An Empirical Study on Currency volatility in Foreign Exchange Market

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Abstract

Today currency market is the most volatile & liquid in all financial market in the world. Using last 3 months (one quarter, from July to September 2013) close ended data of currency market; we study the intraday effects of a representative group of scheduled economic releases on five exchange rates: INR/USD, JPY/USD, EURO/USD, GBP/USD, and CNY/USD. The paper empirically analyzes volatility behavior of these five markets & will find out which currency market is more volatile & sensitive.

Keywords: - Foreign Exchange Market, Currency Market, Volatility, USD & INR.

1. Introduction

From the last few decades the currency market has been a hotly debated issue in the academic research literature. Particular the global environment of the foreign exchange market, it is essential to study some of the important historical events relating to currencies and currency exchange. In this study we’ll review the currency rate volatility and how it has evolved to its current state.

2. Objective of the Study

- To give a good theoretical approach to Indian Currency Market & Rupee position in global market.
- To study the fluctuation rates of some pairs of currencies (INR/USD, JPY/USD, EURO/USD, GBP/USD, and CNY/USD) of last quarter (July 2013 to Sep.2013).
To compare the Indian Currency volatility with other countries fluctuations rates.
To find out that which currency is more stable in the global market.

3. Research Methodology
3.1 Research Design
Research design of my study is exploratory & analytical data collection.

3.2 Data collection
The data collection for my study is secondary data only, because I’ve collected all the data from books and from websites.

4. Journey of Indian rupee since independence:- (source-“Times of India- Aug,15,2013)
The currency has witnessed a large volatility in the past two years. This volatility became acute in the past three months affecting major macro-economic data, including growth, inflation, trade and investment.
At that time of independence the Indian rupee was associated to the British pound and its value was at par with the American dollar. There were no foreign borrowings on India's balance sheet.
With the introduction of the Five-Year Plan in 1951, the government started external borrowings for achieving the objectives. This required the devaluation of the rupee.
After independence, Indian chooses to accept a fixed rate currency management. The rupee was pegged at 4.79 against a dollar between 1948 and 1966.
Two consecutive wars, one with China in 1962 and another one with Pakistan in 1965, resulted in a huge deficit on India's budget, forcing the government to devalue the currency to 7.57 against the dollar.
The rupee's link with the British currency was broken in 1971 and it was linked directly to the US dollar.

In 1975, the Indian rupee was linked to a basket of three currencies comprising the US dollar, the Japanese yen and the German mark. The value of the Indian rupee was pegged at 8.39 against a dollar.

In 1985 it was further devalued to 12 against a dollar.

India faced a serious balance of payment crisis in 1991 and was forced to sharply devalue its currency. The country was in the grip of high inflation, low growth and the foreign reserves were not even worth to meet three weeks of imports. Under these situation, the currency was devalued to 17.90 against a dollar.

The year 1993 is very important in Indian currency history. From this year the currency was let free to flow with the market sentiments. The exchange rate was freed to be determined by the market, with provisions of intervention by the central bank under the situation of extreme volatility. In 1993, one was required to pay Rs.31.37 to get a dollar.


Currency prices are affected by a variety of economic and political conditions, but most important are interest rates, international trade, inflation, and political stability. It does not have any regular market timings, operates 24 hours 7 days week 365 days a year, characterized by ever-growing trading volume, exhibits great heterogeneity among market participants with big institutional investor buying and selling million of dollars at one go to individuals buying or selling less than 100 dollar.

5. Data analysis
As we mentioned above that the study in based on the currency market data, so we have collected the last quarter currency rates (July 13 to Sep.13) and we find that –

![Currency rates of July 2013](Graph 5.1)
Graph 5.2

Interpretation of July 2013:

<table>
<thead>
<tr>
<th>CURRENCY PAIRS</th>
<th>MEAN</th>
<th>STANDARD DEVIATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>USD/EURO</td>
<td>0.764668</td>
<td>0.009202</td>
</tr>
<tr>
<td>USD/GBP</td>
<td>0.659239</td>
<td>0.007235</td>
</tr>
<tr>
<td>USD/INR</td>
<td>59.75162</td>
<td>0.505483</td>
</tr>
<tr>
<td>USD/CNY</td>
<td>6.137775</td>
<td>0.007404</td>
</tr>
<tr>
<td>USD/JPY</td>
<td>99.73026</td>
<td>0.983822</td>
</tr>
</tbody>
</table>

Graph 5.3
An Empirical Study on Currency volatility in Foreign Exchange Market

**Interpretation of Aug 2013:-**

<table>
<thead>
<tr>
<th>Currency Pairs</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>USD/EURO</td>
<td>0.751037</td>
<td>0.003389</td>
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<tr>
<td>USD/GBP</td>
<td>0.645063</td>
<td>0.005384</td>
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<td>USD/INR</td>
<td>62.69576</td>
<td>2.193105</td>
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<tr>
<td>USD/CNY</td>
<td>6.122037</td>
<td>0.004689</td>
</tr>
<tr>
<td>USD/JPY</td>
<td>97.83369</td>
<td>0.929305</td>
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</table>

**currency rates of Sep2013**

**Graph 5.4**

**Graph 5.5**
Interpretation of Sep 2013

<table>
<thead>
<tr>
<th>Currency Pairs</th>
<th>Mean</th>
<th>Standard Deviation</th>
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<tr>
<td>USD/EURO</td>
<td>0.748762</td>
<td>0.008173</td>
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<tr>
<td>USD/GBP</td>
<td>0.630342</td>
<td>0.008239</td>
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<tr>
<td>USD/INR</td>
<td>63.79682</td>
<td>1.587836</td>
</tr>
<tr>
<td>USD/CNY</td>
<td>6.120131</td>
<td>0.001366</td>
</tr>
<tr>
<td>USD/JPY</td>
<td>99.12011</td>
<td>0.539279</td>
</tr>
</tbody>
</table>

6. Empirical results
The study finds that in last 3 months only the Indian Currency market had more volatility. As a result we find that in the month of August 2013, the standard deviation from the average value is more than 2 compared to other markets, they had less than 1. It shows that Indian currency market is more sensitive due to the external factors.

7. Conclusion
Indian currency markets present a good investment opportunity. However, investors should participate only after a thorough understanding of how they work. From last three months we can see that, due to external & internal factors Indian currency market is more volatile and sensitive market compared to other countries.
References

[5] www.rbi.org.in