CHAPTER – 3
LITERATURE REVIEW
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## LITERATURE REVIEW

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3.1 INTRODUCTION

A literature review is the process of reading, analyzing, evaluating, and summarizing scholarly materials about a specific topic. Also called a research literature review, review of literature, and state-of-the-art assessment.

A literature review is a critical and in depth evaluation of previous research. It is a summary and synopsis of a particular area of research, allowing anybody reading the paper to establish why you are pursuing this particular research program. A good literature review expands upon the reasons behind selecting a particular research question.

This chapter gives a detailed description of the previous theoretical and empirical debates relevant to the objectives of the study. Review of literature is considered as an essential part of any type of research work. It provides guidance to the researcher in finding out the knowledge gap in the relevant field which needs to be explored. It helps the researcher in understanding the important concepts, development of theoretical frameworks and application of empirical techniques. The literature review for this study has been organized in the following manner.

3.2 STUDIES ON THE DETERMINANTS OF REAL EXCHANGE RATE

Although, the literature showed a number of studies undertaken for investigating the factors determining the real exchange rate, yet, it is still a debatable issue and there is lack of consensus in the literature over its specific determinants.

1) **Frenkel (1976)** analysed the role of money, prices and future expectations in the determination exchange rate for Germany by using monthly data for the period 1920:M1 to 1923:M11. Supporting his theoretical hypotheses, the main finding of the study was that expectations and monetary policy played a key role in the determination of exchange rate in Germany.

2) **Stockman (1980)** provided a theoretical view of the factors affecting the exchange rate of a country. The results showed that a rise and fall in the demand or supply affects the relative prices of goods which bring variations in the exchange rate. The study argued that this simultaneous shift in exchange rate and terms of trade may develop a relationship between the two but it is not possible for the government to explore this relationship for bringing improvement in terms of trade of the country.

3) **Barlow (1986)** applied a Vector Auto regression model (VAR) to find out the main causes of the fluctuations in the exchange rate of Canadian and US
dollar. The main conclusion of the study was that both real and monetary factors determined the exchange rate of both the countries.

4) **Clarida and Gali (1994)** examined the sources of real exchange rate variations in four countries i.e. Germany, Japan, Canada and Britain against US dollar for the post Bretton Woods period by using a three version open economy macroeconomic model. The main results of the study were that monetary and demand shocks played a key role in the real exchange rate of Japan and Germany against the supply shocks. Whereas, for Britain and Canada the role of the monetary factors was minimum as compared to the demand and supply side factors.

5) **Afridi (1995)** investigated the factors determining the real exchange rate of Pakistan. The study concluded that excess demand for domestic credit and capital flow showed a negative and significant relationship with the real exchange rate. Whereas, the government expenditure variable turned out positively significant. However, the terms of trade variables remained insignificant.

6) **Amano and Simon (1995)** used an Error Correction and Cointegration models to examine the relationship between the exchange rate and terms of trade for Canada & US by using monthly data for the period 1973:M1 to 1992:M2. First, for the non stationary data the study found a long run relationship between the two. However, the study mentioned that changes in exchange rate occurred due to change in terms of trade in these countries. The study also analyzed the relationship between the two for a stationary data after applying appropriate econometrics techniques and reached the similar conclusions.

7) **Faruqee (1995)** undertook an empirical study for exploring the long run determinants of the US and Japan exchange rate. The study showed that structural forces were the dominant sources for the variations in the exchange rate of both countries.

8) **De Jong (1997)** used a target zone model for investigating the role of macroeconomic variables in the determination of exchange rate. The study concluded that in the short run the fluctuations in exchange rate were mostly occurred due to the changes in macroeconomic variables. The study further showed that the type of exchange rate system did not show any influence on the relationship between exchange rate and macroeconomic variables. However, the study recommended that both micro and macro approaches should be jointly applied for the proper understanding of the determinants of exchange rate.
9) **Klein and Nancy (1997)** used a logit model by using annual data for the period 1957-1990 to find out the duration of exchange rate systems in 16 Latin American countries. The study concluded that real exchange rate, trade openness, level of international liquidity and political factors played a key role in the determination of exchange rate systems in those countries. The study recommended that although with the adoption of new exchange rate system the chances of devaluation were more in the start of system yet it declined gradually.

10) **Brada (1998)** mentioned that as all the countries do not follow the same exchange rate policies hence that is the reason that one type of shocks dominate the other type of shocks in different countries. These views were also supported by Desai (1998) who found that because of the different monetary and fiscal policies, the path of exchange rate is different across the countries.

11) **Liang (1998)** concluded that regime shifts do not influence the real exchange rate. In contrast, Kocenda and Valachy (2006) found out that regime shifts are not neutral and the behavior of real exchange rate is different under different regimes i.e. its variability increases under a flexible exchange rate system.

12) **Muco (1999)** used monthly data from 1992:M10 to 1997:M7 to investigate the determinants of exchange rate in Albania. The study concluded that exchange rate movements in Albania mostly occurred because of the domestic factors. The study suggested that if Albania wants to be less dependent on free market exchange rate system, it should develop its banking sector and interbank system of foreign exchange.

13) **Alexius (2001)** used a VAR model to find out the factors causing fluctuations in the exchange rate of four Nordic countries i.e. Denmark, Finland, Norway and Sweden. The study used quarterly data over the period 1960:Q1 to 1998:QII. The results showed that supply side shocks i.e. productivity shocks played a greater role in the variation of exchange rate in all the countries. However, the study pointed out that the shocks in their exchange rates were temporary not permanent.

14) **Dibooglu and Kutan (2001)** investigated the role of nominal and real shocks in the real exchange fluctuations of Hungary and Poland. They found out that real shocks were the main derivers of real exchange rate fluctuations in Hungary. Whereas in Poland, the role of nominal shocks were larger than the real shocks in the determination of real exchange rate. The study suggested that the Central Bank of Poland can manage their nominal exchange rate by following an appropriate exchange rate and monetary policies for the
improvement of external competitiveness. Whereas, the government of Hungary was required to focus on the real side of the economy i.e. increasing productivity efficiency etc.

15) **Aleisa and Dibooglu (2002)** explored the factors affecting the real exchange rate of Saudi Arabia in the framework of a VAR model by using monthly data for the period 1980:M2 to 2000:M2. The study concluded that oil production shocks played a dominant role in the determination of the real exchange rate of Saudi Arabia as compared to price shocks. The study suggested that for the stabilizing of its real exchange rate, the monetary authority of Saudi Arabia needs to increase the production of oil.

16) **Hau (2002)** applied a theoretical monetary model to explore the various factors determining the exchange rate. It was found out that monetary and aggregate supply shocks were the main determinants of exchange rate fluctuations. However, the study mentioned that the extent of variation brought by these factors in the exchange depends on the degree of the trade openness of a country. For a country with more trade openness, these factors play a little role in the variation of their exchange rate and vice versa. The study also tested this hypothesis empirically by carrying out a cross sectional study for 48 countries and reached to similar conclusions.

17) **Lee and Lin (2003)** investigated the sources of real exchange rate fluctuations in the framework of a rational expectations model by using the floating regime periods for four countries namely France, Italy, Canada and Japan. The main findings of the study were that monetary shocks play a dominant role in the variation of real exchange rate of Canada. Whereas in France and Italy, private expenditure shocks and in Japan foreign price shocks play a key role in the determination of their real exchange rates.

18) **Gelbard and Nagayasu (2004)** regressed the real exchange rate on the foreign interest rate, oil price and trade balance to examine the main factors caused variations in the real exchange rate of Angola. Using monthly data for the period 1992:M1 to 2002:M1, the study tested two hypotheses including the fluctuations in exchange rate based on purchasing power parity and that the exchange rate of the country followed a random walk. After analysis, the study rejected the first hypothesis and concluded that fluctuations in exchange occurred mainly due to two exogenous factors such as oil price and foreign interest rate. However, the study supported the hypothesis that Angola’s exchange rate followed a random walk. The study recommended that as compared to fixed exchange rate system, a flexible exchange rate system can be more appropriate for the country.
19) **Gelbard and Nagayasu (2004)** studied the determinants of real exchange rate in Angola for the period 1992:M1-2002:M1 by using a general exchange rate equation in which \( q \) was real exchange rate, \( r \) was foreign interest rate, Oil used for oil prices, \( t \) was stock of net foreign assets, BBA was basic balance. By using Hansen Modified OLS method, the study concluded that exogenous factors such as oil price and foreign interest rate were the key factors bringing variations in the real exchange rate of Angola. The study further suggested that for Angola flexible exchange rate system was more appropriate as compared to fixed exchange rate system.

20) **Kempa (2005)** used a structural exchange rate model to explore the factors bringing variations in exchange rate. The study compared the currency’s value of Britain, Germany and Japan with US dollar by using quarterly data for the period 1973:QII to 1998:QIV. It was suggested that as compared to nominal shocks, real shocks such as trade balance deficit, increase in prices of imports were the main causes of fluctuations in exchange rate of these countries. Similarly, Jakab and Kovacs (1999) stated that supply side factors (productivity shocks) are the important determinants of real exchange rate. In contrast, Clarida and Gali (1994) and Rogers (1999) mentioned that real exchange rate is mostly affected by monetary and demand side factors and the role of supply side factors is minimum.

21) **Wang (2005)** used a structural VAR model to find out the determinants of the real exchange rate of China by using annual data for the period 1980-2003. The study considered the role of all the macroeconomic shocks namely demand, supply and nominal shocks. The results showed that nominal shocks were the main factors of exchange rate fluctuations in China. However the study suggested that the supply shocks and demand shocks both were also responsible for these variations in the exchange rate of China.

22) **Hsing (2006)** investigated the short term exchange rate fluctuations in Poland by using quarterly data for the period 1996:QI to 2004:QI in the framework of an open extended economy model. The study concluded that real exchange is negatively correlated with real money supply, foreign interest rate and expected rate of inflation. Whereas, the government deficit/GDP ratio showed a positive relationship with the real exchange rate. The study also recommended that for the estimation of expected rate of inflation and expected exchange rate, a large sample size and better techniques might give better results in this regard.
23) **Inoue and Hamori (2009)** used monthly data over the period 1999:M1 to 2009:M2 for examining the factors affecting the nominal and real exchange of India in the framework of a trivariate structural VAR model. The main variables included in the model were relative output, nominal exchange rate and real exchange rate. The results showed that real shocks persistently influenced both the nominal and real exchange rate of India. It was suggested that the Central Bank of India should focus on the real side of the economy i.e. technological development, increase in production etc. instead of exchange rate policies for bringing improvement in the external competitiveness. These results was also supported by Morre and Pentecost (2006) who found that real shocks were the main drivers responsible for the fluctuations in both the nominal and real exchange rate of India.

24) **Utami and Inanga (2009)** investigated the impact of interest rate differentials on the exchange rate of Indonesia against four industrialist countries namely Japan, Singapore, UK and USA in the framework of an International Fisher Effect approach. The study showed that interest rate differentials had a significant but negative impact on the Indonesian exchange rate against Japan. However, for the other three countries i.e. Singapore, UK and US, the relationship between the interest rate differentials and exchange rate were found to be positive but insignificant.

25) **Rehman (2010)** analyzed the relationship between the inflation, interest rate and exchange rates by using monthly data over the period 1994 to 2009. The findings of the study showed that inflation positively affected exchange rate whereas, interest rate influence on exchange rate was negative.

### 3.3 STUDIES ON EXCHANGE RATE AND MONETARY POLICY

The literature showed a large number of empirical investigations carried out for analyzing the conduct of the monetary policy both in the developed and developing countries. However, as the conduct of monetary policies is different across the countries because of their macroeconomic structures, hence previous studies on whether central banks respond to real exchange rate in its monetary policies reached to different conclusions.

1) **Taylor (1999)** found out that in market economies, the central banks react to exchange rate movements. He further mentioned that the inclusion of exchange rate in the monetary policy produces better results and brings stability in the economy. Batini et al (2001) and Thomas and Schorfheide (2007) used Taylor Rule for investigating the response of macroeconomic variables to interest rate, pointed out that inclusion of exchange rate increase the success probability of monetary policy. Chang (2000) also explicitly
investigated the link between monetary policy and exchange rate and reached to similar conclusion. These views are also supported by Sethare (2002), Thomas and Schorfheide (2007) and Parsley and Popper (2009).

2) **Svensson (2000)** mentioned that in an open economy, real exchange rate provides both direct and indirect additional transformation channels to monetary policy. This view was empirically supported by Eichengreen (2004) who suggested that exchange rate provides additional transformation channels for the conduct of monetary policy in Korea and any reaction of the Central Bank of Korea to exchange rate movements would produce optimal results.

3) **Taylor (2001)** showed the indirect effect of exchange rate on the interest rate under the monetary policy regimes of flexible exchange rate, monetary policy rule and inflation targeting. He further mentioned that this indirect channel exists even in the absence of direct channels and it keeps the interest rate more stable. He suggested that as exchange rate influences terms of trade and flows of exports and imports, hence for the clear understanding and generalization of this indirect effect of exchange rate, broad level studies are required.

4) **Dennis (2003)** for Australian economy found out that reaction towards the exchange rate increases the success probability of monetary policy. In contrast, Leitmo and Soderstrom (2005) found no support for the benefits with the inclusion of real exchange rate in a monetary policy rule.

5) **Klau and Mohanty (2004)** mentioned that central banks in emerging economies respond consistently to exchange rate in their monetary policy mandate.

6) **Shambaugh (2004)** mentioned that exchange rate provides additional aggregate demand and supply transmission channels for the conduct of monetary policy in an economy. On the one side, a change in it affects the relative prices of domestic and foreign goods which, in turn, influence domestic and foreign demand for domestic goods and, hence, contribute to the aggregate demand channel of monetary policy. Also, directly depreciation affects the domestic currency prices of imported goods which raise domestic inflation. Indirectly, exchange rate by affecting the prices of imported inputs influence the nominal wages which, in turn, affect the cost of production and leads to domestic inflation.

7) **Bask (2006)** used a three version Taylor rule for a small open economy to find out whether the central banks need to respond to exchange rate in their monetary policy mandate or not. The study showed mixed results. It was concluded that if the exchange rate include contemporaneously in the model,
the central bank reacts to it. However, it did not respond to exchange rate movements when it was included in lag form.

8) **Lubik and Schorfheide (2007)** used quarterly data covering the period 1981:Q1 to 2002:Q4 to find out whether the Central Banks of Australia, Canada, New Zealand and UK target exchange rate in addition to output and inflation movements by following a Taylor rule based monetary policies. The main results of the study were that the Central Banks of Canada and England responded whereas the Central Banks of Australia and New Zealand did not respond to exchange rate fluctuations. It was also mentioned that the role of terms of trade was almost negligible. However, it was suggested that the inclusion of some additional variables including capital accumulation, asset markets and different product sectors might increase the role of terms of trade fluctuations in the monetary policy.

9) **Benigno and Benigno (2008)** used a two country optimizing agent open economy model for the determination of exchange rate under different interest rate rules i.e. Taylor rules of monetary policy. They stated that exchange rate volatility depends on the monetary policy regimes carried out by the monetary authorities. Although the study suggested that there was no need to react to exchange rate fluctuations explicitly, yet, it was mentioned that the extension of the Taylor rule to an open economy framework where movements in the exchange rate and terms of trade should also be taken into account provides new insights to the monetary policy rules and exchange rate system, benefits from monetary policy, optimizing the response to foreign shocks etc. It was also mentioned that the monetary authorities need to be more aggressive towards the domestic inflation under the clean float regimes against the fixed regimes.

10) **Chami (2008)** carried out an empirical study for analyzing whether an interest rate rule based monetary policy works in Yemen or not? The results showed that keeping a floating exchange rate system, the Central Bank of Yemen (CBY) is required to follow a rule based monetary policy with a clear focus on inflation in addition to exchange rate. On the basis of the results, it was recommended that the CBY should revise its monetary policy stance by adopting a more formal framework for the achievement of its objectives. It was also suggested that following a floating exchange rate path could also be helpful in controlling inflation and instabilities in exchange rate.
3.4 STUDIES ON REAL EXCHANGE RATE AND OUTPUT

The literature provides rich debates of individual countries and cross countries studies on the relationship between the real exchange rate and output level with the application of different econometric techniques. However, inspite of these substantial number of theoretical and empirical studies conducted both for the developed and developing countries, the question whether real exchange rate devaluations put expansionary or contractionary effects on output is still not conclusive.

1) **Alexander (1952)** theoretically explained the impact of devaluation on output. The study used both the elasticity’s and absorption approaches to identify the various demand and supply channels through which devaluation affects the trade balance of a country. The results showed that devaluation put positive impact on trade balance through both import and export sides channels which ultimately result in the expansion of output in an economy.

2) **Alejandro (1963)** examined that devaluation through its redistribution effect brings reduction in the level of output in an economy. He supposed that if there are two groups in a society, the wage earner group and profit earner group the marginal propensity to save will be greater in the profit earner group as compared to the wage earner group. So when devaluation occurs it will raise the prices of goods in export and import competing industries. This increase in prices will raise the income of profit earner group and reduce the real wages of wage earner group. Hence, as the marginal propensity to save is greater in profit earner group, there savings will increase which reduce the level of output. Alejandro (1965) also checked the empirical validity of his theoretical hypothesis for Argentina and reached to similar conclusions.

3) **Dornbusch (1973)** mentioned that the effects of devaluation are negligible and its effects occur through various channels in an economy. He developed a theoretical monetary model and concluded that devaluation is a monetary phenomenon and when it occurs, it reduces the real value of money in a country. Hence, when there is a fall in the real value of money, the people reduce their expenditures on domestic goods because of the reduction in their real balances which leads to the reduction of output.

4) **Gylfason and Schmid (1983)** utilized a simultaneous model to explore the effects of exchange rate fluctuations on economic growth in 10 developing countries namely United States, Germany, United Kingdom, Japan, Philippines, Brazil, Canada, India, Turkey and Pakistan by using yearly data over the period 1957 to 1978. The study concluded that on a supply side devaluation effects the output growth through imported inputs costs channels whereas, on demand side through imports, exports and expenditures channels.
The study, however, pointed out that the demand side effects dominated the supply side effects in these economies.

5) **Andres (1986)** explored the impact of devaluation on output, employment and trade balance in Chile. In the framework of a simple macro model, the study mentioned that the impact of devaluation in Chile depended on the behavior of the price elasticities of demand for imports and exports, the composition of costs in export and import competing industries and the behavior of nominal wages. The study concluded that in short and medium run the effects of devaluation on all the three variables were contractionary and the Marshall-Lerner condition did not hold for Chile. The study suggested that expansionary fiscal policies could help in removing these contractionary effects of devaluation in Chile.

6) **Edwards (1986)** used a reduced form equation to examine the impact of exchange rate fluctuations on output growth for 12 developing countries by using annual data for the period 1965-1980. The names of countries were India, South Africa, Malaysia, Sri Lanka, Philippines, Yugoslavia, Israel, Colombia, Brazil, Thailand, El Salvador and Greece. The study concluded that in short run devaluation decreased the real output, however in the long run the impact of devaluation on output was neutral.

7) **Lizondo and Montiel (1989)** theoretically examined the relationship between the devaluation and real output for the developing countries in an analytical framework. The study concluded that it is difficult to decide whether devaluation put contractionary or expansionary effects on output in developing countries.

8) **Chadha (1990)**, in an open economy model, examined the relationship between the real exchange rate, output and price level. The results found a fixed price level under which the variation in output decreased if the price level remained sticky. The study further explained that the stickiness of price disturbs the direct relationship between exchange rate and output level. If the prices are sticky and devaluation occurs, it will first decrease the output level and then increase.

9) **Morely (1992)** studied the impact of devaluation on output growth for 28 developing countries during the period 1974 to 1983. The main variables of the study were real exchange rate, balance of trade, terms of trade and GDP. The study showed that there was a significant negative impact of devaluation on real output in all countries. It was further mentioned that these contractionary effects of devaluation on real output was not because of the increase in saving but due to decline in investment. However, the study
suggested that to get advantage from devaluation, these countries should focus on external factors such as terms of trade and the capacity to import instead of monetary and fiscal policies which play a minor role in this regard.

10) Domac (1997) tested the contractionary hypothesis of devaluation in Turkey by using yearly data over the period 1960-1990. The study analyzed the effects of devaluation on output growth through anticipated and unanticipated devaluation. The empirical model of the study was consisted of real GNP growth rate, real exchange rate, real energy prices, interest rate, money supply and real government spending. The results showed that unanticipated devaluation increased the level of output in Turkey. In contrast, anticipated devaluation put contractionary effects on the growth rate of output. It was suggested that devaluation in Turkey could be effective if the authorities managed its monetary and fiscal policies tactfully.

11) Upadhyaya and Upadhyay (1999) investigated the impact of currency depreciation on aggregate output in the long run for six countries i.e. Pakistan, India, Sri Lanka, Thailand, Malaysia, and Philippines. Utilizing annual data for the period 1963-1993, the study found out that devaluation was contractionary in Pakistan and Thailand whereas, in all the other countries devaluation showed no impact on output. However, the study suggested that to get a clear picture of the relationship between the exchange rate and output, the number of countries should be increased.

12) Kamin and Rogers (2000) examined the relationship between real exchange rate and output in Mexico by using quarterly data over the period 1980:Q1 to 1996:QII. Using a VAR model, the study found that real devaluation brought reduction in economic activity and raised inflation in Mexico even the sources of spurious correlation and reverse causation were controlled. However, it was suggested by the study that for a country like Mexico, it should be less risky to adopt a devaluation policy for bringing the exchange rate to its equilibrium position.

13) Yeyati and Federico (2003) used annual data during the period 1974 to 2000 for a sample of 183 countries to examine the impact of exchange rate systems on output level. The results of the study showed that exchange rate systems played a key role in the economic performance of developing countries. Whereas the shift in exchange rate systems did not influence the output level in industrial countries. The study suggested that for developing countries flexible exchange rate system was more appropriate as compared to fixed exchange rate system.
14) **Bjornland (2004)** used quarterly data from 1972:Q1 to 1994:Q4 to find out the relationship between exchange rate and business cycle in a small open economy Norway. The main objectives of the study were to examine the impact of exchange rate fluctuation on output of Norway. The results derived from the VAR model including the macroeconomic variables such as, real exchange rate, unemployment rate, GDP and the real wage showed that there was little impact of exchange rate fluctuations on output level of Norway. The study recommended that for Norway, a free and independent exchange rate system was beneficial.

15) **Dritsaki and Adamopoulos (2005)** examined the interrelationship among the key macroeconomic variables i.e. money supply, exchange rate, price level, interest rate, and gross domestic product for the European Union countries. The study used Johansen Cointegration and Granger Causality tests for the analysis. The time period of the study was from 1970:Q1 to 2000:Q4 using quarterly data. The study showed a long-run relationship among the variables. The study further stated that changes in money supply occurred due to variations in exchange rates and interest rates, where output was also determined by price level, exchange rate and interest rates. Finally, the study found that interest rates brought changes in price level and changes in price level brought by exchange rate.

16) **Ahmed et al (2006)** utilized a Structural VAR model to explore the sources of economic fluctuations in Pakistan by annual data for the fiscal period 1976-1977 to 2004-2005. It was found that external shocks (remittances, foreign output, and terms of trade) have a reasonable impact on domestic output, inflation and exchange rate. Moreover, exchange rate depreciation shocks decreased output and increased inflation where their results for the choice of exchange rate are mixed.

17) **Choudhary and Chaudhary (2007)** examined the impact of the nominal effective exchange rate on output and inflation for Pakistan in the framework of a VAR model by using quarterly data over the period 1975-Q1-1985-Q4. Their main findings were that devaluation declined output and increased the price level in Pakistan.

18) **Kandil et al (2007)** analyzed the impact of exchange rate variations on the economic performance of Turkey by using annual data for the period 1980 to 2004 in the framework of a Theoretical Rational Expectation Model. The study decomposed fluctuations in the exchange rate into anticipated and unanticipated components. It was found out that anticipated appreciation reduced real output growth, demand for domestic investments and exports, and increases the level of inflation. Whereas, unanticipated exchange rate shocks
were due to its asymmetric effects increased export but decreased output, consumption and investment. The study recommended that only adjustment in the domestic policies could help Turkey in the reduction of reduction of exchange rate volatility.

19) **Bahmani-Oskooee and Kutan (2008)** conducted a study for analyzing the contractionary effects of devaluation on real output in the emerging countries of Eastern Europe namely Belarus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Russia and Slovak Republic. He regressed GDP on money supply, government expenditures and real exchange rate by using quarterly data varied within the range of 1993:QI to 2006:QII. By using bound testing approach the results showed that in the short run depreciation increased the real output in Belarus, Latvia, Poland and Slovak Republic and decreased the real output in Czech, Estonia and Russia. However, the study did not find any long run relationship between depreciation and real output growth for any country. The study suggested that Eastern European countries should properly manage their fiscal and monetary policies for increasing output.

20) **De Silva and Zhu (2008)** used VAR and ECM models to investigate the impact of exchange rate movements on trade balance and output in Sri Lanka. GDP, trade balance, inflation, exchange rate and FDI were the main variables of the study. By using quarterly data for the period 1977:QII to1998:QII, the study concluded that devaluation improved trade balance of Sri Lanka but with no impact on real output. It was recommended that Sri Lanka should increase the productivity of labor to bring improvement in level of output and should maintain its present competitive advantage on other countries.

21) **El-Ramly and Abdel-Haleim (2008)** used a Vector Autoregression model to examine the influence of devaluation on output in Egypt by using annual data for the period 1982 to 2004. The study used real effective exchange rate, fiscal deficit as a percentage of GDP, broad money growth rate and real output. It was concluded that variations in output growth strongly affected by the changes in real exchange rate. The study also concluded that in the short run devaluation decreased output but in the long run it increased output. The study suggested that government intervention was required for making the exchange rate stable.

22) **Kalyoncu et al (2008)** studied the role of devaluation in determination of output level in 23 OECD countries by using quarterly data for the period varied within range of 1980:QI to 2005:QIV. The results of the study were mixed and country specific. It was concluded that in 9 out of 23 countries, exchange influenced and brought changes in the level of output. However, the
study mentioned that in 6 countries, a devaluation reduced the output growth and in 3 countries, it increased the output.

23) Kalyoncu et al (2009) used quarterly data from 1979:Q1-2005:Q4, 1981:Q1-2005:Q4, 1991:Q1-2005:Q4 and 1993:Q1-2005:Q4 for four Latin American countries i.e. Peru, Mexico, Brazil and Argentina respectively to study the short and long run relationship between devaluation and trade balance by using Johansen cointegration test and impulse response function. The results of the study concluded that depreciation worsened the trade balance in Argentina and Peru while, in the long run, it improved the trade balance of these countries. The results further explained that in Brazil and Mexico there was no long run relationship in depreciation and trade balance. The study recommended that the J-curve effects occurred only in Argentina and Peru.

3.5 STUDIES ON REAL EXCHANGE RATE AND INFLATION

A string of literature exists on the forces that affect inflation. However, the empirical results are mixed and still seem to be in the data. Some studies have analyzed inflation in a monetarist framework whereas others have used a structuralist approach for its modeling.

1) Dornbusch (1987), theoretically, explained the relationship between exchange rate and prices for an open economy by applying various approaches including purchasing power parity model based on the law of one price, Keynesian model based on the assumption that each country is fully specialized in its home production, Cournot Model based on oligopolistic market and the Dixit-Stiglitz Model based on a utility maximization function of consumers. The study assumed that in the short run the changes in output and profitability due to changes in exchange rate do not influence the wage rate in industries. However, the study mentioned that in the long run because of appreciation of currency when the output and profit of firms affected due to loss in competitiveness the wage rate fall which ultimately decreases the price level. The study recommended that a micro level study is also required to study this phenomenon in more detail.

2) Hossain (1989) investigated the causes of acceleration in inflation in South Asian countries namely India, Sri Lanka, Bangladesh, Nepal and Pakistan. The main purpose of the study was to find out whether monetarist or Neo-Keynesian views explained the acceleration of inflation in these countries. The study used different annual data for each country varying within the range of 1961 to 1988. Contrary to the Keynesian view, the study supported the monetarist view and concluded that changes in the real money balances of the
people in these countries had a significant impact on the acceleration of inflation. The study further mentioned that changes in bond-financed government expenditures did not have any positive effect on inflation in these countries except Bangladesh.

3) **Parsley and Helen (1998)** used quarterly data from 1975 to 1992 to show the impact of changes in US exchange rate on prices. For regression analysis, the study used Error Correction and Vector Autoregression models taking exchange rate, CPI, M2 and GDP as main variables. The study found that prices of non-durable goods and some services responded to changes in exchange rate. When the role of monetary policy was considered, the relationship between these variables became more observable.

4) **Odusola and Akinlo (2001)** examined the relationship among devaluation, output and inflation in Nigeria by using quarterly data for the period 1970:Q1 to 1995:QIV. The study used a restricted vector autoregressive (VAR) model where real Gross Domestic Product, money supply (M2), official exchange rate, parallel exchange rate, prices (consumer price index and lending rates) were the main variables of the study. The results showed that devaluation of Naira influenced both output and inflation in Nigeria. It increased the level of output both in the medium and long run and decreased it in the short run. The study also found that devaluation was inflationary in Nigeria. It was recommended that the Central Bank of Nigeria should give autonomy in some policy instruments to make the monetary policy effective for controlling inflation and to raise the level of output. Moreover, adoption of flexible exchange rate system could only be beneficial if the government provides confidence and support to the people.

5) **Berument and Pasaogullari (2003)** analyzed the role of real exchange rate in the determination of output level and inflation in Turkey by quarterly data for the period 1987:Q1 to 2001:QIII. The study modeled real exchange rate, money supply (M1), gross domestic product and whole sale price index in a VAR model. It was found that real exchange rate depreciations had a negative relationship with output and a positive relationship with inflation. The study suggested that the authorities should control overvaluation of currency to avoid the unfavorable effects of devaluation on output and price level in Turkey.

6) **Kandil and Mirzaie (2003)** studied the effects of exchange rate fluctuations on real output and price level in 33 developing countries by using annual data for the period 1971 to 2000. The movements in exchange rate were decomposed into anticipated and unanticipated components. The variables of the model were exchange rate, GDP, Inflation, government spending and
money supply. The study showed that the effect of anticipated exchange rate depreciation on output and inflation was small as compared to unanticipated exchange rate fluctuations in all the developing countries. The study recommended that to reduce the fluctuations in exchange rate, to avoid the speculative attacks and increase money demand, the monetary policy should be managed properly in all these countries.

7) **Lu and Zhang (2003)** analyzed the impact of exchange rate fluctuations on price level in China by using quarterly data for the period 1986:Q1 to 1993:Q4. The main variables of the study were price level, money supply, a measure of sectoral disequilibria and effective exchange rate. Using a VAR model, the results showed a long run relationship between exchange rate and price level in China. It was further added that Chinese exchange rate policies, both in short and long run, were inflationary. The study recommended that a well-designed monetary policy for controlling the inflationary consequences of devaluation was required.

8) **Arize et al (2004)** analyzed the relationship between exchange rate and inflation by using a quarterly data from 1973:QII to 1998:QI for 82 countries. The main purpose of the study was to test the hypothesis that changes in nominal exchange rate play a significant role in the variation of inflation. The empirical results obtained supported the hypothesis of the study. Two alternative approaches i.e. recursive and rolling measures were also used by the study to find out the robustness of the relationship between the two variables. The results showed the same results for both variables. The study concluded that the authorities in these countries should consider the implications of exchange rate variability by making strategies for controlling the inflation.

9) **Hyder and Shah (2004)** studied the impact of exchange rate fluctuations on prices in Pakistan. The study modeled exchange rate, consumer price index, Wholesale price index, industrial output, money supply and oil prices in a Recursive VAR model by using monthly data for the period 1988:M1-2003:M9. The study concluded that exchange fluctuations affect both consumer prices and Wholesale prices in Pakistan. However, it was mentioned that the pass through effects of exchange was stronger on Wholesale prices against consumer prices and high during the periods of high inflation as compared to low inflation periods. It was further mentioned that the exchange rate pass-through effect on consumer prices was stronger under managed float exchange rate system in comparison to flexible exchange rate system. It was suggested that these results, showing the importance of a free monetary policy under inflation, targeted exchange rate system for Pakistan.
10) Barlow (2005) used monthly data for the period 1991:M6 to 2002:M2 to explore the relationship between exchange rate and inflation in Hungary. The study divided the whole period into two periods before and after March 1995. The results showed that in the first period depreciation of currency was inflationary because of which real exchange rate also showed downward trend. However, during the second period after the adoption of crawling pig exchange rate system the depreciation of currency become more sensitive to real exchange rate as compared to inflation. The study recommended that for targeting inflation the central bank should change its policy methods.

11) Hossian (2005) used Granger Causality test for studying the interrelationship between currency devaluation, money supply, inflation and output growth in Indonesia. The study tested three hypotheses i.e. inflation is caused by increase in money supply, devaluation of currency causes inflation and inflation influence output growth. In the short run, the study found that there was an inter-relationship between a rise in money supply and inflation and devaluation of currency and inflation. In the long run, the study also found a causal relationship between money supply and inflation. However, the study mentioned that the impact of inflation on money supply growth was stronger than the impact of money supply growth on inflation. The study further added that in the short run the causal relationship between currency devaluation and inflation was weak. About the relationship between inflation and output growth, the study did not find any causal relationship between the two in the short run.

12) Broda (2006) used annual data from 1980 to 1998 to investigate the relationship between exchange rate systems and price levels for more than 100 countries. The study concluded that for developing countries, with fixed exchange rate system, the inflation rate was 20 percent higher in comparison to those countries which had flexible exchange rate systems. The study also found the same but a comparatively weaker relationship for industrial countries.

13) Volkan et al (2007) stated that exchange rate oscillations pass on to the domestic prices through aggregate demand and supply side channels. On the supply side, fluctuations in the exchange rate affect imported goods prices either consume or enter the production chain through both direct and indirect channels. On the one side, a depreciation/devaluation of the domestic currency exchange rate directly results in the higher imported goods prices. Indirectly, the potentially higher cost of imported inputs associated with exchange rate depreciation increases marginal cost of production and indirectly leads to higher prices of domestically produced goods. Similarly, on the demand side, a rise in the foreign demand for domestic country exports may bid up the price.
level and cause inflation. These views are also supported by Barhoumi 2006; Lim and Papi, 1997; Liu and Tsang, 2008).

14) Omotor (2008) empirically analyzed the role of exchange rate in price distortion in Nigeria by using annual data for the period 1970-2003. The study used price level, money supply, real GDP and exchange rate. Both Vector Error Correction (VEC) and Slope-dummy methodology were adopted for the economic and statistical importance of exchange rate variation made by government in determination of inflation. The impulse response function showed that depreciation of naira raised inflation and reduced output level. The error variance decomposition concluded that changes in both exchange rate and money supply strongly influenced inflation in Nigeria. The slope-dummy results also verified the above results. Overall, the results showed that in Nigeria exchange rate variability played an important role in the determination of inflation rate in the country. The study suggested that a strong monetary policy for controlling exchange rate and money supply was needed to control inflation in Nigeria. The study also suggested that for the fulfillment of growing demand of food, the domestic output expansion particularly in the agriculture sector was required in Nigeria.

3.6 STUDIES ON REAL EXCHANGE RATE AND FOREIGN EXCHANGE RESERVES

A number of theoretical and empirical studies can be found in the literature undertaken for the analysis of foreign exchange reserves demand. However, no common view existed on the modeling of foreign exchange reserves. Some studies mentioned that foreign exchange reserves holdings in both the developed and developing countries are the result of their precautionary measures, however, others supported the mercantilist view.

1) Archibald and Richmond (1971) concluded that exchange rate systems affect the foreign exchange reserves holdings and its demand increases under the fixed regime as it works as a buffer stock for keeping exchange rates fixed. On the other hand, Frenkel (1983) pointed out that although theoretically it is believed that under the floating regime, the monetary authorities decrease the demand for reserves because they are no more bound to maintain the peg, however, in recent years the experience of a number of countries show that their reserves assets increased substantially even after their official announcements of keeping the flexible exchange rate system. This is also supported by the studies of Mishra and Sharma (2011), Wijnholds and Kapteyn (2001) and Sula (2011).
2) Hipple (1974) stated that countries, carrying a floating exchange rate system, required less stock of foreign exchange reserves. This view was also supported by Edwards (2003) who conducted a study for 23 developing countries and concluded that countries maintaining a fixed exchange rate system required more foreign exchange reserves as compared to countries following a floating regimes.

3) Heller and Khan (1978) results for the non oil producing countries showed that movement from fixed to floating exchange rate system did not show any relationship with the reserves holdings in these countries.

4) Frenkel (1984) mentioned that reserves structure in the developed countries is different as compared to developing countries.

5) Bahmani-Oskooee and Niroomand (1988) conducted a study for examining the role of real effective exchange rate in the movements of foreign exchange reserves. The study concluded that real depreciations had historically showed a positive relationship with the reserves demand of these countries.

6) IMF (2001) investigated the determinants of foreign exchange reserves in a panel of 122 emerging economies by using annual data over the period 1980 to 1996. It was concluded that GDP per capita, imports ratio to GDP, population level and exchange rate volatility were the main determinants of reserves holdings in almost all the countries. On the other hand, Aizenman and Lee (2005) for China found out that as compared to mercantilist motives, precautionary motives play a greater role in the determination of foreign exchange reserves holdings in China.

7) Wijnholds and Kapteyn (2001) mentioned that demand for foreign exchange reserves depends on the type of exchange rate system. With the change in exchange rate system, demand for foreign exchange reserves also change.

8) Flood and Marion (2002) mentioned that reserves holdings in the emerging economies are better explained by the inventory model.

9) Aizenman and Marion (2003) conducted a study for analyzing the causes of high demands for a panel of 125 developing countries by using annual data over the period 1980 to 1996. It was found that the size of international transactions, exchange rate and political instability were the main determinants of reserves holdings in almost all the countries.

10) Dooley, et al (2003) mentioned that foreign exchange reserves accumulation in the Asian economies is the by-product of their exports and foreign direct
investment promotion policies by following undervalued exchange rate policies. Similarly, Aizenman and Lee (2007) also examined the importance of the precautionary and mercantilist approaches for the developing countries. They concluded that both mercantilist and precautionary motives played role in the reserves accumulation of these countries. Aizenman, et al (2007) further supported these views by examining the foreign exchange reserves demand in Korea. They found out that reserves accumulation in Korea is the by-product of their export promotion policies through undervalued exchange rate.

11) Khan and Ahmed (2005) who used quarterly data over the period 1981-QI to 2003-QII to investigate the short and long run determinants of the foreign exchange reserves in the framework of a Cointegration framework by keeping the variation in balance of payments, money market rate, the average propensity to import, the level of imports and workers’ remittances, a short run variable monetary disequilibrium and dummy variables for capturing the influence of the events of September 11 (2001), the military take over and the autonomy of the State Bank of Pakistan, 1997 Act in their model. They found a positive impact of the variation in the balance of payments and the imports and negative effect of the opportunity cost and remittances on the foreign exchange reserves demand in Pakistan. Their dummy variables representing the autonomy of the State Bank of Pakistan also showed significantly positive relationship with the FER. However, one major drawback of their study is that despite the fact exchange related policies are of great concern specifically for the Asian economies as highlighted by a number of studies, they did not consider exchange rate in their model. The second weakness of the study is that they examined the determinants of the foreign exchange reserves both for the short and long term period but interestingly by using the quarterly data.

12) Gosselin and Parent (2005) concluded that foreign exchange reserves holdings in the eight Asian emerging economies namely China, India, Indonesia, Korea, Malaysia, the Philippines, Singapore increased after the post financial crisis period of 1997-1998.

13) Romero (2005) used annual data during the period 1980 to 2003 for carrying out a comparative analysis of the determinants of reserves holdings for two countries India under the floating exchange rate system and China under the fixed exchange rate system. The explanatory variables included in the model were current account balance, average propensity to import and exchange rate. The results showed that current account turned out significant both for China and India. However, it was mentioned that the role of current account was more important in China as compared to India because of its current account surplus caused by the continuous undervaluation of its currency. Whereas, the role of other variables were minimum for both the countries.
14) Pineau et al (2006) mentioned that during the last decades the world reserves assets increased to a great deal despite the fact that most of the countries have moved from the fixed exchange rate systems to the flexible exchange rate regimes.

15) Ramachandran (2006) investigated the determinants of reserves holdings in India. His main conclusions were that the volatility of reserve increment and opportunity cost of reserves mainly affected reserves demand in India. It was also found out that with the adoption of floating regime during March 1993, the precautionary measures played a more important role in the determination of foreign exchange reserves. This result was according to Kapur and Patel (2003) who mentioned that large reserves holdings in India were the product of precautionary motives.

16) Aizenman et al (2007) in his study mentioned that reserves holdings is the outcome of the exchange rate and export policies of the monetary authorities in Korea. Similarly, Yeyati (2008) found that the recent developments in the reserves accumulations of the developing countries is because of the mercantilist objectives of these countries for preventing export competitiveness.

17) Prabheesh et al (2007) applied a Cointegration and Error Correction Approaches for investigating the determinants of foreign exchange reserves in India by using quarterly data over the period 1983:Q1 to 2005:Q1. They included real reserves, population, real GDP per capita, ratio of imports to GDP, ratio of real trade to GDP and ratio of current account deficit to GDP, ratio of real capital account to GDP, ratio of short-term debt to GDP, ratio of real money supply to GDP, standard deviation of exchange rate and interest rate differential in their model. They found out that reserves demand in India was determined by ratio imports to GDP, ratio of broad money to GDP, exchange rate flexibility and interest rate differential in the long run. They suggested that RBI needs to manage their foreign exchange reserves accumulation. Another study for India was carried out by Prasad and Raju (2010) who applied Engle-Granger and Johansen Cointegration tests using quarterly data during the period 1996:Q1 to 2009:Q1. They found out that ratio of imports to GDP, a measure of openness and exports turned out to be the main determinants of foreign exchange reserves holdings in India.

18) Ra (2007) conducted a full sample and sub-sample analysis for examining the determinants of foreign reserves demand in Korea. The full sample period were based on monthly data covering the period 1973:M5 to 2005:M12. Whereas, the sub-sample periods were consisted of pre and post crisis periods i.e.1990:M1 to 1997:M11 and 1998:M3 to 2005:M12 divided on the basis of
1997 Asian financial crisis. The Cointegration results showed that overall reserves demand in Korea was more sensitive to trade openness as compared to opportunity cost of capital after the 1997 crisis. However, the sub-sample results showed a mixed results in this regard. The study suggested that the government of Korea needs to focus more on the external shocks as compared to internal shocks.

19) Jalil and Bokhari (2008) investigated the optimal demand for foreign exchange reserves in Pakistan by using monthly data during the period 1995:M6 to 2005:M6. The study concluded that opportunity cost of capital played a greater role as compared to reserve volatility in the reserves holdings of Pakistan. The results also showed that the structural shift representing the reforms of SBP, the stock of reserves in Pakistan has also increased substantially.

20) Choudhry and Hasan (2008) studied the demand for foreign exchange reserves under fixed and floating exchange rate regimes for three developing countries namely Mexico, Kenya and Philippines by using quarterly data over the period 1986:Q1-2000:QIV. It was estimated that average propensity to import, variability of reserves and volume of imports were the main determinants of foreign exchange reserves in these countries for the full sample period. However, the sub-sample results of the study showed that the behavior of foreign exchange reserves remained the same under both the regimes periods.

21) Eliza et al (2008) applied an ARDL bounds testing approach for investigating the factors affecting foreign exchange reserves demand in 5 ASEAN economies including Indonesia, Malaysia, the Philippines, Singapore and Thailand. The results of the study showed that GDP per capita, average propensity to import, export volatility, the ratio of current account to GDP and the ratio of external debt to GDP were having a long run relationship with foreign exchange reserves holdings in all the countries.

22) Kasman and Duygu (2008) studied the relationship between exchange rate and foreign exchange reserves in Turkey by using monthly data for the period 1982:M1 to 2005:M11. Using Unit root and Co integration tests, the study concluded that there was a relationship between exchange rate and foreign exchange reserves. The study further mentioned that for real effective exchange rate, the causality runs only for foreign exchange reserves both in short and long run. However, about the relationship of nominal exchange rate and foreign exchange reserves, the study concluded that in the long run nominal exchange rate affected foreign exchange reserves. In the flexible exchange rate system, foreign exchange reserves holdings become low. The
study suggested that to avoid any possibility of financial crisis in future foreign exchange reserves could be used an important tool to reduce the negative effects of exchange rate volatility.

23) **Sehgal and Sharma (2008)** used quarterly data over the period 1990:QII to 2006:QI for investigating the role of precautionary, mercantilist, transactions and sensitive factors namely, average propensity to import ratio to GDP, GDP, external debt ratio to GDP, portfolio investment ratio to GDP, opportunity cost of capital and export growth in the determination of foreign exchange reserves in India. Econometric techniques i.e. ADF, VEC and Johansen maximum likelihood Cointegration have been applied for the analysis of the data. The main conclusion of the study was that both mercantile and precautionary factors affected foreign exchange reserves holdings in India. However, the study suggested that as the reserves stock in India was high the RBI should not increase its limit above the threshold limit.

24) **Ahmad and Pentecost (2009)** undertaken a threshold Cointegration analysis for examining the long run relationship between exchange rate and foreign exchange reserves in some African countries by using quarterly data over the period 1980:QI to 2004:QIV. It was concluded that a long run relationship existed between the exchange rate and foreign exchange reserves in almost all the countries. It was also found out that foreign exchange reserves holdings in these countries were higher under the floating regime as compared to peg regime period.

25) **Prabheesh et al (2009)** used monthly data for the period 1993 to 2007 for examining the role of mercantilist and precautionary measures in the foreign exchange reserves demand of India. They included imports, foreign institutional investment, opportunity cost measure and real exchange rate as possible determinants. The Cointegration results showed a long run relationship between the foreign exchange reserves and its factors when the real exchange rate is used as a proxy for the mercantilist motive. It was also found that all the variables play a significant role in the holdings of foreign exchange reserves in India. However, the measures of the mercantilist approach were found to be more significant comparatively.

26) **Wei (2010)** results over the period 1978 to 2007 showed that economic scale, the gap between savings and investment, dependence on foreign trade, GDP and exchange rate were the main factors affected the foreign exchange reserves holdings in China.
27) Jo (2011) examined the determinants of foreign exchange reserves hoarding in Korea in the framework of a mercantilist approach. The study found out that increase in the reserves stock of Korea, both in the short and long run, was the by-product of export competitiveness concern of the country.

3.7 STUDIES ON IMPACT OF EXCHANGE RATE ON TRADE AND GDP

Most of the research works related to the exchange rate to India’s. Most of the available works on the India’s exchange rate have been undertaken only in recent years.

1) Dr. Nazneen Ahmad and et al (2012) in this study is to examine how the trade balance between the United States and Mexico is influenced by the Peso/Dollar exchange rate as well as US and Mexican GDP. This study also briefly examines the Marshall-Lerner condition and J-curve phenomena. Quarterly GDP and real exchange rate data are analyzed using a statistical regression where the independent variables are domestic GDP, foreign GDP, and real exchange rates.

2) Shi jun-Guo and et all, (2012) in this study the relevant data from 1985 to 2010, uses a quintile regression model to make an empirical research about the effect of GDP and exchange rate on foreign exchange reserve. Based on the relevant data from 1985 to 2010, this study uses a quintile regression model to make an empirical research about the effect of GDP and exchange rate on foreign exchange reserve. The findings show that: Both GDP and exchange rate have a remarkable influence on the size of foreign exchange reserve and the effect of exchange rate on foreign exchange reserve is higher than GDP at mean place and middle and lower quintile, smaller than GDP at higher quintile.

3) Qaisar ABBAS and et al (2012) in this paper analyzed the relationship between, gross domestic product between, gross domestic product, inflation and real interest rate with the exchange rate. 10 African countries with 15 years of data from 1996 to 2010 were used for this study. Three independent variables i.e. inflation, interest rate and Gross Domestic Product were used in order to investigate their relationship which causes exchange rate fluctuations. Pham ThiTuyet Trinh, (2012) in this study analysed impact of exchange rate on trade balance for developing countries which come to various conclusions.
4) Michel Ruta and Marc Auboin, (2011) in this paper surveys a wide body of economic literate on the relationship between currencies and trade. Specifically, two main issues are investigated: the impact on international trade of exchange rate volatility and currency misalignment. Specifically, two main issues are investigated: the impact on international trade of exchange rate volatility and of currency misalignments. On average, exchange rate volatility has a negative (even if not large) impact on trade flows. The extent of this effect depends on a number of factors, including the existence of hedging instruments, the structure of production (e.g. the prevalence of small firms), and the degree of economic integration across countries.

5) Joseph and et al (2011) in this study Based on the relevant data from 1985 to 2010, in this study uses a quintile regression model to make an empirical research about the effect of GDP and exchange rate on foreign exchange reserve. The findings show that: Both GDP and exchange rate have a remarkable influence on the size of foreign exchange reserve and the effect of exchange rate on foreign exchange reserve is higher than GDP at mean place and middle and lower quintile, smaller than GDP at higher quintile.

6) Habib Ahemed and et al, (2011) in this study analyses the impact of exchange rate on macroeconomic aggregates in Nigeria. Based on the annual time series data for the period 1970 to 2009, the research examines the possible direct and indirect relationship between the real exchange rates and GDP growth. The estimation results show that there is no evidence of a strong direct relationship between changes in the exchange rate and GDP growth.

7) Kumar and et al (2008) in this paper analyzed India after the reforms initiated in the early 1990. Unlike observed in several countries, it finds a rise in exchange rate pass-through to domestic prices until recent years. Based economic factors typically associated with economic liberalization, the persistence of higher inflation is an important factor for the rise in pass-through.

8) R. Baldwin and et al (2007) the paper examines the industry characteristics that are related to the shift in competitiveness measured as the relative common-currency price ration between Canadian and US manufacturing prices. They find that relative input costs and relative productivity the two most important factors influencing changes in relative Canada and US price.
9) Soyoung Kim (2005) in this paper provides an explanation for “delayed overshooting” puzzle based on foreign exchange policy reaction to monetary policy, for Canada in which sample interaction between monetary and foreign exchange policies monetary policies are found. As the effects of the monetary policy shocks are more prolonged than that of the foreign exchange policy reaction, the maximum effect is found in delay.

10) John Romali and et al (2003) they analyzed a model of international trade in which trade depresses real exchange rate volatility and exchange rate volatility impacts trade in products differently according to their degree of differentiation. Using disaggregate trade data for a large number of countries for the period 1970-1997 they find strong result supporting the prediction that trade dampens exchange rate volatility. They find that once we address the reverse causality problem, the large effects of exchange rate volatility on trade found in some previous literature are greatly reduced.

11) Syed Abul Basher and et al (2001) the paper analyzed adopts a single equation rate behavior and exchange rate misalignment in Bangles. While increase in capital inflow, improvement in terms of trade, and increase in government consumption non-tradable result in a real appreciation of currency. Data on GDP, export, import, exchange rate, price indices, gross fixed capital formation, private on public consumption are taken from statistical yearbook of Bangladesh.


13) Bahmani-Oskoose (2001) investigate the long-run response of Middle Eastern countries’ trade balance to devaluation by applying the Engle-Ganger and Johansen-Juselius co integration methodology and find a favorable long-run effect of a real depreciation on the trade balance for seven countries.

14) Angel Serrat and et al (2000) in this paper examined the exchange rate behavior in a multilateral target zone. Introduces a new class of stochastic processes in economics, namely multidimensional reflected diffusion processes. The restriction on interventions imposed by cross-currency constraints. Cooperation in sharing the intervention burden in general, the exchange rate between any two countries will depend on the fundamentals of third countries in a multilateral target zone model.
15) Alan C. Stockman (1990) in this paper empirical analysis of the j-curve. First, we document strong violation in the distributional assumptions that underlie nearly all previous work on this issue. He find some evidence with the of a j-curve in the data.

16) Rudiger Dornbush and et al (1980) in this paper develops a of exchange rate determination that integrates the roles of relative prices, expectation, and the assets markets, and emphasizes the relationship between the behavior of the exchange and the current account.

17) David and et al (1998) in this paper examined Central bank that are primarily concern with the behavior of prices will use monetary policy to try insulating prices from exchange rate changes. Prices than appear unresponsive to changes in the exchange rate.

18) Maurice Obstfeld and et al (1995) they develop an analytically tractable two country model that marries a full account of global macro-economic dynamics to a supply framework based on monopolistic competition and sticky nominal prices.

19) Prof. Hasan Vergil (1989) in this paper empirically investigates the impact of real exchange rate volatility on the export flows of Turkey to the United States and its three major trading partners in the European Union for the period 1990:1-2000:12. The standard deviation of the percentage change in the real exchange rate is employed to measure the exchange rate volatility. Co integration and error-correction models are used to obtain the estimates of the co integrating relations and the short-run dynamics, respectively.

3.8 CONCLUSION

Overall the literature provides inconclusive results regarding the determinants of real exchange rate, its role in the monetary policy and its relationship with the output, inflation and foreign exchange reserves. Also due to different sample sizes, econometric techniques and economic structure these results cannot be generalized to other countries.
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