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| Finance in Global Environment |

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| Indian Rupee | |  |
| Foreign Exchange Analysis | |  |
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# Preface

The breakdown of the Bretton Woods system in 1971 marked the beginning of floating exchange rate regimes. In India Exchange rate management shifted from fixed exchange rate to a floating exchange rate regime in 1993. Since then it has market determined exchange rates, where policy makers desire to influence the bilateral exchange rate against the USD [Shah et al., 2005; Frankel, 2009; Patnaik, 2007]. Indian rupee is de facto pegged to USD. Exchange rate is allowed to float freely however, the Reserve Bank of India (RBI), intervenes when necessary to stabilize market and contain volatility in case of undesired domestic and global events. Various capital inflow/outflow reforms, liberalization measures since the early 1990s have been initiated to improve the market structure, depth, liquidity and efficiency of the Indian foreign exchange market. This report attempts to analyze different elements, forces, and factors playing major role in influencing foreign exchange of Indian currency “Rupee”

# Factors Affecting the Exchange Rate of INR

It is observed that the rupee’s pattern of behavior is not simply the outcome of domestic policies but more widely affected by international trade and finance movements. The period between 2002 and 2008 is considered India's golden age because global export trade was flourishing. The current account deficit was low at 1.2 percent of GDP. Services and exports, in particular ITES exports, led to noticeable growth in the economy. However, it was the favorable international environment that led to flourishing growth in India's export, until 2008 US sub-mortgage crisis. Since 2008, India's exports have been declining because of weakened demand in Europe and since the US economy still in its recovery. On the other hand imports have been rising sharply due to high international commodity prices. Overall the trade deficit is still posing a concern for Indian Government. The continued global uncertainty prevailing in Europe has resulted in slowdown of the international markets across the globe and hence, foreign investors are cautious of making investments. This has significantly affected the portfolio investment in India. Credit rating agency’s downgrade of India to BBB- with a negative outlook, has also added pressure on the exchange rate.

## Macro-Economic Conditions Affecting the Rupee

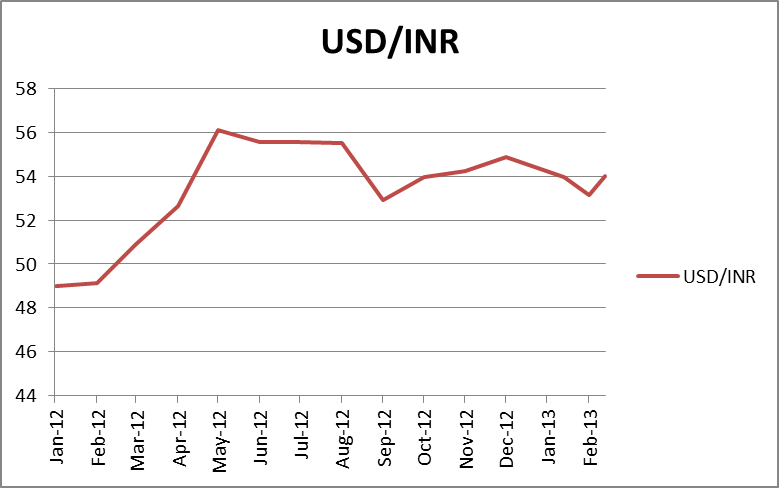
At the beginning of the decade, India showed a consistent and maintained GDP growth rate at around 8% and reduced its fiscal deficits to 4.8% of GDP. The fiscal year 2012-13 has, however, been a challenge to the Indian economy. The rapidly changing risk perceptions and recent global developments contributed to a turbulent macroeconomic condition for the past year. With an optimistic start and impressive growth in exports, high levels of foreign exchange inflows, the year progressed only to moderate out the economic conditions; high inflation led to a deceleration in growth.

Figure 1: Indian Rupee Foreign Exchange Rate with USD

On a global view, the performance of major economic competitors has been a point of concern. The Euro area is the source of concern with the protracted social debt crisis. Japan is trying to cope with the economic impact of the recent natural calamities. Such slowdown of advanced economies is a point of concern since it deters foreign investments and impacts the exchange rate channel of the country.

Foreign exchange market like other markets is governed by demand and supply of domestic and foreign currency .This demand and supply is dependent upon different macroeconomic conditions which play an important role in determining the competitiveness of a country and its currency against major trading partners with which a country carries its business with.

The recent report by the Reserve Bank of India [Macroeconomic and Monetary Developments - Third Quarter Review 2012-13] indicates the macroeconomic conditions at the end of fiscal year 2012-13. It suggests a variety of conditions and factors showing a slowdown of growth. Some highlights of the report are postulated below -

* Reforms reduce immediate risks, but long road ahead.
* Business sentiments stay weak, further action needed to restore confidence
* Industrial Outlook Survey reflects marginal improvement
* Inflation risks may remain in 2013-14
* Fiscal risks moderate in 2012-13, but sustained commitment to fiscal consolidation is needed to generate monetary space
* Balance of macroeconomic risks suggests continuation of calibrated stance

The risks faced by the Indian economy during 2012 had an impact on government policies as well as the investor mindsets. The government changed financial reforms in September 2012 allowing foreign investments in the power sector, the domestic broadcasting and domestic aviation. This was aimed more to moderate the inflation and in a hope to improve investor sentiments.

At present Indian economy is facing a rapid deceleration. Inflation rate even though moderated to a three-year low of 7.18 percent in December 2012 is still high thus slowing down country’s growth. Another concern is the declining GDP growth. The central bank has cut its GDP forecast to 5.5 against the early forecast of 5.8% Deteriorated performance of Industrial production, big political scams, fiscal deficit, and uncertainty of government decisions regarding the reforms because of coalition government, and extreme volatile behavior of stock market are all affecting negatively towards the performance of the economy on the whole.

## Inflation

India has experienced high inflation, above 8% (2010-11). Inflation weakens economic prospects, results in foreign capital outflows and eventual depreciation of the domestic currency. The Real Effective Exchange Rate (REER) index (6 currencies- Euro, Yen, Pound Sterling, US Dollar, Hong Kong 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.

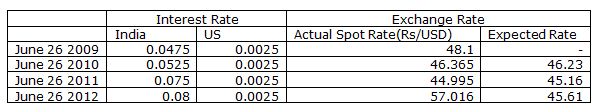
Figure 2: REER Statistics for 5 years

As of December 2012, the inflation rate was 7.18% and projected to drop to 6.8% in 2013.

## Interest Rates

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| **Change Date** | **Percentage** |
| January 29, 2013 | 7.750 % |
| April 17, 2012 | 8.000 % |
| October 25, 2011 | 8.500 % |
| September 16, 2011 | 8.250 % |
| July 26, 2011 | 8.000 % |
| June 16, 2011 | 7.500 % |
| May 03, 2011 | 7.250 % |
| March 17, 2011 | 6.750 % |
| January 25, 2011 | 6.500 % |
| November 02, 2010 | 6.250 % |

When reference is made to the Indian interest rate, this often refers to the repo rate, also called the key short term lending rate. If banks are short of funds, they can borrow rupees from the Reserve Bank of India (RBI) at the repo rate, the interest rate with a one day maturity[www.global-rates.com, 2013]. High interest rate lures investors and prevents sudden capital outflows, leading to higher net capital inflows. With India’s already high interest rates to mitigate a growth – inflation tradeoff, further raising interest rates would only slower the growth prospects. Since inflation has moderated (6.5%), RBI Governor D. S

ubbarao in the third quarter monetary policy review, surprised the market by cutting short-term lending rate called repo rate by 25 basis points (bps) to 7.75 per cent and Cash Reserve Ratio (CRR) by similar margin to 4 per cent. This is thought as an attempt to increase liquidity in the market and reduce the cost of borrowing for individuals and corporates in order to fuel growth prospects and strengthen investor confidence. While repo rate cut will reduce the cost of borrowing for individuals and corporates, the reduction in CRR, which is the portion of deposits that banks have to park with RBI, would improve the availability of funds[News, 2013].

## Balance of Payments (2012-13)

### Goods Trade

In the non-oil non-gold segment, imports decelerated to 0.3 percent as compared with a growth of 16.2 percent a year ago. The non-oil non-gold segment saw gold & silver imports declined sharply by 47.5 percent as against a growth of 123.1 percent in the last year. Oil imports during this period marginally declined by 0.1 percent owing to softening of oil prices, as against an increase of 52.5 percent during the same period preceding year. (See Appendix)

Overall goods exports recorded a decline of 2.6 per cent while imports registered a sharper decline of 3.6 per cent during Q1 of 2012-13 compared to last year results. Slowing down of western economy is one of the reasons for decline in the exports. Other major reason for low exports is deceleration in the country’s manufacturing sector. However, the decline in exports is less than last year because of the incentive announcements in the foreign trade policy. In addition the government had extended 2% interest subsidy to boost exports. Decline in non-oil non-gold imports can be attributed to slowdown in economic activity. The decline in import of precious metal is largely due to various policy measures like, increase in custom duty, to discourage certain imports which in turn ease up fiscal imbalance Trade deficit reduced by 5.35% as compared with trade deficit year ago. Observing closely, it is found that decline in import growth greater than that of export growth over the same quarter of previous year, which resulted in decline of the trade deficit from $44.9b to $ 42.5b in Q1 of 2012-13 as compared with Q1 of 2011-12. This resulted in BOP growth as against last year.

### Services and Income Flows

Moderate growth in service receipt by 2.0% (from 27.4% last year to ~30%) contrary to High growth of 15.9% in services payments. Net services exports during the quarter declined by 13.0 per cent to US$ 14.2 billion (US$ 16.3 billion in Q1 of 2011-12). Investment income receipts recorded a decline of 24.6 percent as compared to a decline of 27.5 percent in the corresponding quarter. Investment income payments increased by 14.5 percent as against a decline of 1.8 per cent during the same period a year ago.13.8% growth in remittances (secondary income) from overseas Indians (12.7% in Q1 2011-12).

While decline in investment income receipts is largely due to lower interest rates prevailing abroad, this sharp increase in income payments is due to higher interest payments under ECBs, short term credits and NRI deposits. In recent five to six years, India has increasingly resorted to debt flows to finance its current account deficit. Moderation in the current account deficit ~$16b is not entirely due to low trade deficit but due to increase in secondary income. Also imports declined sharply than exports making trade deficit look improved. Also exports have not shown considerable improvement. Despite moderation, due to rupee depreciation against USD, CAD as a % of GDP rose by little margin of 3% from last year. Exchange rate depreciation has accounted for about 0.7% increase in the CAD-GDP ratio during the quarter.

### Capital Account Flows

To finance its CAD, India needs capital flows. Institutional investors investing in India are directly impacted by the global market uncertainty. In 2008, India had a record net outflow of $14b of FIIs and INR depreciated from 39 INR/USD to 52INR/USD against dollar. A volatile currency is never good for a foreign investor as it increases the transaction risk. Though, RBI has intervened through open market operations to arrest the downfall of INR (managed float), it resulted in altering the reserves.

Financial Account declined by 29.4% compared to last year. This mainly because of slowing down of FDI inflows (50% decline), FDI Outflows (35% decline), loan sanctions by NRI banks (73.92% decline), and foreign deposits. Due to decline in financial account the Foreign exchange reserves stood at $ 0.5 billion during Q1 of 2012-13 which is lower as compared with US$ 5.4 billion during the corresponding period of previous year.

### Overall Current Account Deficit

India continues to see current account deficit of around 5.4% of GDP depleting the foreign reserve and thus, depreciating the INR. Depreciating currency helps a country when its exports exceeds it imports. India does not benefit with rupee depreciation, mainly because of increasing demand of oil, which constitutes a major portion of its import basket. The fall of oil price 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.

## Exports

Historically, from 1978 until 2012, India Exports averaged 229.36b INR reaching an all-time high of 1421.73b INR in March of 2012 and a record low of 3.75 INR Billion in May of 1978. India’s main exports are engineering goods (19 percent of total exports), gems and jewelry (15 percent), chemicals (13 percent), agricultural products (9 percent) and textiles (9 percent). India is also one of Asia’s largest refined product exporters with petroleum accounting for around 18 percent of total exports (Trading Economics). From time 1997-2007, the US was India’s top trading partner (trade as measured by the sum of the value of exports and imports put together). This shift can be attributed to the recession in the US in 2008 followed by Euro crisis 2011-12. Due to slowing down of western economies during the years 2011-12, the share of EU and OPEC countries in India’s export also declined as compared to 2010 exports. However, export trading direction changed and started moving more towards the UAE, Hong Kong, Singapore and China. Export to Japan, Africa, Latin American countries also showed little growth. Exports in India increased to 1359.50 INR Billion in December of 2012 from 1221.48 INR Billion in November of 2012.. India’s main export partners are United Arab Emirates (12 percent of total exports) and United States (11 percent). Others include: China, Singapore, Hong Kong and Netherlands.

## Imports

During 2011-12, imports grew 32.1 per cent (28.2 per cent a year ago). Import growth was primarily in Petroleum, crude Oil and products which grew by 46.9% from last year, followed by capital goods, gold & silver. In last 3 years, the average price of Indian basket of crude oil prices has risen sharply. Petroleum and petroleum products are major item of India’s imports, followed by capital goods and gold & silver. Petroleum, petroleum products and related material account for nearly 31% of India’s total merchandise imports. With global economy slowing down, import of gold also showed a significantly higher growth compared to previous years.

Also observed trend is declining share of European Union in India’s total imports. On the other hand, the share of OPEC group of countries, Africa and developing countries is rising. Country-wise, China continued to be the largest source of imports with a share of 12.4 per cent in total imports, followed by the UAE, Switzerland, Saudi Arabia and the US. These five countries together constituted around 37.5 per cent of India’s imports. Growth in imports from

OPEC countries, viz., Iraq, Indonesia, Kuwait and Saudi Arabia recorded a sharp increase while growth in imports from UAE decelerated sharply. Iraq replaced Iran as India’s second-largest crude oil supplier in 2011-12 (Journal, May 16, 2012).

## Oil Prices and Rupee Depreciation

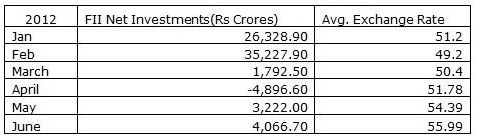
Today, the oil prices are determined by an association, the OPEC (Oil Producing and Exporting Countries), established on 1960, to coordinate oil production among the leading exporters. The oil is priced in the spot market and also in futures market across the global. About 65% - 70% of the world’s oil reserves are in the Middle East and the Arab Countries. According to the Reserve Bank of India, crude and other oil products accounted for 30.2%, 28.7%, 27.9%, 31% in 2009/10/11/12 years respectively, of the country's total imports. It is observed that international oil prices and rupee exchange rate have been moving in opposite directions. The benefits of lower international prices were either offset by a faster depreciating rupee or a slower appreciating rupee could not offset the negative effect of a sharper rise in international crude oil prices thereby resulting in a higher import bill[ASSOCHAM, 2012]. For instance, during April 2011 to April 2012, the rupee appreciated by 3.22 percent but the crude prices went by a huge 45.2 percent resulting in rupee cost of crude going up by 44.75 percent. During April 2011 to May 2012, even though international crude prices dropped by 2.1 percent, but faster rupee depreciation by about 20 percent pushed up the rupee cost of the commodity by about 15 percent. The international crude oil price for Indian Basket went up 0.65% to USD 114.68/barrel (bbl) on Feb. 8, 2013. In rupee terms also, the crude oil price of increased to INR 6143.41/bbl on Feb. 08, 2013.This was due to price increase in dollar terms and rupee depreciation. Rupee vs. dollar-exchange rate on Feb. 08, 2013 reported at INR 53.57/USD against INR 53.14/USD on previous trading day of Feb. 07, 2013. [News IRIS, 2013]

 In general, it is observed commodity importing countries’ real exchange rates depreciated as commodity prices rose up in 2012. India imports more than exports and hence oil- and commodities price rise led to trade losses and real exchange rate depreciation as the increase in imported commodities prices outpaced manufacturing export prices and also because of rising import bills. Weaker current account position and more exposure to foreign capital added further to the Real currency depreciation.

## Measures by Government

The government of India recently made changes to its monetary policies to loosen rules for portfolio investments in the Indian market; 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.

The FII investment data (SEBI), for 2012, shows that India had huge capital inflows during the first two months. The FII investments started declining only after the Euro-zone crisis reared its head again. This shows that the absence of reforms alone cannot account for the sheer magnitude of the slowdown.



For the coming fiscal year, the government is expected to make certain key reforms aiming at rolling of Goods and Services Tax (GST), Direct Tax Code (DTC), FDI in aviation and retail, Companies Bill and diesel decontrol.

In Summary, grim global economic outlook coupled with high inflation, widening current account deficits and FII outflows seem to have contributed to the significant depreciation of the INR against the USD. The fluctuations on the INR, even though affected by these factors, are also intervened into by the Reserve Bank of India and the Government’s financial policies. However, the major contender to deciding the INR’s value is the global economic condition.

## Purchasing power parity and the law of one price

The Economist magazine analyzes the purchasing-power parity of various global currencies using Big Mac burger as benchmark. If a Big Mac burger is taken as a benchmark, it is observed India offers the cheapest Big Mac burger at $1.62. This analogy makes rupee the world’s most undervalued currency on Big mac Index. India was included in the index in 2011 and has continued to rank the lowest on the list, which is compiled on the basis of the US dollar equivalent of the price of one Big Mac burger, priced $4.20 a piece in the US.

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| <http://bigmacindex.org/2012-big-mac-index.html> | | | |  |  |  |
| Country | Big Mac prices in local currency | Big Mac prices in dollars\* | Actual Dollar Exchange rate | Implied PPP† of the dollar | Actual dollar exchange rate June 2012 | Under (-)/ over (+) valuation against the dollar, % |
| United States‡ | 4.2 | 4.2 |  | - | - | - |
| India\*\*\* | 84 | $0.62 | 1.62 | 20 | 51.85185185 | -0.61428571 |
|  |  |  |  |  |  |  |

Indian currency undervalued at 61%. It can be due to investor’s outlook of India at present. Factors like Big political scams, weak manufacturing sector, high inflation, and decline in GDP has have a negative impact on business domestic and internationally. Continuing euro crisis issue has also impacted growth prospects of India.

## Relative purchasing power parity

If India experience higher inflation than its main trading partner U.S. and its exchange rate does not change, then its export of goods and services becomes less competitive, while imports from abroad become more prices competitive with higher priced domestic products due to inflation. These price change lead to deficit on current account in the balance of payments unless offset by capital and financing flows. Since inflation in home country India was 7.14% (December 2012 data used and not 2013 projection of 6.8%) higher than that in U.S (1.70%), relative PPP would predict that rupee would depreciate by 5.4% per annum with respect to the U.S. dollar.

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| --- | --- |
| INR new = | INR old \*(1+inflation rate India) |
|  | inflation rate in U.S. |

|  |  |  |
| --- | --- | --- |
|  | INR Old = | $53.95 |
| INDIA | Inflation rate = | 0.0714 |
| U.S. | Inflation rate = | 0.017 |
|  | New exchange rate= | $ 56.84 |

## The international fisher effect

Real interest rate is the lending interest rate adjusted for inflation as measured by the GDP deflator. According to World Bank data the real interest rate of India is 2% and for U.S. is 1%. Based on this information we can calculate the expected spot rate using fisher effect.

|  |  |  |
| --- | --- | --- |
|  | USD as base | |
|  | current spot rate = | $53.95 |
| U.S. | real interest rate | 0.01 |
| India | real interest rate | 0.02 |
|  | difference | -0.01 |
|  |  | 1.01 |
|  | expected value of INR against dollar | $53.42 |

## Speculation on value of Rupee at end of year 2013

The rupee will not appreciate much against the dollar until our current account achieves a surplus position alongside improvements in manufacturing and industrial sector to boost exports. So at the end of year 2013 Indian rupee against dollar would trade in range of INR 52/$ to INR 56/$.

## Suggestions to mitigate currency risk

Ineffective currency risk management can adversely affect profits, sales, cost, revenue and competitiveness of companies involved in international business basically the banks, exporters and importers. In Indian firms mostly prefer using forward contract derivatives from their banks to hedge currency exchange risk. RBI observed that structures like over-the-counter derivatives were used more for speculation by banks rather than for hedging, and so banned it. RBI and SEBI in order to provide a transparent hedging system, especially to small and medium scale units introduced exchange-traded currency future and options. However, the Exchange-traded currency futures and options are still not become popular on mass scale. Another trend observed were that many companies taking huge dollar loans at low rate which turned expensive with steep depreciation of the rupee.

Option derivatives can be used as hedging tool to derive benefits from favorable rate movements. Exchange traded currency futures and dollar/rupee options up to 12 months' forwards are available in India. Foreign currency exposures must be divided into monthly, quarterly, half-yearly and yearly basis. Short-term exposures up to, say, one month may be fully covered with forward contract derivatives, and after that the strategy of partial hedging may be used to deal with volatility in the dollar-rupee rate. The concept of stop loss, to follow market trends for hedging, can also be used. Another hedging tool the exporters, importers, banks, investment firms can use is to buy a Put option on a forward contract which will further reduce the currency risk.

Hedging with foreign exchange derivatives may create situations for marked-to-market losses. Indian corporates must also work on strategic developments strengthening their brands, develop strong manufacturing capacities, find new markets, improve customer base to improve sales.