any country's currency is driven by the demands and supplies of currencies in the foreign exchange market, which depend on the need of foreign and domestic agents to obtain each other's currencies (Philip & Marie, 2002). There are two main approaches of how exchange rate changes. First approach is balance of payment (BOP) approach. According to BOP theory of exchange rates, the supply and demand for currency is raised from the flows related to BOP,

that is trade in goods and services, portfolio investment, and direct investment. Equilibrium in exchange rate is achieved when the BOP is in equilibrium.

The second main approach is asset approach. Under this approach, exchange rate is determined by asset prices that adjust to equilibrium in international trade of financial assets. Exchange rate is relative price between two currencies and these relative prices are determined by the desire of residents to hold domestic and foreign financial assets. The asset approach assumes a high degree of capital mobility between assets denominated in different currencies (J.K.Kouri, 1999). The main part of this approach is to specify the domestic and foreign assets to be included in the portfolio of domestic residents. Since exchange rate is relative price between two currencies, a simple model may consider domestic money and foreign money. This simple asset model is called the monetary approach model. According to this approach model interest rate differential plays an important role in the determination of exchange rate because interest rate differential provides information about the expected change in exchange rate (Mussa, 1998).

The primary focus of this research is to analyze that how balance of payment approach helps in exchange rate determination. Further, in this approach the main emphasis is to look at how current account and capital account play role in order to determine the exchange rate. Current account measures all transactions (other than those in financial assets and liabilities) that involve economic values between resident and nonresident entities. Current account is used to mark the inflow and outflow of goods and services.

Current Account= Balance of trade+ Net Factor Income from abroad+ Net Unilateral Transfer

Balance of trade is the difference between the monetary value of imports and exports of output in an economy over a certain period of time. When inflation rate changes, it affects the exports and imports of the country and ultimately the balance of trade. As balance of trade changes it has a significant impact on exchange rate. Another important factor that influences the balance of trade is relative income level which ultimately results into changes in exchange rate (Wilson & Tat, 2000)

The second main component of balance of payment is capital account where all international capital transfers are recorded. The capital account records all transactions between a domestic and foreign resident that involves a change of ownership of an asset. It is the net result of public and private international investment flowing in and out of a country. This includes foreign direct investment, portfolio investment (such as changes in holdings of stocks and bonds) and other investments (such as changes in holdings in loans, bank accounts, and currencies).

Capital Account= Foreign direct investment + Portfolio investment + other investment

Foreign direct investment shows that investment in fixed assets, in foreign currency, can be used to conduct business operations, while Portfolio investments represent transactions involving long term financial assets between countries. Capital account is affected by changes in interest rate that results into fluctuations in investment in foreign securities & influences the demand and supply of currencies and ultimately influences exchange rate.

## *1.1. Types of Exchange Rate*

Nominal Exchange Rate is determined by FOREX markets while Real Exchange Rate is determined on the basis of real value of currency or on the basis of purchasing power of

currency thus we can say that real exchange rate shows the ratio between the domestic price level and foreign price level in the same currency. Another classification of exchange rate takes place on the basis of transactions of currency. When transaction of currency is between two countries' currencies then it is called bilateral exchange rate and it is matched on the basis of market (financial market) forces of demand and supply. Multilateral exchange rate is another type of exchange rate which is exchange of one country's currency with the rest of the worlds' currencies. Just like goods and services market there are different buyers and sellers in exchange rate market which presents different buying and selling rates. But these are the buyers and sellers of money so we can say that they are money traders. The buying and selling rate presented by these traders includes their profit or commission. In exchange market not only a transaction takes place in the form of cash but also in the form of documents and credit card. Due to security reasons and the fear of the cancellation of the transaction some traders prefer cash transactions.

### *1.2. Exchange Rate Regime*

Every country has some rules or mechanism through which they manage and control their currency. For example there are different regimes which are applicable by different countries to manage their currency; like Pegged or fixed exchange rate, floating or hybrid exchange rate.

Floating exchange rate is that type of exchange rate where demand and supply in financial market determine the value of currency. The demand for a currency is linked to its import and export or trade. When the exports of a country are high then its economic condition will be good & if the condition is in reverse then its currency will depreciate in value due to low demand in international market. Another exchange rate regime is fixed or pegged where currency value is fixed with some other currency like that of China which remained linked with US dollar from

1994 till 2005, but due to market pressure the fixed exchange rate regime no longer exists in the world.

### *1.3. Importance of Exchange Rate*

Economic growth and real exchange rate appreciation is closely correlated with each other. When domestic currency is appreciated then there will be capital flow which will boost consumption and lead the economy on the path of development. In reverse, if it leads to adverse balance of payment situation, deficit current account situation will be created. Appreciation in currency leads to high real exchange rate. In case of developing countries this positive relationship between high exchange rate and economic growth is very strong. Especially when in developing countries prices of tradable goods increase it provides much more benefits to country's economy. The reason is that tradable goods are neither affected from the institutional weakness of a country nor the market failure.

As real exchange rate is the price of tradable goods to non tradable goods, so if the price of tradable goods increases it will improve the real exchange rate. From the previous discussion it is clear that real exchange rate plays a vital role in economic development, so when the real exchange rate is appreciated it would improve the economic condition of a country. Real exchange rate depends on the prices of tradable goods and tradable goods play a vital role in economic development of a country. Considering example of industrial products form the world's economic history, it becomes clear that when the country becomes self sufficient in industrial production and its industrial production is higher as compared to that of other country then its economic condition will be stronger than the other one. While the agriculture sector is not related to real exchange rate, even then the employment in this sector is related up to some extent. Tradable goods play a very vital role in economic development and it is the main part of

real exchange rate so we can say from development point of view that real exchange rate is a policy variable. Hence exchange rate is the key to measure the country's competitiveness and economic condition.

### *1.4. Fluctuation in Real Exchange Rate & its Impact on Economy*

The exchange rate depreciation and big losses in output are one of the main reasons of crises which hit the countries. In Turkey about 53% to 63% devaluation occurred causing huge losses in output and engaged the country with economic and financial crises. During Asian and Mexican crises in 1994 and 2001, the currency was devalued sharply and output was declined to 62.1% (Iqbal Mahmood, 2011). Exchange is the center around which all the economic activities are rotating. Floating exchange rate is not suitable for a country because in floating exchange rate there is great volatility and deprecation in currency resulting in decline in output. There is negative or inverse relation between exchange rate devaluation and output as conversely when devaluation is higher output is lower and when devaluation is lower output is higher evident from the example of Turkish economy during 2001. There is a superior's relation between exchange rate and output level and that relation is due to some external shock in the form of deficit in current out and deficit in balance of payment (Bekart, 2005).

The classical point of view is somehow different from other economists. It states that" devaluation improved the current account balance if it satisfied Marshall Lerner condition". In other words if the sum of Price Elasticity of imports and exports exceeds unity, in that case the devaluation is good for economy. Normally the devaluation leads to declining of output, leads to rising of inflation and it will also create problems in redistribution of income.

## *1.5. Real Exchange Rate in Pakistan*

The basic function of exchange rate is to provide a link between one country and other countries in goods as well as in asset markets. When the exchange rate policy is not sound and unable to fulfill the needs of the trade then it leads to wrong allocation of resources. Therefore a good and stable exchange rate policy is necessary for optimal allocation of resources. In Pakistan the exchange rate condition is not up to the mark hence there is continuous capital outflow. Due to the devaluation of currency in different times, it created a negative impact on the economy of Pakistan. Therefore there is need of viable exchange rate determinants which could provide some guide lines to the policy makers for the preparation of an optimal exchange rate policy.

## 1.6. *Exchange Rate Mechanism & Controlling Authority in Pakistan*

State Bank of Pakistan which is the central bank of Pakistan controls all matters related to foreign exchange rate and foreign reserves on behalf of the government of Pakistan. It also performs agency function of the government; SBP is governed by the provisions of Foreign exchange regulation Act 194, State Bank of Pakistan order 1948, State Bank of Pakistan Act 1956 and the Banking Companies Ordinance 1962. By these provisions government of Pakistan, Though Ministry of Finance, has the final authority in foreign exchange policy matters, with the exception which the government delegated to SBP as a special case in different times for day to day operations.

## *1.7. Historical Background Of Exchange Rate Policy In Pakistan*

In Pakistan exchange rate regime encompasses three different phases. The first was from 1947-1972, as during that time world economic condition was not and not so liberalized and Pakistan economy was also in its transition phase, so exchange rate policy was not used as a tool of development but only to fulfill the requirements for crises of balance of payment. The second

phase which was from 1972-1982 started with the unification of currency. While in third phase, after 1982 till date, managed float exchange rate evolved in Pakistan.

## *1.8. Detail Of Three Phases Of Exchange Rate:*

### 1.8.1. First & Second Phase

Pakistan economy at the time was in the infancy and unable to protect its economy. Pakistan adopted the system of fixed exchange rate policy and used the instrument of exchange rate only for fulfilling problems of payments. International Monetary fund (IMF) enforced rules during that time, that currency should be devalued only if there was some balance of payment crises. So Pakistan followed that instruction and devalued its currency only when it faced problems of payment. In 1955 Pakistan devalued rupee by 33.5% to counter the balance of payment crises. In 1971 British Pound appreciated against US dollar, due to which global currencies linked to Pound appreciated. As in that time Pak rupee was also linked to Pound sterling so its value also appreciated. However Pakistan exports faced serious problems in international market. This ultimately resulted in delink of Pak rupee from Pound on 17th September 1971 and instead was linked to US dollar. That was the start of second phase of exchange rate in Pakistan remained till 1981. On 12 May 1972, Bhutto government devalued Pak rupee by 62% and a new par value of Rs.10 per US dollar was established. Second phase was also the fixed exchange rate regime in Pakistan.

### 1.8.2. Second & Third Phase:

Pak rupee remained linked with US dollar till 1979. In the meanwhile United State adopted monetary policy which raised its interest rate and attracted foreign capital. As a result US dollar was appreciated. With the increase in value of US dollar the value of other currency

linked with it also increased, Pak rupee also appreciated due to its link with US dollar. However this appreciation of Pak rupee created problems of deficit balance of payment because Pakistani exports became uncompetitive and import became attractive. During that time floating exchange was legitimized by IMF. Floating exchange rate keeps the currency in competition with trading partners of the country. It becomes very costly for Pak rupee to link with only one currency in order to balance the current receipt and currency payment and keep the currency in competition with other trading partners. On 8th January 1982, it was decided by the government that Pak rupee should be delinked from US dollar and kept in floating exchange rate mechanism. That was the start of third phase of exchange rate regime in Pakistan which is continuing till now. To fill the gap, between foreign receipts and payment and to timely adjust the value of Pak rupee it floated via US dollar by the State Bank of Pakistan. The value of Pak rupee is now reviewed daily by the State Bank of Pakistan with reference to the trade weighted basket of currency of Pakistan's major partner countries. This system is called managed floating system of exchange rate.

### *1.9. Why Pakistan Adopted Flexible Exchange Rate Regime*

The pegged and flexible exchange rate depends on country's economic and financial conditions. If a country has high trade orientation and it has a huge amount of trade with other countries then it will be worthwhile for that country to peg its currency with its major trade partners, while in opposite case when the trade orientation is not adequate and most of the trade is in that type of goods where prices are highly volatile and exposed to high financial integration then it is advisable for that country to keep its currency in flexible exchange rate system. In Pakistan the flexible exchange rate is beneficial due to all of the above mentioned reasons, and if it keeps its currency in pegged exchange rate system which will be harmful for its economy.

Due to higher integration in trade of country with its partners it is beneficial to keep the pegged or fixed exchange rate, because if there is more variation in the value of the currency which is not favorable for investment and it discourages the trade. In that condition country prefers to keep its currency in pegged exchange rate system and try to develop one currency system. The ratio of import and export to GDP measures the country trade orientation and stability in exchange rate, higher ratio indicates more stability and vice versa. Due to low ratio of import and export to GDP there will be low trade orientation which will cause spread of its trade to different countries and different currencies. So by different values of different currencies it becomes very difficult for a country to trade due to need of one currency union and pegged exchange rate system with a country where the trade volume is high. But a country can get benefit by pegging its currency with its main trade partner currency when its trade cycle is harmonized with that country with which its currency has been pegged. However if its trade cycle is not harmonize then it will create many problems for exchange rate of that currency and instead of getting benefits it will go in losses. Pakistan's condition is also same as its import and export ratio to GDP is low but its trade cycle is not harmonized with its main trade partner so it is advisable for Pakistan to keep its currency in pegged exchange rate, rather than to get benefits from its exchange rate. Therefore it is better to keep its currency in flexible exchange rate.

Other reason for Pakistan to keep its currency in flexible exchange rate system is that, as peg exchange rate is more appropriate in a county where exports are more diversified so there is a need of adjustment. In case of Pakistan the exports are mainly the cotton products which are not diversified so there is no need of peg exchange rate system (Asim, 2006). Under fixed exchange rate system the country in which capital mobility is low it is very difficult to adjust if there is aggregate demand shock while for flexible exchange rate system it is easy to do

adjustments under aggregate demand shock if there is low capital mobility. Similarly for a county whose inflation history if very high; pegged exchange rate is beneficial while in case of Pakistan inflation rate is not so much high in every period, however it is very high in some periods but that is not continuous.

### *1.10. Rationale of the Study*

The basic objective/rationale of this study is to find out the relation between real exchange rate and balance of payment. For this purpose independent variables i.e. TOT, Capital Inflow, Commercial Policy, Technological Growth, Financial Liberalization and dependent variable Real Exchange Rate have been used. The study reveals that how various cross border movements and fluctuations affect the Exchange rate in the developing countries. In order to see such changes developing country like Pakistan has been targeted to reach the findings. It helps to define the relationship between real exchange rate and real variable of balance of payment. It gives a very clear picture of the channels through which balance of payment affects the real exchange rate along with its economic rationale which will also help the policy makers in future while making decisions regarding exchange rate regime of developing countries.

Exchange rate stability in developing and developed countries is very important issue and crucial from economic point of view. Consequently, it draws attention at national and international levels. Stable exchange rate leads to increased international trade investment, which this further improves the economic condition of the country. Exchange rate stability has a very positive impact on economic growth. It is also used as a tool to control inflation. By relating exchange rate with changes in balance of payment components, it will provide a significant clue for the policy makers.

## *1.11. Organization of the Study*

The rest of the chapters are organized in this way: chapter two briefly overviews the related literature, followed by methodology for research which leads to Results & Discussion. Final portion of the study gives the space to conclusion & Future Recommendations.

*CHAPTER _2*

*LITERATURE REVIEW*

# CHAPTER 2

## LITERATURE REVIEW

Basic objective of this research work is to find out the ultimate impact of Balance of Payment (BOP) on Real Exchange Rate (RER). Where; RER is the combination of nominal exchange rate & price differential among various countries. It is very important because it is used as an indicator of competitiveness in trade of a country with different countries; it means that real exchange rate shows that how a country is competitive in foreign trade. Real exchange rate is also very importance for central bank because it effects the central banks' balance sheet, which is used for the preparation of monetary policy of a country. There is a chain between the RER and prudent monetary policy preparation and in this chain the central role is that of the balance sheet of the central bank. When there is change in RER it produces fluctuations in short term capital flows which affects the net foreign assets. As a result currency volume fluctuate which means money circulation and it is quoted on the liability side of central bank balance sheet. In order to stabilize the prices in the country when there is huge changes in currency circulation, management use various tools of monetary policy so that positive outcomes could be achieved due to such changes. In this way RER plays very important role in economic stability in the country. RER determination is currently a very debatable issue in theory as well as in research practices. Its importance in foreign trade can't be denied as when the domestic currency appreciates with respect to foreign currency, imported goods will be cheaper in the domestic market and local companies would find that their foreign competitors' goods have become more attractive to customers. If the country has strong currency, then its good become more expensive in the international market. MNC's management also monitors exchange rate because their cash flows are highly dependent on the changes in exchange rate. Exchange rate measures the value of one currency in units of another currency. As the economic conditions change exchange rate

changes substantially. In this way RER fluctuation brings reasonable changes in firm's cash flows & return (Catherine & M.Arif, 2008).

## *2.1. Balance of Payment*

According to Hong Qaio, (2007) the Balance of Payment (BOP) is an essentially monetary phenomenon. In this context, the term BOP refers specifically to the official settlements of balance that is to "money account". Thus analysis of the balance of payment only makes sense in an explicitly monetary model and in this sense the balance of payment is an essentially monetary phenomenon. The monetary approach has a limited perspective; it does not attempt to provide a theory of the BOP account. These accounts include trade account and the service account. The monetary approach of BOP is directly linked with demand and supply of money. Another basic feature of monetary approach is to perform the function to control the money supply process and also the demand for money particularly, which contributes to the organization of thought concerning the balance of payments.

The revival of interest in the balance of payment has been most intense during and since World War II. Economic Theory has been especially active in the fields most closely connected with balance of payments. The internationally accepted form of the balance of payments concepts and presentations are set down by the international monetary fund (IMF). More specifically the BOP is a method countries use to monitor all international monetary transactions at a specific period of time (Ball, Burns & Laury, 1999). Balance of payment is divided into three categories.

1. Current Account

2. Capital Account
3. Financial Account

Exchange rate is determined by Growth, Trade and Political factors, in addition to this interest rate also has a significant impact on exchange rate with price level but the impact of prices are for shorter periods. Due to rapid growth in trade, export and import the capital flows become faster across different countries. Apart from the above factors there are some other factors which are also affecting exchange rate i.e. exchange rate regime, uncontrolled money expansion, debt accumulation and foreign currency (Muhammad Arif & Catherine, 2008). Money supply increases by increasing the economic growth which has positive impact on exchange rate. Export and import play a limited role in exchange market while trades in currency transaction have a major share in exchange market. (Stein, 2002)

## *2.2. Balance of Payment & Economic Growth/ Real Exchange Rate*

BOP gives a very clear picture of country's receipts & payments in monetary terms. Receipts are incurred on the sale of exports and payments on imports to the rest of the world. So BOP shows all the accounting records in monetary terms between a country and the remaining world. In case of high receipts BOP will be surplus and in case of high payments it will be in deficit. So we can say that balance of payment actually shows the country's transaction records for a specific period of time in the currency of the country concerned.

Balance of payment is a major determinant of economic growth. A country whose BOP is surplus its export will be higher and its economic condition will also be very good as compared to a country whose balance of payment is not good (Fida, Zakari & Hashmi, 2009). The high growth rate is due to improvement in the current account of the BOP i.e. when the aggregate

demand of the imports of a country is high; in order to fulfill that demand more goods will be purchased from other countries which will badly impact the BOP & it will also increase the trade deficit. So we can link it with real exchange rate in a way that when the imports of a country are high that country will demand more foreign currency to purchase foreign country goods. And when the exports of a country are high in demand its currency will be expensive which will improve its value. The balance of payment is not only related to economic growth but it has also a significant impact on real exchange rate.

Balance of payment by increasing supply of money becomes deficit as increase in supply of money pushes purchase tendency of people; which leads to more import and thus it deteriorates the BOP (Ryutaro Komiya, 1969). Introduction of new techniques of production lift up the level of production which increase exports of commodity & ultimately appreciate balance of payment.

This research work has targeted the determination of exchange rate by using balance of payment approach, so from the definition of balance of payment it is clear that if the exchange rate is not favorable then using the balance of payment tools, like exports and imports we can make exchange rate favorable for a country. When the balance of payment is surplus and the country is earning more as compared to spending, this earning is saved and used for investment in different types of projects. Due to unfavorable balance of payment currency of the countries are not stable. The importance of balance of payment is also clear from the concept led growth which is importance due to two main reasons; first is the earning of profits and second is the trigger up effect in production.

The balance of payment settles down the issue of exchange rate, because the surplus balance of payments represents that the country's exports are higher than the country's imports

and will lead to revalue the currency while the lower or deficit balance of payment shows that import is higher than export which will lead to devaluation.

## *2.3. Purchasing Power Parity*

Purchasing Power Parity has vital role in exchange rate determination, because it links the currencies of different countries on the basis of their prices or takes price differences as a base (Abuaf, 1990). According to PPP condition when there is increase in the inflation of one country, the value of its currency will fall as compared to those of its trading partners on the base of their price differences.

## *2.4. Interest Rate Parity*

Foreign exchange market equilibrium is based on the interest rate equilibrium in different countries as if \there is increase in interest rate of one country it will attract foreign investment which will improve its currency, but it is only short run phenomenon as long run exchange rate comes in equilibrium condition (Abuaf ,1990).

## *2.5. Non Parity Variables*

### 2.5.1 Current and Capital Account Deterioratation

Trade and capital accounts are major actors of exchange rate, these terms are interlinked with one another, as when trade account is not in balance it is in deficit then one will pay more on import and export will be less so expenditure side exceeds revenue side. This leads to capital outflow which will ultimately depreciate the currency of that country (Nikolas, 2009).

### 2.5.2 Loss of International Reserves

International reserve play a defensive role for the currency of a country as the country whose foreign reserves are higher its currency will be appreciated because capital inflow will be high in that country (Kim, 1990).

### 25.3. Trade Openness and Real Exchange Rate

A country whose boarders are more open for trade and they have more access to technology, technological progress will be more in that country due to which economic growth will be more which appreciates its exchange rate. There are different exchange rate regimes in which exchange rate fluctuations are managed for floating exchange rate as compared with super fixed regime (Li, 2004).

### 2.5.4. Capital Inflows and Real Exchange Rate

International trade among different countries give rise to there is always commercial and financial transactions resulting into export or import & flow of capital across borders which influence the exchange rate. When there is deficit situation created by more imports as compared to exports, this deficit is financed by borrowing which depreciates exchange rate. Exchange rate plays a significant role in economic development of a country (Muller, 2009).

International payments float in the form of trade surplus; large capital inflows play a major role in appreciation of exchange rate. In addition to this, foreign reserves accumulation is also a major defensive of exchange rate e.g. China: where in order to build up their currency they accumulate foreign currency in huge quantity (Nwachukwu, 2007).

In short it can be said that exchange rate is simply depending on demand and supply of one country's currency in international market. The demand and supply of currency is linked to

demand and supply of that country's goods and capital inflow. When exports of a country are higher as compared to its imports its balance of payment will be where surplus means that other countries will demand that country's currency to purchase their products. In this way demand of that country's currencies increased in international market which will appreciate its exchange rate (Nwachukwu, 2007).

Some countries try to eliminate their deficit balance of payment conditions by taking loan from other countries but that solution is only temporary because in future they will repay the loan. According to Dutch disease theory when the flow of foreign capital takes palace in a country then it will badly affect the output, but research work done by Nwachukwu in 2007, proved that inflow of foreign capital has no adverse effect on country's output, rather it improves the output capacity of a county and the inflow of foreign capital is negatively related to the foreign exchange rate of country (Nwachukwu, 2007).

### 2.5.5. Real Exchange Rate & Economic Growth

Real exchange rate and economic growth are directly related with one another, as economic growth of a country depends on trade (export) of country because higher export price, higher economic growth and the real exchange rate are directory related with the prices of export. So we can say that economic growth and real exchange rate are directly related to one another (Rodrik, 2008). Khan, Mohsin & Ostrry in their study categorized exports further into tradable and non tradable goods, where tradable are industrial goods while non-tradable are agriculture products. Tradable goods are essential for economic growth, because they suffer disproportionately from institutional weakness and contracting incompleteness as compared to non tradable goods. It is further argued by the researchers that tradable goods are less affected

from market failure and coordination externalities which are present in low income countries (Khan, Mohsin & Ostry, 1992). Countries in which economic growth is lower if they convert their resources to tradable goods then they can speed up their economic growth. Due to causal relation between the prices of tradable goods and economic development it is essential for a country to prepare such type of policy which is in favor of production of tradable goods and that the type of policy without the effectiveness of good real exchange rate is not possible (Elbadawi & Ibrahim, 1994) .

In the closed economy where there is no concept of external sectors, the role of real exchange rate was ignored and that was in early periods. But when the open economy concept was introduced by increasing trade among different countries, real exchange rate becomes a vital point. Real exchange rate provides opportunities to the exporters to increase their exports by increasing the price of their exports, which ultimately promotes growth of the economy. Reason behind this is that the real exchange rate shifts resources towards the production of manufacturing products. In this way it could be analyzed and understood that economic growth of a country is very essential for balanced real exchange rate (Sulaiman, 2010).

### 2.5.6. Trade Liberalization & Real Exchange Rate

The relation between real exchange rate and trade openness is indirect or inverse i.e. with the opening of trade among different countries real exchange rate depreciate (LI, 2004). As trade openness is the liberalization so we can say that financial liberalization has indirect relationship with real exchange rate, but that relation does not exist at the start of financial liberalization. In the beginning it has positive impact on real exchange rate but that is temporarily impact for short period only, after permanent adjustment of trade liberalization it becomes negative. Three types

of goods are produced in the country one is exportable other is importable and the third on is non-tradable (Arshad & Qayyum, 2007). When the non-tradable and importable goods are complement to one another than with the reduction of tariff the price of importable goods becomes lower in terms of non tradable and the domestic price of exportable goods becomes high in terms of non-tradable. Low price of importable goods makes them attractive for the consumer and in this way the real exchange rate of that country depreciates. All is possible when the consumer can substitute non tradable for importable goods. Some economists like Elbadawi (1994) quoted in their study that openness has no significant impact on real exchange rate. While some other economists like Michaely, Papageorgiou, and Choksi (1991) examined the movement in real exchange rate due to trade liberalization but according to their point of view there is no consistent movement in real exchange rate due to trade liberalization although it, may have positive or negative effect.

### 2.5.7. Productivity and Real Exchange Rate

Structural improvements in productivity lead to more returns toward country's capital due to which capital inflow is increases, which ultimately appreciates the value of the currency of that country. A similar situation was seen in USA when due to structural improvements its currency appreciated and the inflow on its capital increased in 2001 in comparison with Euro where the main reason was increase in rate of return of its capital (Schnatz, Focco and Chiara, 2003). The main purpose of these arguments is that capital inflow which is the main variable under discussion causes increase or decrease in the currency value; it depends on the structural improvement of the economy. Structural improvement in the form of increasing labor productivity is very important for increasing the value of currency in a country, because there is a strong correlation between labor productivity and currency value, because high value of dollar

as compared to Euro means more labor productivity in USA as compared to European countries labor (Rodrick, 2008) . The structural improvement in labor productivity leads to increase the production and quality of tradable goods so the trade and prices of tradable goods are moved upward as the upward movement leads to improve the value of the currency and thus the exchange of that county currency's depreciates as compared to other country's currency. Engel (1999), in his paper argued that movement in currency value was due to the prices of tradable goods. Real exchange rate is the channel through which increase in labor productivity affected the exchange rate. Once the currency floats then it is very easy for a country to adjust the external shocks and to adjust the inflation and deflation in the country.

### 2.5.8. Terms of Trade & Real Exchange Rate

The real exchange rate will appreciate when the prices of exports of a country are going to increase and it will depreciate vice versa. As term of trade is the ratio between exports and imports of country so more export means appreciation in RER and more import means depreciation in exchange rate. By using the concept of terms of trade we can find out the export purchasing power of country in terms of its imports (Zakria & Bilal, 2011). When the demand for exports increases the price of export will be increase which will in turn increase the purchasing power of the people. This leads to increase in the consumption of the people of a country. For export producing countries terms of trade is a very important component to determine the real exchange rate of a country i.e. 10% rise in terms of trade resulted from 4-6% appreciation in real exchange rate of a country. For oil producing countries terms of trade is an important determinant of real exchange rate (M. Asif,2011).

### 2.5.9. Financial Liberalization and Real Exchange Rate

Financial Liberalization has dual effect on every economy, on one side it promotes growth and on the other side it provides a path to crises to enter in the domestic economy. Therefore there is need of trade off between these two impacts of financial liberalization. In financial liberalization the domestic financial market has been deregulated and the capital account has been liberalized. Due to the deregulation of domestic market its impact on domestic market is of two folds one is positive in the form of financial development and other is negative in the form of macroeconomic variable vitality. It exposes the domestic economy to international forces. The effects of financial liberalization on economic growth and economic crises are different in low income countries and middle income countries. In low income countries the financial system is not so much developed, which works on leverage principles and allows the financial flows, because well functioning financial market is absent and liberalization cannot be materialized while in middle income countries this can be done.

In middle income counties its advantages and disadvantages are both in extreme positions, while it does not disturb the smooth function of credit in low income countries and the increase of financial liberalization increases the per-capita growth by one percent. Among India and Thailand; Thailand is more developed as compared to India and its financial market is more liberalized, so Thaieconomy experienced more booms and crises as compared to India. In the period from 1980-2001 the Indian GDP growth rate per capita was only 99% while in Thailand it was about 148%, on the other hand the financial crises were also severe in Thailand as compared to those in India. The financial liberalization mainly promotes the growth of trading sector while its impact on non trading sector is not so much strong (Bekaert, Harvey & Lundblad, 2005).

### *2.6. Monetary and Real Variables and Real Exchange Rate:*

Empirical studies show that in Pakistan, the monetary variables and real variables play very important role in the determination of real exchange rate. The reason is that exchange rate mechanism is very complicated in Pakistan (Rehana Siddiaui, 1996). Excess of domestic credit creation, openness of the economy and ratio of net capital inflow to GDP are some of the important variables which determine the exchange rate in Pakistan. Apart from these there are some other variables also, for example, deficit financing, terms of trade, financial liberalization technological progress etc. are important variables which determine the exchange rate of Pakistan (Afridi , 1995).

## *2.7. Impact Of Misalignment Of RER On Economic Growth*

RER contributes significantly in growth and if it is mismanaged then it will badly affect the growth. RER can influence the growth by two channels; first one is by influencing the domestic foreign investment which will ultimately affect the capital accumulation and due to its nature capital accumulation acts as the engine of growth (Ofair Razin, 1997). Second channel is tradable sector of the economy, as economy's overall growth depends upon tradable sector of the economy so if it is disturbed by RER, it will affect the growth of the economy.

## *2.8. Sources Of Real Exchange Rate Fluctuations*

Real exchange rate is not only influenced by real supply side variables like productivity and terms of trade but also by monetary variables (Annika Alexius, 2001). Both are responsible for movement in real exchange rate but the difference between them is that, supply side variables are producing permanent change in real exchange rate, while monetary variables produce temporary changes in real exchange rate. The permanent change in real exchange rate produced by supply

side real variable is not so much stronger while monetary side variables impact is very strong (Khan, 1998).

## *2.9. Theory Of Exchange Rate Determination*

There is autocorrelation between the exchange rate and terms of trade, as more rapid changes result in the terms of trade. There will be more rapid changes in real exchange rate and this relation is even stronger in countries whose monetary policies are more homogenous. There is a channel of export of goods between real exchange rate and terms of trade. When the quality of exports of a county is good then importing country people will demand those goods since exporting countries sell their products in their own currency. Thus their currency demand will increase in importing country.

Balassa (1964) developed a relationship between economic growth and real exchange rate and rejected the negative relation between economic growth and real exchange rate. According to him there is positive relationship between real exchange rate and economic growth. When there is more growth there will be more production as compared to low growth country, so more production will increase the export of goods which will drive the demand of that country's currency and ultimately exporting country currency will be appreciated. Afridi in 1995 worked on the technological changes and exchange rate changes and found that technological change impacts are of two types, one is product augmented and the other is factor augmented. In the first case when the technological impact is product augmented then it appreciates the real exchange while in the later it causes depreciation of the real exchange rate (Afridi, 1995).

While quoting research works of different authors it can be argued that area of balance of payment and real exchange rate are debatable in current era. Study targeted data from IMF sources for Pakistan in order to reach the findings.

## *2.10. Hypothesis*

Every research hypothesis has a key position because every observation is tested on the basis of hypothesis and if that hypothesis is true then it becomes theory. The entire hypotheses are tested on the basis of available information by using some statistical techniques. This research work has more than one hypothesis, because it tests the relationship between one dependent variable which is real exchange rate and various independent variables which are; Terms of trade, financial liberalization, Technological growth, Commercial Policy & Net capital Inflow etc.

***Hypothesis (1)***

*H1= Terms of Trade positively affect Real Exchange Rate.*

*H0= Terms of Trade does not positively affect Real Exchange Rate*

***Hypothesis (2)***

*H2= Financial liberalization positively affect Real Exchange Rate.*

*H0= Financial liberalization does not positively affect Real Exchange Rate*

***Hypothesis (3)***

*H3= Technological growth positively affect Real Exchange Rate.*

*H0= Technological growth does not positively affect Real Exchange Rate.*

***Hypothesis (4)***

*H4= Commercial Policy positively affect Real Exchange Rate.*

*H0= Commercial Policy does not positively affect Real Exchange Rate*

***Hypothesis (5)***

*H5= Net capital Inflow positively affect Real Exchange Rate.*

*H0= Net capital Inflow does not positively affect Real Exchange Rate.*

# *CHAPTER_3*

# *METHODOLOGY*

# CHAPTER 3

## METHODOLOGY

### *3.1. Data Collection*

Data for this study has been collected from IMF and State Bank websites, while some other variables data has been taken from WDI and economic surveys on quarterly basis. Constant approach is used to calculate data on quarterly basis. Such types of practices are already present in research works published & available on HEC website. Data is taken for the period from 1990 to 2009.

### *3.2. Variable Measurement*

Real Exchange rate is dependent variable and took its data from IMF on quarterly basis and Real Exchange rate is the combination of price of tradable and price of non tradable goods with nominal exchange rate. Nominal exchange rate is for adjustment of inflation. Along with Real Exchange rate other variables like terms of trade are also taken on quarterly basis. Terms of trade is based on export price index and import price index. For technological growth Gross Domestic Product (GDP) per capital was taken as proxy. Financial liberalization is taken as dummy variable. For commercial policy ratio of GDP over value of export and value of imports has been taken. Net capital inflow is the ratio of GDP and it is taken as combination of portfolio investment and foreign direct investment.

## *3.3. Theoretical Relation Of Independent Variables With Dependent Variable (Real Exchange Rate)*

The relationship between RER and other independent variables is clear from literature review that all independent variables positively effect the real exchange rate (Chisti , 1993). The terms of trade positively affect the real exchange rate where TOT is equal to Export price index Import price index. From the definition of terms of trade it has been confirmed that when the value in numerator is increased then whole value will be increased, and literature also argued that when the price of export of a country is increased then the same it also increased the demand for exporting country's currency, which will appreciate its exchange rate.

On the other side when the price of import increases then demand of foreign currency also increases in importing country, which deteriorates its balance of payment and as a result exchange rate depreciates. This relation also depends on the income and substitution effect & if the substitution effect is strong then the relation will be positive and vice versa. It is also called the trade balance impact. Trade balance is the difference between the monetary value of exports and imports of output in an economy over a certain period of time. It is the relationship between a nation's imports and exports. A favorable balance of trade is known as a trade surplus and consists of exporting more than is imports; an unfavorable balance of trade is known as a trade deficit or informally a trade gap. The balance of trade is sometimes divided into goods and services balance.

Technological growth also plays a very important role in exchange rate determination and it has positive relation with real exchange rate. If the technological growth is in the traded goods sector it means improvement in the production of traded goods then its impact on real

exchange rate will be positive and it will appreciate the real exchange rate. The effect of technological growth on real exchange rate is called Balassa effect (Afridi et all, 1996).

Financial liberalization is also positively related with real exchange rate but it depends on domestic financial market. If the domestic financial market is developed and it is linked to international financial market then benefits of financial liberalization can be reaped through real exchange rate, and if domestic financial market is not developed then its impact on real exchange rate is not up to the mark.

The remaining two exogenous variables including net capital inflow as percentage of GDP have also impact real exchange rate positively (Edward, 1989). Foreign direct investment in its classic form is defined as a company from one country making a physical investment into building a factory in another country. It is the establishment of an enterprise by a foreigner. Its definition can be extended to include investments made to acquire lasting interest in enterprises operating outside of the economy of the investor. Portfolio investment represents passive holdings of securities, such as foreign stocks, bonds or other financial assets, none of which entails active management or control of the securities issued by the investor where such control exists. Due to increase in the openness of the economy the inflow of capital also increases and when the inflow is increased then it appreciates the domestic currency of the country. Trade openness thus shows positive relation with real interest rate.

## *3.4. Model*

This study determines the following relation between RER which is real exchange rate and it depends on the following variables. We used for estimation OLS and 2SLS methods.

$$RER = \beta 0 + \beta 1\, x + \beta 2\, TG + \beta 3FL + \beta 4CP + \beta 5CA$$

Where

- **Real Exchange Rate:**

Real Exchange Rate represents a single country's currency value in comparison with the other key currencies in the index where it is quoted after adjustment for inflation.

$$RER = Real\ exchage\ rate\ (= NER(\frac{PT}{PN})^*$$

- **Price of Tradable and None Tradeable**

Goods which can be sold easily at any place other than where it was produced are called tradable goods. The transportation cost of these products is very low. While on the other hand Non Tradable goods or items are those which cannot be sold easily far from the place of production.

$PT = Price\ of\ Tradales$ $PN = Price\ of\ non\ tradales$

- **Terms of Trade:**

Terms of trade express the ratio of exports to the imports of a country during a period of time. It is used to measure and monitor the economy of a country with in period of time

$$X1 = Terms\ of\ Trade\ (= \frac{PX}{PM})$$

**Export Price and Import Price Index:**

The import and export prices indexes are created by compiling the prices of goods purchased in the U.S. but produced out of country (imports) and the prices of goods purchased out of country but produced in the U.S. (exports).

$PX = Export\ Price\ Index$

$PM = Import\ Price\ Index$

- **Technological Growth:**

Technological growth shows the representation of Growth in the economic area due to innovations in the technology. Technological growth in a country is achieved by industries moving and working in an innovative and creative way.

$TG = Technological\ Growth*$

- **Financial Liberalization**

This includes the removal or reduction of barriers i.e. (duties and surcharges) and non-tariff obstacles (like licensing rules, quotas and other requirements). The easing or eradication of these restrictions is often referred to as promoting "free trade."

$FL = Financial\ Liberalization*$

- **Commercial Policy:**

The regulations and policies that determine how; a country conducts trade with other countries. A country's commercial policy includes the use of tariffs and other trade barriers, such as

restrictions on what goods can be imported or exported, and which countries are allowed to import or export goods to the home country.

$$CP = Commercial\ Policy = (\frac{GDP}{X + M})$$

- **Export Price Index:**

An export price index is an index calculated for the price(s) of one or any specified group of commodities entering into international trade using export prices.

$$PX = Export\ Price\ Index$$

$$X = Value\ of\ Exports \qquad M = Value\ of\ Imports$$

- **Gross Domestic Product:**

It represents the total dollar value of all goods and services produced over a specific time period Usually, GDP is expressed as a comparison to the previous quarter or year. For example, if the year-to-year GDP is up 3%, this is thought to mean that the economy has grown by 3% over the last year.

$$GDP = Gross\ Domestic\ Product$$

$$CA = Net\ Capital\ Inflow\ as\ a\ Percentage\ of\ GDP$$
$$= (Portfolio\ Investment + Foreign\ Direct\ Investment$$

In the above equation some proxies for exogenous variables are used, while some dummy variables are also used. For financial liberalization dummy variables and growth rate per capita, as a proxy, for technological growth have been used.

# *CHAPTER_ 4*

# *RESULTS ANALYSIS AND FINDINS*

# CHAPTER 4

# RESULTS & DISCUSSION

## *4.1. Result Analysis & Findings*

Ordinary least square method is used to find out the linear relation between independent and dependent variables. Study estimation begins from the simple ordinary method, where; regression analysis is applied among real exchange rate & its independent variables to find out the results. For the table it is clear that all the variables are positively related to real exchange rate and have some impact on real exchange rate.

## *4.2. Terms of Trade and Real Exchanged Rate*

The terms of trade relation is positive and its value is very large. The reason is that as data period is from 1980-2009 and during that period the boom in external sector has been found, because due to Afghan war Pakistan's export and import sector growth was very high so its impact on real exchange rate was also very high. From value of t- statistics it is statistically significant because its value is more than 2 and that is the rule of t statistics that if the number of observations is more than 20 then t statistics should be more that 2, qualifying that it is a significant variable. So for terms of trade t -value is about 7% which shows that it is highly significant.

**Table. 1 Ordinary Least Square Method (OLS)**

| | | |
|---|---|---|
| Terms of Trade (X1) | 1.298054 | 7.231005 |
| Technological Growth(TG) | 2.930587 | 1.117078 |
| Financial Liberalization(FL) | 9.505734 | 1.308576 |
| Commercial Policy (CP) | 1.34 | 5.512911 |
| Net Capital Inflow(CA) | 7.92 | 9.024826 |
| Constant | 3.7201 | 5.317894 |
| R-squared | 0.826993 | |
| Adjusted R-squared | 0.818984 | |
| Durbin-Watson stat | 0.995841 | |

## *4.3. Technological Progress and Real Exchange Rate:*

Technological growth for which GDP per capital growth is used as proxy has positive effect on the real exchange rate. So it can be said that 1% increase in technological growth causes real exchange rate to appreciate by more than 7%. As mentioned in literature that if technology is used for production of tradable goods then its impact will be positive for real exchange rate, but from t-statistic's point of view, where its value is about 1.117078 which is less than 2, so we can say the technological growth is not statistically significant.

## *4.4. Financial Liberalization and Real Exchange Rate*

Financial liberalization for which we used dummy variable is also statistically insignificant, because its t value is less than 2, although it has positive relation with real exchange rate appreciation. The reason is that as Pakistan is a small country and its financial market is not developed, due to which the flow of international financial forces is also very low. During current financial crises which hit Pakistan very minutely, because it's financial market was not

so developed. As in case of Pakistan it can be interpreted that the financial market of the country is not developed so there financial liberalization effects will be low.

### *4.5. Commercial Policy and Real Exchange Rate*

Commercial policy shows strongly significant results and positive relation with real exchange rate. As for commercial policy, trade openness is used as proxy. Ratio of GDP to import and export is taken as proxy for commercial policy. The impact of commercial policy on real exchange rate can be determined using import, export tariff and quota on imports (Cottani, Cavallo & Khan, 1986). From the table 1 it is clear that the impact of commercial policy is positive but its effect is not so much encouraging on real exchange rate. The impact is about .00000093% which does not represent high-quality result, while its t value is 2.59 which shows commercial variable as significant.

### *4.6. Capital Inflow and Real Exchange Rate*

Like commercial policy capital inflow coefficient is also very low and it is about 00000091%, although it shows positive relation with real exchange rate and its t-value is encouraging. For Capital inflow, have been taken, the portfolio investment and foreign direct investment, so the impact of foreign direct investment in the form of foreign currency is more due to which it appreciates the real exchange rate of a country.

The value of R square which shows the percentage changes in dependent variable due to changes in independent variables show overall impact of independent variables on dependent variable has value at 82%, which shows that about 82% change in dependent variable has been explained by independent variables. When the value of R square is close to 1 it shows the strength of

regression, because 82 measure the goodness of fit of the regression. Adjusted R square is a little bit advanced version of R square. Durbin Watson shows somehow some correlation among the independent variables; the reason is that quarterly data and for some variables divided the annual data in to four quarters. That's why there is some evidence of the presence of correlation.

### *4.7. 2SLS Method*

To analyze the data in detail another model was run on data which is a little bit advanced from OLS, it is 2 Stage Least Square Method (2SLS).

**Table 2 Two-Stage Least Squares Method (2sls)**

| | | |
|---|---|---|
| Terms of Trade (X1) | 2.24545 | 6.739808 |
| Technological Growth(TG) | 1.413591 | 2.699063 |
| Financial Liberalization(FL) | 3.370954 | 0.364441 |
| Commercial Policy (CP) | 1.30 | 2.599608 |
| Net Capital Inflow(CA) | 1.14 | 7.594217 |
| Constant | 1.041354 | 4.87305 |
| R-squared | 0.76673 | |
| Adjusted R-squared | 0.755829 | |
| Durbin-Watson stat | 1.685052 | |

In 2SLS estimation result is slightly different from OLS. Here results show significance for technological variable and have positive relation with real exchange rate. Financial liberalization is still insignificant & has negative relation with real exchange rate. From the technological growth significant impact it can be said that the Balssa effect is significant in case of Pakistan as well. And it can be argued that the technological growth or production improvement is on tradable goods side due to which growth becomes high and real exchange rate is appreciated. It can be further added that technological growth is product augmented & it raises the real exchange rate.

Durbin Watson value has been improved and it is close to 2, while the R square value becomes less, although it is still a good fit of regression and it explains that 76% variation in dependent variable due to independent variable.

**Table .3 DESCRIPTIVE STATISTICS**

| | | | | | | |
|---|---|---|---|---|---|---|
| | 131.9659 | 0.691426 | 25.59137 | 0.657895 | 3.58 | 2.68 |
| | 118.7290 | 0.701864 | 25.58712 | 1.000000 | 3.87 | 1.21 |
| | 248.4130 | 1.039968 | 26.52565 | 1.000000 | 5.15 | 1.72 |
| | 94.12210 | 0.331751 | 24.02005 | 0.000000 | 47.14915 | 7.364257 |
| | 40.50460 | 0.157760 | 0.604174 | 0.476509 | 1.40 | 4.23 |
| | 1.378738 | 0.193237 | 0.722702 | 0.66564 | 1.447203 | 2.355409 |
| | 3.644397 | 2.223279 | 3.147770 | 1.443077 | 4.488908 | 7.454104 |
| | 38.08988 | 3.575131 | 10.02738 | 19.93251 | 50.32354 | 199.6465 |
| | 0.000000 | 0.167367 | 0.006646 | 0.000047 | 0.000000 | 0.000000 |
| | 15044.11 | 78.82257 | 2917.416 | 75.00000 | 4.08 | 3.06 |
| | 1.85390.3 | 2.812381 | 41.24797 | 25.65789 | 2.20 | 2.02 |
| | 114 | 114 | 114 | 114 | 114 | 114 |

From the summary of descriptive statistics it is clear that the two central tendency methods give almost the same result. Mean and Median values are 131.9659 and 118.7290 in which there is a little difference. Minimum and maximum observations are alternatively 248.4130 and 94.1210 so the mean and median cover all the data and lies almost in middle of these observations.

# *CHAPTER 5*

# *CONCLUSION*

# CHAPTER 5

## CONCLUSION

The results show that the present study reviews of previous studies are very close to each other. Previous work shows positive relation between real exchange rate as a dependent variable and terms of trade which is one of the exogenous variables. From ordinary least square method and 2SLS, it is evident that terms of trade which is the ratio of export price index and import price index have positive relation i.e. when the export of a country is going to increase real exchange rate will also be increase. TOT is the ratio of price of export and price of import index and price of export index is in the numeration so when there is increase in export then that will appreciate real exchange rate.

Like studies conducted in other countries of the world, this study in Pakistan has also proved that real exchange rate and terms of trade which is the ratio of export to import has positively related to one another. From results the importance of balance of payment has been also proved that when the export of a country is high then there will be more inflow of foreign currency, which will ultimately appreciate the real exchange rate. Form the table of OLS and 2SLS it has been confirmed that not only the relationship between real exchange rate and terms of trade is positive but also statistically significant. Due to the importance of balance of payment, need arises to improve the quality of exports so when the quality of exports will be higher, then it will attract foreigners to purchase those product and invest in the country, which will appreciate real exchange rate.

From the other exogenous variables it is also proved that theory matches the result due to their positive relation with the real exchange rate, like technological growth which is not only positively related to real exchange rate, but also statistically significant. For technological growth GDP pre capital is used as a proxy but it has positive relation with real exchange rate and is statistically significant. In technology proxy variable GDP and population data are used & GDP shows overall performance of the economy. When this performance is high then GDP will be high so high GDP leads to favorable exchange rate. Technology variable appreciates the real exchange rate. Till second exogenous variable it is clear that not only the monetary variable but the real variable also has significant impact on real exchange rate and the approach which is based on balance of payment has proved that favorable balance of payment leads to favorable real exchange rate.

The impact of financial liberalization in OLS is negative and significant but when used 2SLS model it became statistically insignificant. Reason is that in Pakistan the financial sector is not developed & primary and secondary markets for financial transactions is not separated so the benefits of financial liberalization are not in the reach of Pakistan. However, theoretical approach is the positive relation between financial liberalization and real exchange rate. Due to financial liberalization more foreign currency has been entered in domestic economy which will increase the demand of the domestic currency and ultimately exchange rate appreciates. Commercial policy which is the ratio of GDP to export and import also established positive relation with the real exchange rate. For commercial policy the data is taken from export and import and GDP, due to higher export it should decrease the whole figure because export and import are in the denominator. GDP increase is much more as compared to exports because increase in exports is also included in GDP and other domestic production is also included in GDP that's why it is

positively related with real exchange rate in both case i.e. OLS and 2SLS. As capital inflow is the combination of portfolio investment and foreign direct investment, it has also a positive relation with real exchange rate.

When foreign direct investment increases the demand for domestic currency also increases because foreigners need currency of host country to invest, which will give rise to real exchange rate. Same is the case with portfolio investment, which with the increase in portfolio investment demand for home currency will also increase. Study shows positive relation with real exchange rate i.e. with the increase of capital inflow real exchange rate goes high and it is also statistically significant. All variables except the financial liberalization show significant results of the study. The reason for financial liberalization (negative relation with real exchange rate) is the country's financial markets, because in Pakistan financial market is not so much develop to reap the benefits of financial liberalization, that's why it show different results than the literature. It means that four hypotheses have been accepted except fifth one i.e. financial liberalization variable.

## *5.1. Findings of the Research*

From this research it has been confirmed that there is a strong role of balance of payment in determination of real exchange rate. It has also been confirmed that not only the monetary variable but the real variable also plays a key role in determination of real exchange rate.

## *5.2. Policy Recommendations*

From data analysis it has been proved that balance of payment plays a vital role in improving country's real exchange rate. Terms of trade are significant in increasing the real exchange rate.

Similarly the net capital inflow and commercial policy etc have vital role which improved the real exchange rate in Pakistan.

As real exchange rate is very essential for improving the country's economic conditions, there is channel of variable through which real exchange rate influences the economic development of a country. Real exchange rate affects the country's export, import and other real variable, which positively affects the economic growth.

Due to high importance of real exchange rate there is need to improve the export quality for earning more foreign currency and to improve balance of payment. Government should ensure good quality of exports by providing incentives to industrial sector in the country. Government should also provide incentives and facilities to foreign investors to invest in Pakistan. When foreigners will invest in Pakistan they will convert their currency to Pakistani currency which will ultimately increase the value of currency. Balance of payment approach has been used which is based on almost real variables, so for better future of the people Government should promote it.

Government should develop such type of institutions which provide guidelines and counseling for improving the quality of exports. There is need of technical education for factory workers so that they may be able to give good quality to their industrial products.

### *5.3. Future Research*

This study finds out a strong positive relation of real exchange rate with balance of payment real variables. For future research there are much more avenues. Good governance which is the burning issue in developing countries like Pakistan, plays a very important role in improving the

performance of different institutions in Pakistan, so there is also relation between good governance and real exchange rate stability, which needs to be explored in future. Good governance can be used to improve the export quality of products, and when export quality improves then we can capture the world market. Another important aspect of real exchange rate is its impact on economic growth. From our literature it has been studied that those countries whose real exchange rate is stable they have boost up their economies thus eradicating poverty.

### *5.4. Limitation of the Study*

In this study only the impact of balance of payment has been studied on real exchange rate. There is need to point out that how the balance of payment is dependent on good governance and then relation between good governance and real exchange rate could be developed.

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