Title: Deprecation of Indian Rupee in recent months and measures taken by RBI to control it.

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Abstract

For the last couple of months, Indian rupee has become the worst performing Asian currency against the dollar. Indian currency is performing worst among all the major emerging economies. In the first week of July 2013, it crossed the psychological barrier of Rs. 60 and reached to an all time high of Rs. 61 to the dollar. The rupees, in recent times, have not only depreciated against dollar but against all the major currencies. Depreciation has led to the costlier imports and since India is an import intensive country, its current account deficit (CAD) and trade account deficit is increasing at an alarming rate. Depreciation has increased the burden on the already high external debt of the country and by the end of March 2013; it increased to US $ 390.0 billion. The fall in the value of rupees has adversely affected the pace of economic growth as it has added pressure on the high inflation rate prevailing in the country.

In India, the Reserve Bank of India intervenes in the foreign exchange market to maintain orderly market conditions i.e. maintaining stability in exchange rates. Several factors affect exchange rate (INR VS. any other foreign currency like USD of US) like inflation rates, interest rates differentials, high current account deficits etc. This paper basically examines the reasons of ever changing exchange rates and recent depreciation of INR vs. other foreign currenciers. It also examines steps taken by RBI to arrest/control INR.

Introduction

The early 1990s marked a major shift in the economic policies of the government of India, with the introduction of a liberal policy regime that allowed greater freedom for foreign financial inflows into the economy. The opening-up of the Indian economy eased restrictions on capital flows – from earlier regime of official and commercial borrowing to private capital flows in the form of FDI and portfolio investment. In 1992, India initiated the process of integration of its financial markets with global financial markets by permitting foreign institutional investors (FIIs) to invest in Indian capital market and
allowing domestic companies to raise capital from abroad through GDRs and ADRs. Further, movement towards full capital account convertibility has gained momentum in recent years. As a result, there is a surge in foreign exchange inflows, which has not only led the rupee to appreciate but has also added uncertainties to the financial markets and increased speculation in the foreign exchange market. For the last couple of months, Indian rupee has become the worst performing Asian currency against the dollar. Indian currency is performing worst among all the major emerging economies. In the first week of July 2013, it crossed the psychological barrier of Rs. 60 and reached to an all time high of Rs.61 to the dollar. The rupees, in recent times, have not only depreciated against dollar but against all the major currencies. Depreciation has led to the costlier imports and since India is an import intensive country, its current account deficit (CAD) and trade account deficit is increasing at an alarming rate. Depreciation has increased the burden on the already high external debt of the country and by the end of March 2013; it increased to US $ 390.0 billion. With a view to curb excessive or undue fluctuations in the rupee value vis-a-vis other currencies and to correct misalignment, the RBI intervenes in the foreign exchange market with purchase or sale of foreign exchange.

This paper basically examines the reasons of volatility in forex rates, reasons of deprecation of INR recently before couple of months & steps to reduce volatility in forex rates. Secondary data has been taken from reference books & some of the websites and also from News papers like FREE PRSS.

**Objectives**

1) To understand reasons of volatility in forex rate and steps to reduce volatility in forex rates.
2) To know steps taken by RBI to arrest rupee fall against foreign currency say USD recently.

**Theoretical framework**

The exchange rate is one of the most important determinants of a country's relative level of economic health. Exchange rates play a vital role in a country's level of trade, which is critical to almost every free market economy in the world. For this reason, exchange rates are among the most watched analyzed and governmentally manipulated economic measures. But exchange rates matter on a smaller scale as well: they impact the real return of an investor's portfolio.

**Volatility** refers to the amount of uncertainty or risk about the size of changes in a security's value. A higher volatility means that a security's value can potentially be spread out over a larger range of values. This means that the price of the security can change dramatically over a short time period in either direction. A lower volatility means that a security's value does not fluctuate dramatically, but changes in value at a steady pace over a period of time.

Here we look at some of the major forces behind exchange rate movements.

**Determinants of Exchange Rates**

Numerous factors determine exchange rates, and all are related to the trading relationship between two countries. Exchange rates are relative, and are expressed as a comparison of the
currencies of two countries. The following are some of the principal determinants of the exchange rate between two countries.

1. **Differentials in Inflation**
   As a general rule, a country with a consistently lower inflation rate exhibits a rising currency value, as its purchasing power increases relative to other currencies.

2. **Differentials in Interest Rates**
   Interest rates, inflation and exchange rates are all highly correlated. By manipulating interest rates, central banks exert influence over both inflation and exchange rates, and changing interest rates impact inflation and currency values. Higher interest rates offer lenders in an economy a higher return relative to other countries. Therefore, higher interest rates attract foreign capital and cause the exchange rate to rise. The impact of higher interest rates is mitigated, however, if inflation in the country is much higher than in others, or if additional factors serve to drive the currency down. The opposite relationship exists for decreasing interest rates - that is, lower interest rates tend to decrease exchange rates.

3. **Current-Account Deficits**
   The current account is the balance of trade between a country and its trading partners, reflecting all payments between countries for goods, services, interest and dividends. A deficit in the current account shows the country is spending more on foreign trade than it is earning, and that it is borrowing capital from foreign sources to make up the deficit. In other words, the country requires more foreign currency than it receives through sales of 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 until domestic goods and services are cheap enough for foreigners, and foreign assets are too expensive to generate sales for domestic interests.

4. **Public Debt**
   Countries will engage in large-scale deficit financing to pay for public sector projects and governmental funding. While such activity stimulates the domestic economy, nations with large public deficits and debts are less attractive to foreign investors. The reason? A large debt encourages inflation, and if inflation is high, the debt will be serviced and ultimately paid off with cheaper real dollars in the future.

In the worst case scenario, a government may print money to pay part of a large debt, but increasing the money supply inevitably causes inflation. Moreover, if a government is not able to service its deficit through domestic means (selling domestic bonds, increasing the money supply), then it must increase the supply of securities for sale to foreigners, thereby lowering their prices. Finally, a large debt may prove worrisome to foreigners if they believe the country risks defaulting on its obligations. Foreigners will be less willing to own securities denominated in that currency if the risk of default is great. For this reason, the country's debt rating (as determined by Moody's or Standard & Poor's, for example) is a crucial determinant of its exchange rate.

5. **Terms of Trade**
   A ratio comparing export prices to import prices, the terms of trade is related to current accounts and the balance of payments. If the price of a country's exports rises by a greater
rate than that of its imports, its terms of trade have favorably improved. Increasing terms of
trade shows greater demand for the country's exports. This, in turn, results in rising
revenues from exports, which provides increased demand for the country's currency (and an
increase in the currency's value). If the price of exports rises by a smaller rate than that of
its imports, the currency's value will decrease in relation to its trading partners.

6. Political Stability and Economic Performance
Foreign investors inevitably seek out stable countries with strong economic performance in
which to invest their capital. A country with such positive attributes will draw investment
funds away from other countries perceived to have more political and economic risk.
Political turmoil, for example, can cause a loss of confidence in a currency and a movement
of capital to the currencies of more stable countries.

Causes of Recent depreciation of INR against major currencies

Continued Global uncertainty: Owing to uncertainty prevailing in Europe and slump in
international market, investors prefer to stay away from risky investments (flight to security).
This has significantly affected the portfolio investment in India. Credit rating agency’s
downgrade of India to BBB- with a negative outlook, the last of the investment grade has not
helped the cause. Any outward flow of currency or decrease in investment had put a downward
pressure on exchange rate. This Global uncertainty has adversely impacted the domestic factors
(current and capital account etc.) and caused the depreciation of rupee.

Current Account Deficit: Ever increasing demand of oil, which constitutes a major portion
of its import basket. The fall of oil price to $90/barrel has helped India to fight the depreciating
rupee up to some extent but at the same time Euro zone, one of the major trading partners of
India is under severe economic crisis. This has significantly impacted Indian exports because of
reduced demand. Thus India continues to see current account deficit of around 4.3%, depleting
the forex reserve and thus depreciating INR. Among domestic reasons are high current account
deficit and growth concerns. On the global front, the recovery in the US economy is expected
to prompt the central bank there to end the loose monetary policy by the year end. Anticipating
this, foreign investors are pulling out their money from India to invest it back in the US, which is
resulting in a scarcity of dollars in India.

Capital Account flows: Deficit countries need capital flows and surplus countries generate
capital outflows. India needs dollars to finance its current account deficit. Institutional investors
investing in India are directly impacted by the global market uncertainty. A volatile currency is
never good for a foreign investor as it increases the transaction risk. Thus the relation becomes a
vicious cycle, thereby further magnifying the volatility. Though RBI has intervened through
open market operations to arrest the downfall of INR (managed float) but the reserves of
$290 billion don’t provide enough room to make a significant impact.

Persistent inflation: India has experienced high inflation, above 8%, for almost two years. If
inflation becomes a prolonged one, it leads to overall worsening of economic prospects and
capital outflows and eventual depreciation of the currency. The Real Effective Exchange Rate (REER) index (6 currencies- Euro, Yen, Pound Sterling, US Dollar, Hongkong Dollar and Renminbi) has fallen by 13.84% during the last one year while the nominal rate has depreciated by 24%. REER index measure includes the level of inflation differences across nations; it reflects a country's competitiveness in international trade. Thus the trend suggests that the country's competitiveness (measured by REER) has not improved as much as the decline in nominal exchange rate points out mainly because of increase in domestic costs. Under normal circumstances inflation is tamed by increasing interest rates, but since India already has high interest rates, it does not leave that option open, as it may lead to further slowdown in growth.

**Interest Rate Difference:** Higher real interest rates generally attract foreign investment but due to slowdown in growth there is increasing pressure on RBI to decrease the policy rates. Under such conditions foreign investors tend to stay away from investing. This further affects the capital account flows of India and puts a depreciating pressure on the currency.

**Lack of reforms:** Key policy reforms like Direct Tax Code (DTC) and Goods and Service Tax (GST) have been in the pipe line for years. A retrospective tax law (GAAR) has already earned a lot of flak from the business community. Attempts are being made to control the subsidy bills but fiscal deficit continues to hover around 5% of GDP. The government announced FDI in retail but had to hold back amidst huge furore from both opposition and allies. This has further made investors sentiment negative over the Indian economy.

**Measures By RBI**

a) **Using Forex Reserves:** RBI can sell forex reserves and buy Indian Rupees leading to demand for rupee. But using forex reserves poses risk also, as using them up in large quantities to prevent depreciation may result in a deterioration of confidence in the economy's ability to meet even its short-term external obligations. And not using reserves to prevent currency depreciation poses the risk that the exchange rate will spiral out of control. Since both outcomes are undesirable, the appropriate policy response is to find a balance. Following data shows that RBI had indeed intervened by selling forex reserves selectively to support Rupee.

<table>
<thead>
<tr>
<th>Period</th>
<th>Forex Reserves(In millions of US $)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010-11</td>
<td>304,818</td>
</tr>
<tr>
<td>2011-12</td>
<td>294,398</td>
</tr>
</tbody>
</table>

*Source: RBI*

b.) **Raising Interest Rates:** The rationale is to prevent sudden capital outflows and ultimately lead to higher capital inflows. But India’s interest rates are already higher than most countries. This was done to tame inflationary expectations. So further raising interest rates would lead to lower growth levels.
c.) Make Investments Attractive- Easing Capital Controls: RBI can take steps to increase the supply of foreign currency by expanding market participation to support Rupee. RBI can increase the FII limit on investment in government and corporate debt instruments. It can invite long term FDI debt funds in infrastructure sector. The ceiling for External Commercial Borrowings can be enhanced to allow more ECB borrowings.

Measures by Government to arrest rupee fall

Government should take some measures to bring FDI and create a healthy environment for economic growth. Key policy reforms that should be initiated includes rolling of Goods and Services Tax (GST), Direct Tax Code (DTC), FDI in aviation and retail, Companies Bill and diesel decontrol. Efforts should be made to invite FDI but much more needs to be done especially after the holdback of retail FDI and recent criticisms of policy paralysis. The government took steps recently to loosen rules for portfolio investment in the Indian market, indicating its desire to sustain external inflows. The measure to increase External Commercial Borrowings (ECB) to $10bn will help in borrowing in dollar at a less cost. It may take similar steps to encourage FDI as well, helping sustain external funding.

Measures taken by RBI in recent months

(1) It curbed trading in rupee forwards. Once cancelled, forward contracts could not be bought again, the RBI said. The new rule applies to domestic as well as foreign investors and takes effect immediately. Forwards are agreements to buy or sell assets at a set price and date. The RBI also said forward contracts booked by foreign institutional investors, once cancelled, could not be rebooked.

(2) RBI reduced the amount of open positions dealers can maintain overnight. At present, a company’s board is permitted to fix suitable limits for various treasury functions with net overnight open exchange positions and aggregate gap limits.

“The broad message the RBI is trying to give is that speculative tendencies have to be curbed and genuine demand and supply should be allowed to move the currency rated.

(3) In another move to defend the rupee, the central bank sold dollars.

(4) At present, the RBI permits hedging of currency risks on the basis of past performance (exports or import) for average three years. The company or unit could also take a hedge based on actual performance in the last financial year.

Now, for importers using the past performance facility, the facility stands reduced to 25 per cent of the limit. Importers, who have used the facility in excess of the revised or reduced limit, are barred from making further bookings.

The RBI said forward contracts booked under the facility would be on a fully deliverable basis. The exchange gains emerging from the cancelling of contracts should not be passed on to the customers.
All cash and spot transactions by banks for clients will be done for actual remittances/delivery only. They cannot be cancelled or cash-settled.

(5) In an effort to control the effect of currency derivative deals by FIIs, the RBI banned rebooking of cancelled contracts by overseas portfolio investors. They can, however, roll over contracts on or before maturity. At present, FIIs are allowed to hedge currency risk on the market value of the entire investment in equity and/or debt in India.

(6) The Reserve Bank of India raised repo rate or the rate at which it lends to banks by 25 basis points to anchor inflation and inflationary expectations. The repo rate is increased to 7.5% from 7.25% with immediate effect.

(7) RBI reduced the marginal standing facility rate by 75 basis points to 9.5% from 10.25% with immediate effect. The measure was taken to tighten liquidity and arrest volatility in the foreign exchange market.

The intent has been to maintain tight liquidity conditions at the short end of the term structure until the measures designed to alter the path of the CAD and improve prospects for its stable funding take effect.

(8) RBI restricted how much Indian citizens and companies can invest abroad to reduce pressure on the rupee, while targeting the current account deficit by banning imports of gold coins and medallions among other measures. RBI also eased some of the rate limits for deposits targeted at non-resident Indians (NRIs), though that is also seen as unlikely to attract inflows in the near term given that NRI deposits. The steps taken so far only target residents, but if this raises expectations that they could potentially resort to capital controls targeted at non-residents, that could have adverse near-term implications for capital flows.

(9) The government has also raised import taxes on gold and silver in an attempt to narrow the burgeoning current account deficit. The import duty on gold was hiked to a record 10 percent, the third such increase in eight months, while duty on silver was hiked from 6 percent to 10 percent. The excise duty on gold bars was hiked to 9 per cent from 7 percent. The hike in duties came after Chidambaram said the government was looking to contain gold imports at 850 tonnes this fiscal year, after imports of 950 tones last year. But in India consumer demand for gold in India jumped 71 percent to 310 tonnes, compared with 181.1 tonnes in the year-ago period despite repeated increases in import and excise duties by the government this year.

Research Methodology

Secondary data has been received from reference books, news papers and various websites. Here are some findings to support the above theoretical explanation. This part is divided into two parts. Part I shows findings to support above theoretical views & part II shows Model which shows how to find exchange rate.
**Findings**

Below table shows RBI’s intervention post reforms time to time & how it affects Exchange rate vis a vis Foreign currency. In the post-Asian crisis period, particularly after 2002-03, capital flows into India surged creating space for speculation on Indian rupee. The Reserve Bank intervened actively in the forex market to reduce the volatility in the market. During this period, the Reserve Bank made direct interventions in the market through purchases and sales of the US Dollars in the forex market and sterilised its impact on monetary base. The Reserve Bank has been intervening to curb volatility arising due to demand-supply mismatch in the domestic foreign exchange market

<table>
<thead>
<tr>
<th>Year</th>
<th>Purchase</th>
<th>Sale</th>
<th>Net</th>
<th>Outstanding NetForward Sales/Purchase (end-March)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995-96</td>
<td>3.6</td>
<td>3.9</td>
<td>-0.3</td>
<td></td>
</tr>
<tr>
<td>1996-97</td>
<td>11.2</td>
<td>3.4</td>
<td>7.8</td>
<td></td>
</tr>
<tr>
<td>1997-98</td>
<td>15.1</td>
<td>11.2</td>
<td>3.8</td>
<td>-1.8</td>
</tr>
<tr>
<td>1998-99</td>
<td>28.7</td>
<td>26.9</td>
<td>1.8</td>
<td>-0.8</td>
</tr>
<tr>
<td>1999-00</td>
<td>24.1</td>
<td>20.8</td>
<td>3.2</td>
<td>-0.7</td>
</tr>
<tr>
<td>2000-01</td>
<td>28.2</td>
<td>25.8</td>
<td>2.4</td>
<td>-1.3</td>
</tr>
<tr>
<td>2001-02</td>
<td>22.8</td>
<td>15.8</td>
<td>7.1</td>
<td>-0.4</td>
</tr>
<tr>
<td>2002-03</td>
<td>30.6</td>
<td>14.9</td>
<td>15.7</td>
<td>2.4</td>
</tr>
<tr>
<td>2003-04</td>
<td>55.4</td>
<td>24.9</td>
<td>30.5</td>
<td>1.4</td>
</tr>
<tr>
<td>2004-05</td>
<td>31.4</td>
<td>10.6</td>
<td>20.8</td>
<td>0</td>
</tr>
<tr>
<td>2005-06</td>
<td>15.2</td>
<td>7.1</td>
<td>8.1</td>
<td>0</td>
</tr>
<tr>
<td>2006-07</td>
<td>26.8</td>
<td>0.0</td>
<td>26.8</td>
<td>0</td>
</tr>
<tr>
<td>2007-08</td>
<td>79.7</td>
<td>1.5</td>
<td>78.2</td>
<td>14.7</td>
</tr>
<tr>
<td>2008-09</td>
<td>26.6</td>
<td>61.5</td>
<td>-34.9</td>
<td>2.0</td>
</tr>
</tbody>
</table>

**Source**: Reserve Bank of India.
2) Following chart shows RBI’s intervention to even out gap between demand supply mismatch.

Sales in the foreign exchange market are generally guided by excess demand conditions that may arise due to several factors. Similarly, the Reserve Bank purchases dollars from the market when there is an excess supply pressure in market due to capital inflows. Demand-supply mismatch proxied by the difference between the purchase and sale transactions in the merchant segment of the spot market reveals a strong co-movement between demand-supply gap and intervention by the Reserve Bank. Thus, the Reserve Bank has been prepared to make sales and purchases of foreign currency in order to even out lumpy demand and supply in the relatively thin foreign exchange market and to smoothen jerky movements. However, such intervention is generally not governed by any predetermined target or band around the exchange rate.

![Chart 2.2: The relationship between demand-supply mismatch and RBI intervention](image)

3) Sterilized intervention by RBI.

The intervention of the Reserve Bank in order to neutralize the impact of excess foreign exchange inflows enhanced the RBI’s Foreign Currency Assets (FCA) continuously. In order to offset the effect of increase in FCA on monetary base, the Reserve Bank had mopped up the excess liquidity from the system through open market operation.
4) Following table shows RBI’s extent of intervention in the forex market to stabilize rupee appreciation/depreciation against foreign currency. It is, however, pertinent to note that Reserve Bank’s intervention in the foreign exchange market has been relatively small in terms of volume (less than 1 per cent during last few years), except during 2008-09. The Reserve Bank’s gross market intervention as a per cent of turnover in the foreign exchange market was the highest in 2003-04 though in absolute terms the highest intervention was US$ 84 billion in 2008-09.

<table>
<thead>
<tr>
<th>Year</th>
<th>RBI Intervention in Foreign exchange market ($ billion)</th>
<th>Foreign exchange Market Turnover ($ billion)</th>
<th>Column 2 over 3 (in per cent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002-03</td>
<td>45.6</td>
<td>1,560</td>
<td>2.9</td>
</tr>
<tr>
<td>2003-04</td>
<td>80.4</td>
<td>2,118</td>
<td>3.8</td>
</tr>
</tbody>
</table>
5) Following table shows volatility of INR post liberalization.

A look at the entire period since 1993 when country moved towards market determined exchange rates reveals that the Indian Rupee has generally depreciated against the dollar during the last 15 years except during the period 2003 to 2005 and during 2007-08 when the rupee had appreciated on account of dollar’s global weakness and large capital inflows

<table>
<thead>
<tr>
<th>Year</th>
<th>Range (Rs per US $)</th>
<th>Average Exchange Rate (Rs per US $)</th>
<th>Daily average Appreciation/Depreciation</th>
<th>Coefficient of Variation (%)</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993-94</td>
<td>31.21-31.49</td>
<td>31.37</td>
<td>0.03</td>
<td>0.1</td>
<td>0.05</td>
</tr>
<tr>
<td>1994-95</td>
<td>31.37-31.97</td>
<td>31.40</td>
<td>-0.11</td>
<td>0.3</td>
<td>0.12</td>
</tr>
<tr>
<td>1995-96</td>
<td>31.37-37.95</td>
<td>33.46</td>
<td>-6.17</td>
<td>5.8</td>
<td>0.56</td>
</tr>
</tbody>
</table>

**Table 2.4 : Movements of Indian Rupee 1993-94 to 2008-09**

*Note: RBI Intervention includes both purchases and sales of US dollar by the RBI*

*Source: Reserve Bank of India.*
<table>
<thead>
<tr>
<th>Year</th>
<th>Start-End</th>
<th>Mello</th>
<th>Mello-Pre</th>
<th>Pre</th>
<th>Pre-Next</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996-97</td>
<td>34.14-35.96</td>
<td>35.52</td>
<td>-5.77</td>
<td>1.3</td>
<td>0.21</td>
</tr>
<tr>
<td>1997-98</td>
<td>35.70-40.36</td>
<td>37.18</td>
<td>-4.47</td>
<td>4.2</td>
<td>0.37</td>
</tr>
<tr>
<td>1998-99</td>
<td>39.48-43.42</td>
<td>42.13</td>
<td>-11.75</td>
<td>2.1</td>
<td>0.24</td>
</tr>
<tr>
<td>1999-00</td>
<td>42.44-43.64</td>
<td>43.34</td>
<td>-2.79</td>
<td>0.7</td>
<td>0.10</td>
</tr>
<tr>
<td>2000-01</td>
<td>43.61-46.89</td>
<td>45.71</td>
<td>-5.19</td>
<td>2.3</td>
<td>0.15</td>
</tr>
<tr>
<td>2001-02</td>
<td>46.56-48.85</td>
<td>47.69</td>
<td>-4.15</td>
<td>1.4</td>
<td>0.13</td>
</tr>
<tr>
<td>2002-03</td>
<td>47.51-49.06</td>
<td>48.40</td>
<td>-1.48</td>
<td>0.9</td>
<td>0.07</td>
</tr>
<tr>
<td>2003-04</td>
<td>43.45-47.46</td>
<td>45.92</td>
<td>5.40</td>
<td>1.6</td>
<td>0.19</td>
</tr>
<tr>
<td>2004-05</td>
<td>43.36-46.46</td>
<td>44.95</td>
<td>2.17</td>
<td>2.3</td>
<td>0.31</td>
</tr>
<tr>
<td>2005-06</td>
<td>43.30-46.33</td>
<td>44.28</td>
<td>1.51</td>
<td>1.8</td>
<td>0.22</td>
</tr>
<tr>
<td>2006-07</td>
<td>43.14-46.97</td>
<td>45.28</td>
<td>-2.22</td>
<td>2.0</td>
<td>0.27</td>
</tr>
<tr>
<td>2007-08</td>
<td>39.26-43.15</td>
<td>40.24</td>
<td>12.53</td>
<td>2.1</td>
<td>0.38</td>
</tr>
<tr>
<td>2008-09</td>
<td>39.89-52.09</td>
<td>45.92</td>
<td>-12.36</td>
<td>7.8</td>
<td>0.73</td>
</tr>
</tbody>
</table>

**Source:** Reserve Bank of India.
6) Following table shows how capital inflows since 1991 affected Exchange rate. External sector developments in India have been marked by strong capital flows, which had led to an appreciating tendency in the exchange rate of the Indian rupee up to January 2008. The movement of the Indian rupee is largely influenced by the capital flow movements rather than traditional determinants like trade flows.

![Chart 4.1: Trade, Capital Flows and Exchange Rate Movements](chart.png)

**Part II**

In the international finance literature, various theoretical models are available to analyze exchange rate determination and behavior. With liberalization and development of foreign exchange and assets markets, variables such as capital flows, volatility in capital flows and forward premium have also became important in determining exchange rates. Following theory examines calculation of exchange rate.

(ii) Theory: Capital flows, forward premium

With an increase in liberalization and opening up of capital accounts the world over, capital flows have become important in determining exchange rate behavior. The relation between capital flows and exchange rates is hypothesized to be negative (with the exchange rate defined as the price of foreign currency in domestic currency). This is because capital inflow implies purchase of domestic assets by foreigners and capital outflow as purchase of foreign assets by...
residents. Since the exchange rate is determined by the supply and demand for foreign and domestic assets, the purchase of foreign assets drives up the price of foreign currency. Likewise, the purchase of domestic assets drives up the price of domestic currency. Thus, an increase in capital inflows leads to appreciation of the domestic currency when there is no government intervention in the foreign exchange market or if there is persistent sterilized intervention. In the case of unsterilized government intervention, the potential of capital inflows to influence exchange rates decreases to a great extent.

Dua and Sen (2009) develop a model which examines the relationship between the real exchange rate, level of capital flows, volatility of the flows, fiscal and monetary policy indicators and the current account surplus, and find that an increase in capital inflows and their volatility lead to an appreciation of the exchange rate. The theoretical sign on volatility can, however, be positive or negative.

The forward premium measured by the difference between the forward and spot exchange rate can provide useful information about future exchange rates. According to covered interest parity, the interest differential between two countries equals the premium on forward contracts. Thus, if domestic interest rates rise, the forward premium on the foreign currency will rise and the foreign currency is expected to appreciate. The exchange rate defined as the price of foreign currency in domestic currency and the forward premium are therefore expected to be positively related.

**Conclusion**

For the last couple of months, Indian rupee has become the worst performing Asian currency against the dollar. Indian currency is performing worst among all the major emerging economies. The above info examined the reasons behind consistent falling of INR against USD and other major currencies. The Indian Rupee has depreciated significantly against the US Dollar marking a new risk for Indian economy. High inflation, widening current account deficit and FII outflows have contributed to this fall. RBI has responded with timely interventions by selling dollars intermittently and also by stopping speculation by giving limit to banks for keeping open limits left overnight. But in times of global uncertainty, investors prefer USD as a safe haven. To attract investments, RBI can ease capital controls by increasing the FII limit on investment in government and corporate debt instruments and introduce higher ceilings in ECB’s. Government can create a stable political and economic environment. However, a lot depends on the Global economic outlook and the future of Eurozone which will determine the future of INR.

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