22582

M.Venkateswari and G.Ravindran/ Elixir Fin. Mgmt. 68 (2014) 22582-22586

Available online at www.elixirpublishers.com (Elixir International Journal)

Finance Management





forex market

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ARTICLE INFO

Article history: Received: 4 December 2013; Received in revised form: 20 March 2014; Accepted: 20 March 2014;

Keywords

Currencies, Exchange, Fluctuations, Parity, Parameters.

ABSTRACT

The exchange rate or Inter Bank Rate of Indian Rupee (INR) is considered as one of the major economic factor to determine Indian economic position. There are various Economic factors and parameters which influence the Inter Bank Rates (IBR) and alter its parity with different currencies. This study is done to analyse the various Economic factors and parameters that influencing the IBR. This study involves analysis of 4 major Economic factors and parameters which are related to IBR. All the parameters taken under study are analysed using suitable analyzing tools and the influence over the IBR is studied. This study is done to understand the fluctuations in USD/INR IBR rates on Quarterly basis for 5years from 2007 to 2011. The four parameters taken under study is analyzed using Karl Pearson's Coefficient of Correlation and Regression Analysis with IBR rates collected during respective years.

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Introduction

FOREX market is such a unique financial market and extremely large with \$4 trillion average daily trading volume. FOREX forecast and analysis are the most important ones for the investors as they are very much concerned about earning best return of their money. Technically analyzing the market might not help the trader in earning unusually high returns. Instead analyzing fundamentally is quite natural in all financial market. Countries like India wherein the economy is highly brunt by any type of events, thus evaluating such market for the betterment of money changers as the flow of foreign currency is more in the economy.

The foreign exchange market assists international trade and investment, by enabling currency conversion. For example, it permits a business in the United States to import goods from the European Union member states especially Euro zone members and pay Euros, even though its income is in United States dollars. It also supports direct speculation in the value of currencies, and the carry trade, speculation on the change in interest rates in two currencies.

The foreign exchange market is unique because of

• its huge trading volume representing the largest asset class in the world leading to high liquidity;

• its geographical dispersion;

• its continuous operation: 24 hours a day except weekends, i.e. trading from 20:15

GMT on Sunday until 22:00 GMT Friday;

• the variety of factors that affect exchange rates;

• the low margins of relative profit compared with other markets of fixed income; and the use of leverage to enhance profit and loss margins and with respect to account size.

• Unlike a stock market, the foreign exchange market is divided into levels of access. At the top is the interbank market, which is made up of the largest commercial banks and securities dealers. Within the interbank market, spreads, which are the difference between the bid and ask prices, are razor sharp and not known to players outside the inner circle. The difference between the bid and ask prices widens (for example from

0-1 pip to 1-2 pips for a currencies such as the EUR) as you go down the levels of access. This is due to volume. Central banks also participate in the foreign exchange market to align currencies to their economic needs.

Need for the Study:

Foreign exchange turnover evolves predictable fashion with increasing income of any nation. Recent surveys state that foreign exchange market activity showed rapid growth in turnover in emerging market currencies. The research focus is mainly for the Indian investors to have in sightedness among top trading currencies (USD & EURO) in the FOREX market and its parity towards Indian Rupee.

The exchange rate or Inter Bank Rate of Indian Rupee (INR) is considered as one of the major economic factors to determine Indian economic position. There are various Economic factors and parameters which influence the Inter Bank Rates (IBR) and alter its parity with different currencies. One of the most important factors which affect the exchange rate is demand and supply of domestic and foreign currency.

This research is taken to analyze the various Economic factors and Parameters that influences the IBR. It involves analysis of economic factors like Industrial deficit, Fiscal deficit, GDP & GNP, Foreign Exchange reserves, Inflation rate, EXIM policy, Export and Import trade, International Oil price & Gold price and FDI by the country which are related to IBR and its parity over USD&EURO. The present study is to be focused on selected parameters which are highly influencing currency exchange and its measurability is to be on quarterly basis for five years. Forecasting currency exchange rates is an important financial problem that has received much attention especially because of its intrinsic difficulty and practical applications. The study was done in order to identify the major parameters influencing the USD/INR parity.



	A values – IBR		1 values –	yment	
S. No	x	Y	xi-mean(x)	Yi-mean(y)	[xi-mean(x)] *[yi- mean(y)]
1	44.0058	20452	0.7781	13886.47	-10805.06
2	41.0547	11200	-3.7292	4634.47	-17282.87
3	40.3775	29236	-4.4064	22670.47	-99895.16
4	39.3527	26738	-5.4312	20172.47	-109560.72
5	39.696	24990	-5.0879	18424.47	-93741.86
6	41.5372	2235	-3.2467	-4330.53	14059.93
7	43.6914	-4734	-1.0925	-11299.53	12344.74
8	48.6302	-17881	3.8463	-24446.53	-94028.69
9	49.7101	300	4.9262	-6265.53	-30865.25
10	48.7851	-770.1	4.0012	1528.32	6115.11
11	48.3759	-560.2	3.592	1738.22	6243.69
12	46.6266	-1519.1	1.8427	779.32	1436.05
13	45.9223	-2529.6	1.1384	-231.18	-263.18
14	45.6396	-2649.1	0.8557	-350.68	-300.08
15	46.4686	-2784.7	1.6847	-486.28	-819.24
16	44.8476	-2319.1	0.0637	-20.68	-1.32
17	45.635	-3361.5	0.8511	-1063.08	-904.79
18	44.7252	-4008.8	- 0.0587	-1710.38	100.40
19	45.8129	-4165.5	1.029	-1867.08	-1921.23
Total	850.8944	-43670			7496.32
Mean	44.7839	6565.53			
S.D	3.07	1003.03			

 Table 1: Computation of Karl Pearson's Correlation Coefficient - Ibr Vs Balance Of Payment

 X values - IBR
 Y values - Balance of Payment

 Table 3: computation of Karl Pearson's correlation coefficient - ibr vs repo rates

	A values – IBK I values – Repo Rates				
S. No	X	Y	xi-mean(x)	Yi-mean(y)	[xi-mean(x)] *[yi-mean(y)]
1	44.17	7.5	-2.0527	0.65	-1.33
2	43.59	7.75	-2.6327	0.9	-2.37
3	42.81	8	-3.4127	1.15	-3.92
4	42.82	8.5	-3.4027	1.65	-5.61
5	42.47	9	-3.7527	2.15	-8.07
6	48.83	8	2.6073	1.15	2.10
7	48.96	7.5	2.7373	0.65	1.78
8	49.22	6.5	2.9973	-0.35	-1.05
9	48.37	5.5	2.1473	-1.35	-2.90
10	52.06	5	5.8373	-1.85	-10.80
11	50.36	4.75	4.1373	-2.1	-8.69
12	45.48	5	-0.7427	-1.85	1.37
13	44.61	5.25	-1.6127	-1.6	2.58
14	46.68	5.5	0.4573	-1.35	-0.62
15	46.76	5.75	0.5373	-1.1	-0.59
16	46.3	6	0.0773	-0.85	-0.07
17	44.43	6.25	-1.7927	-0.6	1.08
18	45.53	6.5	-0.6927	-0.35	0.24
19	45.24	6.75	-0.9827	-0.1	0.10
20	44.34	7.25	-1.8827	0.4	-0.75
21	44.9	7.5	-1.3227	0.65	-0.86
22	44.2873	8	-1.9354	1.15	-2.23
23	47.467	8.25	1.2443	1.4	1.74
24	49.6598	8.5	3.4371	1.65	5.67
Total	1109.3441	164.5			-33.2
Mean	46.2227	6.85			
S.D	2.57	1.26			

X values – IBR Y values – Repo Rate

	71 vulue:		1 values		
S. No	X	Y	xi-mean(x)	Yi-mean(y)	[xi-mean(x)
]*[yi-mean(y)
1	49.22	5	2.59	0	0
2	48.37	4	1.74	-1	-1.74
3	52.06	3.5	5.43	-1.5	-8.15
4	50.36	3.25	3.73	-1.75	-6.53
5	45.48	3.5	-1.15	-1.5	1.73
6	44.61	3.75	-2.02	-1.25	2.53
7	46.68	4	0.05	-1	-0.05
8	46.76	4.5	0.13	-0.5	-0.07
9	46.3	5	-0.33	0	0
10	44.43	5.25	-2.2	0.25	-0.55
11	45.53	5.5	-1.1	0.5	-0.55
12	45.24	5.75	-1.39	0.75	-1.04
13	44.34	6.25	-2.29	1.25	-2.86
14	44.9	6.5	-1.73	1.5	-2.60
15	44.2873	7	-2.3427	2	-4.69
16	47.467	7.25	0.837	2.25	1.88
Total	746.0343	80			-22.69
Mean	46.6271	5			
S.D	2.25	1.25			

Table 4: computation of Karl Pearson's correlation coefficient - ibr vs reverse repo rate

X values – IBR Y values – Reverse Repo Rate

Table 5: regression analysis - ibr vs balance of paymentX values - IBRY values - Balance of Payment

X values – IBR		Y values – Balance of Payment			
S.No	X	\mathbf{x}^2	у	y^2	ху
1	44.0058	1936.510434	20452	418284304	900006.6216
2	41.0547	1685.488392	11200	125440000	459812.64
3	40.3775	1630.342506	29236	854743696	1180476.59
4	39.3527	1548.634997	26738	714920644	1052212.493
5	39.696	1575.772416	24990	624500100	992003.04
6	41.5372	1725.338984	2235	4995225	92835.642
7	43.6914	1908.938434	-4734	22410756	-206835.0876
8	48.6302	2364.896352	-17881	319730161	-869556.6062
9	49.7101	2471.094042	300	90000	14913.03
10	48.7851	2379.985982	115	13225	5610.2865
11	48.3759	2340.227701	9418	88698724	455604.2262
12	46.6266	2174.039828	1767	3122289	82389.2022
13	45.9223	2108.857637	2141	4583881	98319.6443
14	45.6396	2082.973088	3741	13995081	170737.7436
15	46.4686	2159.330786	3289	10817521	152835.2254
16	44.8476	2011.307226	3989	15912121	178897.0764
17	45.635	2082.553225	2031	4124961	92684.685
18	44.7252	2000.343515	5442	29615364	243394.5384
19	45.8129	2098.821806	276	76176	12644.3604
Total	850.8944	38285.45735	124745	3256074229	5108985.351
Mean	44.7839		6565.53		

Table 6: Regression Analysis - Ibr Vs Balance Of Trade

X values – IBR			Y values -	- Balance of Trade		
S.No	X	\mathbf{x}^2	у	y^2	ху	
1	44.0058	1936.510434	-3167.1	10030522.41	-139370.7692	
2	41.0547	1685.488392	-2846.2	8100854.44	-116849.8871	
3	40.3775	1630.342506	-1080.2	1166832.04	-43615.7755	
4	39.3527	1548.634997	-2011	4044121	-79138.2797	
5	39.696	1575.772416	-2911.5	8476832.25	-115574.904	
6	41.5372	1725.338984	-1811.5	3281532.25	-75244.6378	
7	43.6914	1908.938434	-963.8	928910.44	-42109.77132	
8	48.6302	2364.896352	-2335.6	5455027.36	-113580.6951	
9	49.7101	2471.094042	-1875.4	3517125.16	-93226.32154	
10	48.7851	2379.985982	-770.1	593054.01	-37569.40551	
11	48.3759	2340.227701	-560.2	313824.04	-27100.17918	
12	46.6266	2174.039828	-1519.1	2307664.81	-70830.46806	
13	45.9223	2108.857637	-2529.6	6398876.16	-116165.0501	
14	45.6396	2082.973088	-2649.1	7017730.81	-120903.8644	
15	46.4686	2159.330786	-2784.7	7754554.09	-129401.1104	
16	44.8476	2011.307226	-2319.1	5378224.81	-104006.0692	
17	45.635	2082.553225	-3361.5	11299682.25	-153402.0525	
18	44.7252	2000.343515	-4008.8	16070477.44	-179294.3818	
19	45.8129	2098.821806	-4165.5	17351390.25	-190833.635	
Total	850.8944	38285.45735	-43670	119487236	-1948217.257	
Mean	44.78		2298.42			

X values – IBR Y values – Repo Rate					
S.No	X	x ²	Y	y^2	ху
1	44.17	1950.9889	7.5	56.25	331.275
2	43.59	1900.0881	7.75	60.0625	337.8225
3	42.81	1832.6961	8	64	342.48
4	42.82	1833.5524	8.5	72.25	363.97
5	42.47	1803.7009	9	81	382.23
6	48.83	2384.3689	8	64	390.64
7	48.96	2397.0816	7.5	56.25	367.2
8	49.22	2422.6084	6.5	42.25	319.93
9	48.37	2339.6569	5.5	30.25	266.035
10	52.06	2710.2436	5	25	260.3
11	50.36	2536.1296	4.75	22.5625	239.21
12	45.48	2068.4304	5	25	227.4
13	44.61	1990.0521	5.25	27.5625	234.2025
14	46.68	2179.0224	5.5	30.25	256.74
15	46.76	2186.4976	5.75	33.0625	268.87
16	46.3	2143.69	6	36	277.8
17	44.43	1974.0249	6.25	39.0625	277.6875
18	45.53	2072.9809	6.5	42.25	295.945
19	45.24	2046.6576	6.75	45.5625	305.37
20	44.34	1966.0356	7.25	52.5625	321.465
21	44.9	2016.01	7.5	56.25	336.75
22	44.2873	1961.364941	8	64	354.2984
23	47.467	2253.116089	8.25	68.0625	391.60275
24	49.6598	2466.095736	8.5	72.25	422.1083
Total	1109.3441	51435.09367	164.5	1165.75	7571.33195
Mean	46.22267083		6.854166667		

Table 7: Regression Analysis - Ibr Vs Repo Rate

Table 8: Regression Analysis - Ibr Vs Reverse Repo Rate

	X values – IBF	Y values – Reverse Repo Rate				
S.No	Χ	\mathbf{x}^2	Y	y^2	xy	
1	49.22	2422.6084	5	25	246.1	
2	48.37	2339.6569	4	16	193.48	
3	52.06	2710.2436	3.5	12.25	182.21	
4	50.36	2536.1296	3.25	10.5625	163.67	
5	45.48	2068.4304	3.5	12.25	159.18	
6	44.61	1990.0521	3.75	14.0625	167.2875	
7	46.68	2179.0224	4	16	186.72	
8	46.76	2186.4976	4.5	20.25	210.42	
9	46.3	2143.69	5	25	231.5	
10	44.43	1974.0249	5.25	27.5625	233.2575	
11	45.53	2072.9809	5.5	30.25	250.415	
12	45.24	2046.6576	5.75	33.0625	260.13	
13	44.34	1966.0356	6.25	39.0625	277.125	
14	44.9	2016.01	6.5	42.25	291.85	
15	44.2873	1961.364941	7	49	310.0111	
16	47.467	2253.116089	7.25	52.5625	344.13575	
Total	746.0343	34866.52103	80	425.125	3707.49185	
Mean	46.62714375		5			

Objectives:

• To understand the currency exchange rate mechanism.

• To identify the various parameters influencing currency exchange rate.

• To analyze the fluctuations existing in currency exchange rate for period of 5 years [2007-2011] on Quarterly basis **Scope:**

The present study is focused on selected parameters which are highly influencing currency exchange and its measurability is to be on quarterly basis for five years

• Parity Analysis is done for 5 years between 2007 and 2011.

• The Study is done in standard Forex agency.

• The Study is done only for identifying parity existing between two currencies USD & INR.

Approach & Methodology:

The study relies on both primary and secondary data. Primary data is to be collected from selected samples of money changers from major cities of the state through questionnaire. Secondary data is to be collected from the annual reports maintained by RBI, Government websites, relevant published journals and books. It should be the historical data of ten years (2002-2011). 5 years Historical data [2007-2011]

• USD/INR IBR Rates.

• Balance of Payment

• Balance of Trade

• Interest Rates- i)Repo Rate, ii))Reverse Repo Rate

The study on measuring the parametric influences over INR/USD parity has been evaluated using Karl Pearson's correlation coefficient & regression analysis by taking into consideration of economic indicators such as BOP, BOT, Repo rates and Reverse Repo rates.

Data Analysis:

Inference:

Karl Pearson's coefficient of correlation = 0.1281

There is Positive correlation between the variables. It shows that the IBR and

Balance of Trade are Directly proportional to each other **Inference:**

Karl Pearson's coefficient of correlation = -0.4272

There is Negative correlation between the variables. It shows that the IBR and

Balance of Payments are Inversely proportional to each other.

Inference:

Karl Pearson's coefficient of correlation = 0.5042

There is Positive correlation between the variables. It shows that the IBRand

Balance of Trade are Directly proportional to each other **Inference:**

The regression equation for IBR Vs Balance of payment x = -0.000195968y + 46.07055007

Inference:

The regression equation for IBR Vs Balance of Trade x = -0.20423188y + 424.62693

Inference:

The regression equation for IBR Vs Repo Rate

x = -0.844606538y + 52.01174481

Inference:

The regression equation for IBR Vs Reverse Repo Rate x = -0.902672637y + 51.14050693

Interpretation:

• The Negative value of Karl Pearson's coefficient of correlation for IBR Vs Balance of Payment shows that they are Inversely proportional to each other i.e., IBR will increase with less Balance of Payment. Thus it is essential for our economy to maintain less Balance of Payment.

• The Positive value of Karl Pearson's coefficient of correlation for IBR Vs Balance of Trade shows that they are Directly proportional to each other i.e., IBR will increase with High Balance of Trade. Thus it is essential for our economy to maintain high Balance of Trade.

• The Negative value of Karl Pearson's coefficient of correlation for IBR Vs Repo rate shows that they are Inversely proportional to each other i.e., IBR will increase with less Repo Rate. Thus it is essential for our economy to maintain less Repo Rate.

• The Positive value of Karl Pearson's coefficient of correlation for IBR Vs Reverse Repo Rate shows that they are directly proportional to each other, i.e., IBR will increase with high Reverse Repo Rate. Thus it is essential for our economy to maintain high Reverse Repo Rate.

• The Regression Equation framed from the 5 years data will help to calculate expected IBR rates at corresponding values of Balance of Payment, Balance of Trade, Repo Rate and Reverse Repo rate.

Conclusion:

A thorough study and analysis is done for the 5 years from 2007 to 2011 using various tools. The complete analysis of fluctuations in USD/INR parity for 5 years 2007-2011 is done on quarterly basis. From the study it is found that the Indian Economy should always maintain less Balance of Payment which help to increase the Indian IBR rates. The study has also

Paved a rapid growth on currency market The outcome of the study is to serve a technical tool for the policy makers, investors and economists for better developing nation. The extent of such evaluation can also be done by using computational models to add up value to the research. **References**

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