

Theoretical Context of the Pressure on Indian Rupee

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Abstract

Stability in the external value of the national currency is essential for the undisruptive international transactions as volatility in it affect the cost, profit and return on international financial investment drastically which may jeopardize the overall performance of the economy. The paper tries to explain the developments in some of the macroeconomic variables of the Indian economy and their possible linkage with the movements in the exchange rate of Indian rupee. The study concludes that as the growth in GDP, inflation, money supply, current account balance may influence the long term movements in the exchange rate, India must have strong macroeconomic fundamentals to sustain the growth momentum.

Key Words : Exchange rate, Inflation, Money supply, Current account deficit, India.

Introduction :

Stability in the exchange rate is required for the risk-free international transactions and smooth functioning of an economy. Exchange rate volatility can drastically affect the cost, profit and return on international financial investment that may jeopardize the performance of the economy as whole. Indian rupee has been witnessing a downward pressure against the major currencies of the world over the years. In the current system of floating exchange rate the demand and supply forces have caused depreciation of the rupee significantly over the years. The depreciation has become of alarming proportion in the recent past. Explanations on the rupee turmoil have been given from different angles. Some arguments are made considering the economic activities and policies of the foreign countries like

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USA. Problems, however, are noticed in the domestic sector of India as well. This study tries to explain the developments in some of the macroeconomic variables of the Indian economy and their possible linkage with the movements in the exchange rate of Indian rupee.

External Value of the Indian Rupee :

External value of the Indian currency, i.e. the exchange rate, against the major currencies of the world like US dollar, pound sterling, Japanese Yen has registered an increase over the years. The Table-1 shows that the exchange rate has increased, that is rupee has depreciated, during the period 1965-66 to 2013 dramatically. In 1965-66 Indians could purchase one US dollar paying 4.76 of their home currency. But in the beginning of the last month of 2013 it required 62.33 rupees to purchase one unit of US currency. Likewise, to obtain British good worth one pound Indian traders had to pay 13.34 Indian rupees, but currently that good can be obtained only by paying 102.18. Similar is the case with Japanese Yen. During the period 1965-66 to 2013 rupee has depreciated by more than 13 times against dollar, 7.66 times against pound sterling and 46 times against yen.

Table-1
Exchange Rate : Indian Rupee per Currency (Period Average)

Year	US Dollar	Pound Sterling	Japanese Yen
1965-66	4.76	13.34	0.0132
1970-71	7.5	18.0	0.0208
1975-76	8.38	18.61	0.0282
1980-81	7.91	18.50	0.0370
1985-86	12.24	16.85	0.0560
1990-91	17.94	33.19	0.1280
1995-96	33.40	52.22	0.3477
2000-01	45.61	67.36	0.4137
2005-06	44.28	79.00	0.3914
2010-11	45.57	70.90	0.5332
2012*	53.44	84.70	0.6703
2013 (04 Dec)*	62.33	102.18	0.6077

Source: CMIE, Foreign Trade and Balance of Payments, September 2011

Theoretical Overview :

The theories of exchange rate determination have predicted the influence of macro variables on the exchange rate between any pair of countries. The purchasing power parity theory forecasts a precise relationship between domestic prices, foreign prices and the exchange rate. It says that the exchange rate between any two countries is the ratio of the price index of the countries. The theory predicts that exchange rate of the currency of the country having higher prices will rise (Salvatore, 2002).

The monetary approach to the exchange rate determination proposes that exchange rates are a monetary phenomenon affected by the money supply, income level, and interest rates (Wilson, 2009). Monetary theory says that the link between growth rate of money stock and the rate of change in the exchange rate is positive. The exchange rate of a nation's currency in terms of the currencies of other nations is determined by the rate of growth of money supply and real income in the nation relative to those in other nations. Given the conditions in other nations the country having growth in money supply more than the real income and demand for money is likely to experience an increase in prices and the exchange rate (Salvatore, 2002). In the short-run, given price and real income, increase in domestic money supply lowers the domestic interest rate lowering the rate of return on domestic deposits, which causes the domestic currency to depreciate. In the long run changes in the supply of money are matched by proportional changes in the price level and causes proportional long-run depreciation in the exchange rate (Krugman & Obstfeld, 2006). Thus, the country having higher monetary growth relative to the partner country is likely to have a depreciating currency.

From the combined purchasing power parity and monetary approach it can be generalized that given the proportional money holdings, exchange rate of a country will rise/fall if i) its domestic money supply rises/falls relative to foreign and ii) its domestic real GDP falls/rises relative to foreign (Pugel, 2008).

The asset market approach explains how positioning and repositioning currency composition of the portfolios of the international investors affects the exchange rate. When financial assets of two countries offer different returns, international investors will reposition their portfolios, which create the pressure

that equalizes the return (Pugel, 2008). Disparity in the returns on deposits of two countries will cause the exchange rate to move until the interest parity condition is satisfied (Krugman & Obstfeld, 2006).

GDP and Inflation :

During the five years preceding the economic reforms in India (i.e. 1985-86 to 1990-91) GDP registered a growth by 32.95 per cent. But during the first five years of economic reforms it grew by only 28.92 per cent. It suggests that the fruits of the reform measures were not apparently manifested in the growth process. However, during the next five years (1995-96 to 2000-01) GDP grew by 35.14 per cent. In fact, during the post-reform period India has experienced erratic variations in the growth rate of its GDP. The growth rate was spectacularly high in few years ranging from more than 8 per cent to 9.57, while in some other years it was unexpectedly lower than 5 per cent.

Table-2

GDP at Factor cost (at 2004-05 prices) Inflation and Exchange rate in India

Year	GDP (in Rs. Crore)	Annual growth rate of GDP	Rate of inflation (WPI)	Rupee per dollar*
1990-91	1,347,889	5.29	13.87**	17.94
1995-96	1,737,741	7.29	8.0	33.40
2000-01	2,348,481	4.15	7.1	45.61
2001-02	2,474,962	5.39	3.6	47.55
2002-03	2,570,935	3.88	3.4	48.30
2003-04	2,775,749	7.97	5.5	45.92
2004-05	2,971,464	7.05	6.5	44.95
2005-06	3,253,073	9.48	4.4	44.28
2006-07	3,564,364	9.57	6.5	45.28
2007-08	3,896,636	9.32	4.8	40.24
2008-09	4,158,676	6.72	8.0	45.92
2009-10	4,516,071	8.59	4.1	47.41
2010-11	4,937,006	9.32	9.6	45.57
2011-12	5,243,582	6.21	8.8	53.44
2012-13	5,505,437	4.99	7.8	62.33 (4 Dec. '13)

Source: Central Statistical Organisation, Databook for DCH, 2013.

* CMIE, Foreign Trade and Balance of Payments, September 2011

**Average of consumer prices (in %) at the end year of the interval

The most recent trend in the growth rate is a cause of concern as it has come down to around 5 per cent. Existence of high inflation together with falling GDP has caused fall in real income of the nation, which might have some impact on the exchange rate of Indian rupee. The country with a consistently higher inflation rate tastes a falling currency value, as its purchasing power decreases relative to other currencies. Theories predict that exchange rate of a country will rise if its domestic real GDP falls relative to foreign (Pugel, 2008). Trends in GDP growth rate and exchange rate represented in the Table-2 show that the exchange value of Indian rupee against dollar has remained around 45.5 during 2000-01 and 2010-11 when GDP growth rate averaged 7.4 per cent and inflation rate averaged 5.7 per cent per year. But, in the next two years average GDP growth rate decreased to 5.6 per cent and average inflation rate increased to 8.3 per cent per year, while the average exchange rate went up to 57.88.

Table-3 presents the statistics of GDP and inflation in India in the recent past vis-à-vis two leading countries of the globe i.e. United States and United Kingdom which also have stronger currencies. It is seen that though the GDP growth rate in these countries is less than that in India, the rate inflation represented by percentage change in average consumer prices is far less than India. While India has experienced increasing trend of inflation, the other two have achieved falling inflation. When the domestic price level rises faster than the world price level, international competitiveness of the country is lost which will reduce net exports and the supply of foreign exchange. This will lead to depreciation of domestic currency (Ahmad & Ali, 1999). The trend in percentage change in average consumer prices of India, US and U.K. appears to suggest that the Indian exports might have lost their competitiveness putting pressure on the currency. However, to confirm the hypothesis studies with data for long period of time are required.

Table-3
GDP and Inflation in India vis-a vis US and UK

Year	India		US		UK	
	GDP	Inflation	GDP	Inflation	GDP	Inflation
2005	9.29	4.41	3.35	3.37	3.24	2.04
2006	9.26	6.70	2.67	3.22	2.76	2.30
2007	9.80	6.20	1.79	2.87	3.73	2.35
2008	3.89	9.10	-0.29	3.82	-0.77	3.63
2009	8.48	12.37	-2.80	-0.32	-5.17	2.12
2010	10.55	10.45	2.51	1.61	1.66	3.34
2011*	6.331	8.391	1.847	3.141	1.117	4.454
2012*	3.237	10.436	2.779	2.076	0.170	2.843
2013*	3.796	10.879	1.560	1.392	1.433	2.700

Inflation: Percentage change in average consumer prices; GDP: Percentage change in GDP

Source: Source: IMF; WEO Outlook Database, October, 2013 (as on 15th October, 2013)

Databook for DCH; 18th October 2013

Money Supply :

Money supply is the stock of monetary assets available in an economy at a specific point of time. The effect of money supply on the internal value of the national currency has been explained long back by the quantity theory of money. Variations in the stock of money may also affect the external value of the currency. Monetary growth can have very large impact on the exchange rate (Levin, 1997). An increase in money supply in a given period leads to the anticipation of exchange rate depreciation in the long run (Mark Denbaly & Williams, 1988). The monetary approach to the exchange rate determination says that the link between growth rate of money stock and the rate of change in the exchange rate is positive. Given the demand for money, the country having growth in money supply, relative to the partner country is likely to experience a depreciating currency. Table-4 depicts the trends in the supply of money in India during the period 1970-71 to 2011-12. It is seen that there has been growth in the supply of money in

absolute term. Considering the expansion of the Indian economy, growth in money stock is inevitable. Population growth and consequent rising financial needs of the government, development initiatives, expansion of the banking sector etc. have caused the growth in money supply.

Table-4
Trends in Monetary Growth in India

Year	Outstanding Broad Money (M ₃)	% Change*
1970-71	11020	-
1975-76	22480	103.99
1980-81	55774	148.10
1985-86	119394	114.07
1990-91	265828	122.65
1995-96	599199	125.41
2000-01	1313220	119.16
2005-06	2729545	107.85
2010-11	6504120	138.29
2011-12	7344070	12.91

Source: CMIE, Money and Banking, August, 2012

* Estimated by the author

Comparison of the movements in the exchange rate and growth rates in money supply shows no clear-cut association between the two. For instance, money supply grew by 148 per cent during 1975-76 to 1980-81, but the exchange rate actually fell from 8.38 in 1975-76 to 7.91 in 1980-81. Similarly, money supply grew by 34 per cent lower during the period 1980-81 to 1985-86 as compared to earlier 5 years (i.e. 1975-76 to 1980-81), but the exchange rate increased from 7.91 in 1980-81 to 12.24 in 1985-86. However, the possibility of the effect of growth in money stock on the exchange rate can not be ruled out. The percentage change in US money stock during October 2012 to October 2013 was 6.8

(www.federalreserve.gov), whereas the percentage change in the Indian money supply during 2011-12 was 12.91. The relatively faster growth in the money stock in India might have depressing effect on the external value of the currency. Whether the growth in the stock of money has caused depreciation of the rupee or not needs in depth research using the time series data on demand for and supply of money of the major countries of the world.

Current Account Balance :

Under the flexible exchange rate system supply and demand of exports and imports influence the movements in exchange rate significantly (Sodersten, 1992). Excess of imports over exports causes deficit in the current account of the balance of payments. An important concern of the Indian economy has been the deficit in the current account, which records a country's total transactions in merchandise, services, income and transfers with rest of the world. For the good health of the balance of payments of a country, current account balance is essential. A high deficit in current account is not good for a country. Current account deficit means that the country is spending more than it's earning in foreign trade, and that it is borrowing capital from foreign to make up the deficit. In other words, the country requires foreign currency more than its receipts through exports, and it supplies more of its own currency than foreigners demand for its products. The excess demand for foreign currency lowers the country's exchange rate.

While the current account of the Indian balance of payments has always been deficit except few years, the deficit has become of alarming proportion after 2004-05. The ratio of current account deficit to the GDP in 2011 and 2012 were 4.2 and 4.8 respectively. Though the US and UK have also faced current account deficit, the ratio of current account deficit in India is close to twice of that in these nations. Huge current account deficit may also have downward pressure on Indian rupee.

Table-5
Current Account Balance in India vis-a vis US and UK

Country	Subject Descriptor	Year		
		2011	2012	2013
India	Balance	-78.154	-88.163	-77.601
	Percent of GDP	-4.173	-4.787	-4.414
US	Balance	-457.726	-440.417	-451.458
	Percent of GDP	-2.947	-2.711	-2.699
UK	Balance	-36.041	-93.866	-69.096
	Percent of GDP	-1.462	-3.790	-2.775

Unit: US dollar billions

Short-term variations in the exchange rate can be explained in terms of demand and supply of financial assets denominated in different currencies. When assets denominated in the domestic currency offer lower return relative to foreign assets, investors holding domestic assets will attempt to sale domestic assets for more lucrative foreign assets. The sellers of domestic assets then try to entice the foreign asset holders by paying higher price for the foreign currency, which will increase the exchange rate causing depreciation of the domestic currency. The sliding performance of the Indian economy coupled with recovery of the US economy has made US more lucrative destination for the international investors. The engendered greater demand for dollar prompted fall in the exchange value of the rupee.

Expectations of the investors about future exchange rate have also played role in the determination of the exchange rate. Investors form their expectations differently. Some investors speculate future exchange rate considering macroeconomic fundamentals, while some others consider unexpected information like government action, political events etc. in forming expectations. Some traders speculate the future exchange rate simply by extrapolating the present into the future. This type of expectation is destabilizing as an expected future depreciation causes an actual rise in the exchange rate. Capital outflows due to siphoning of funds from India to destinations with higher expected return put pressure on Indian rupee.

Conclusion :

Dynamics of exchange rate can impact the external as well as internal sector of an economy. Though the theories explaining the exchange rate variability do not have universal empirical validity, yet the relationship between the macro variables and the exchange rate as predicted by the theories have been found to be present in wide range of studies. They provide a solid foundation for designing the macroeconomic policies. The theoretical context and the developments in the rate of growth of GDP, inflation, money supply and current account balance suggest that the long term movements in the exchange rate of the Indian currency may be linked with the macroeconomic variables. Therefore, for smooth functioning of the foreign exchange market an economy must have strong macroeconomic fundamentals. With strong economic fundamentals India will not only be able to build up confidence of the international community on the economy, but also will be able to sustain the growth momentum.

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