

IMPACT OF VARIOUS MACROECONOMIC FACTORS ON THE VALUE OF EXCHANGE RATE OF THE INDIAN CURRENCY

Dr. AASHKA THAKKAR (ACADEMIC HEAD, MBA department)

CHIRAG PARMAR (FINAL YEAR, MBA department)

RICHA PARIKH (FINAL YEAR, MBA department)

PARUL INSTITUTE OF ENGINEERING & TECHNOLOGY

ABSTRACT

Exchange rate fluctuations between two countries' currencies can have a positive or negative impact on an economy's overall performance and growth. As a result, it becomes necessary to investigate the causes that generate such variations in order for individuals and governments to make reasonable economic and financial decisions in order to prevent too many swings that pose risks in international operations. The study of the link between the exchange rate and the macroeconomic variables that cause variations in it and their extent of correlation with the same can help control the negative consequences.

KEYWORDS

Indian currency, Exchange rate, Inflation rate, GDP growth rate, FDI, Lending Interest rate, Correlation.

INTRODUCTION

An exchange rate is the price of one currency relative to another currency. Exchange rates have a significant impact on the overall economic performance and economic growth of open countries in world markets. Therefore, it is very important for an open economy to understand how exchange rates and the macroeconomic variables that affect their value are related. This study aims to identify the macroeconomic variables and their interactions that influence the value of India's national currency, the rupee. The paper also looks at the volatility of the Indian Rupee (INR) against the US Dollar (INR/USD) as a result of globalization and suggests ways to stem the depreciation of the Rupee.

Currency prices, like all commodities, are driven by supply and demand in the international market. As the supply of currency expands, its value decreases the opposite happens when the demand for cash increases. At any given time, currency prices in an economy are affected by many factors. Interest rates, international trades, inflation, political stability, and other factors all have a significant impact on currency prices. India has embarked on a series of structural reforms in the foreign

exchange market since the 1990s. Exchange rate policy has changed over time following gradual economic opening as part of a broader macroeconomic reform strategy. One of the important reforms was the two-notch downgrade of the Indian rupee to bolster investor confidence and increase domestic competitiveness. The Indian rupee depreciated twice in July 1991 to stabilize the foreign exchange market. This was a decisive step towards ending the fixed exchange rate system. At the time, most academics and economists favoured a flexible exchange rate regime.

There were two arguments in favour of a flexible exchange rate system. The first argument relates to the country's competitive position in the international market. For example, when a country's price level rises, goods and services become less competitive on international markets and the balance of payments suffers a deficit. To balance the balance of payments, countries can use a variety of macroeconomic strategies to keep price levels down, and since prices are falling steadily, this can lead to painful adjustments and lead to loss of welfare. Therefore, it is better to leave the exchange rate devalued to offset inflation and maintain national competitiveness without a long and painful correction.

The second argument of supporters of floating exchange rates is based on the assumption that the stabilization behavior of speculators will make exchange rates relatively stable compared to fixed rates. For example, if a currency depreciates relative to its long-term value, a speculator will know that the move is temporary and will buy a currency that is expected to appreciate in the future. Thus, it stabilizes the real movement of the exchange rate.

LITERATURE REVIEW

1. **Chellasamy (2013)** analyzed the effects on rupee depreciation against the dollar covering the area of currency growth, foreign investment, and macro-economic factors that affected Indian currency during the study period from 1989-1970 to 2012-2013.
2. **Kotai (2013)** studied that currency markets is the most volatile & liquid in all financial market in the world. The paper analyzed the volatility behavior of select five markets (INR/USD, JPY/USD, EURO/ USD, GBP/USD, and CNY/USD) to find out which currency market is most volatile & sensitive. The study found that Indian currency market is more volatile and sensitive compared to other select countries and results show that Indian currency market is more sensitive due to the external factors.
3. **Kaur and sirohi (2013)** studied the impact of a depreciation in the rupee, i.e., changes in spending and saving patterns of those affected by the depreciation of the rupee. For example, people have to pay more for education abroad, more expensive income and slower consumption, higher unemployment due to lower business income, more expensive travel abroad, higher inflation due to currency depreciation, etc.
4. **Mirchandani (2013)**: This paper outlines the factors that led to the rupee's depreciation and also analyzes various macroeconomic determinants that affect exchange rate volatility and their

correlation. This study attempts to identify various possible causes related to this, such as low capital inflows and economic instability in India.

5. **Bandari (2014)**: This paper examines the causes and effects of the devaluation of the rupee against the dollar on the Indian economy during the recent period when the rupee closed at 68.80 against the dollar on August 28, 2013, raising fears that the Indian economy may go back to 1991 scenario.

6. **Smriti (2013)** This paper examined the dynamics, factors, and impact of exchange rate fluctuation on the exchange rates of the Indian rupee, and analyzed economic measures manipulated by the government since exchange rates are the most monitored.

7. **Kareethedath & Shanmugasundaram (2012)** Daily observation of the Indian rupee against the US dollar from April 1, 1973 to March 31, 2012 were an attempt to understand the movement and volatility characteristics of the Indian exchange rate.

8. **Sahoo Satyandra (2012)** examines the ripple effects of exchange rate volatility of the Brazilian Real, Russian Ruble, South Korean Won, Singapore Dollar, Japanese Yen, Swiss Franc, British Pound and euro on Indian rupee exchange rates 2005-11.

9. **K. Khera & Indrapal Singh (2015)**: This paper examines the relation of the value of the Indian rupee and other macroeconomic factors that how this variables affects the Indian currency.

PROBLEM STATEMENT

The value of the Indian rupee is influenced by various macroeconomic factors that impact the country's economy. The problem statement for this topic is to analyze the impact of these factors on the value of the Indian rupee and to identify the key drivers that influence the currency's value. Some of the factors that may be considered in this analysis include inflation rates, interest rates, government policies, political stability, trade balances, foreign investments, and global economic trends. Understanding how these factors impact the value of the Indian rupee is important for investors, policymakers, and individuals involved in international trade, as it can have significant implications for the economy and financial markets.

OBJECTIVE OF STUDY

The purpose of this study is to study the effect of some macroeconomic factors on the value of the Indian rupee against the US dollar.

- Find out the dependence of exchange rates on causal macroeconomic factors.
- An overview of the theoretical approach to the Indian forex market and the place of the rupee in the world forex market.
- Find out the factors affect the value of the rupee and how it relates to exchange rates.

RESEARCH METHODOLOGY

This study was conducted to investigate the effect of various microeconomic variables on exchange rate volatility. This study was based on secondary data, and the report was prepared by collecting annual data for 20 years from 1991 to 2010 and adding some variables. The relationship between various macroeconomic variables such as exchange rate, interest rate, trade balance, inflation rate, foreign direct investment, and GDP was analyzed using statistical tools.

Hypotheses Development

There are several factors affecting the exchange rate like inflation, interest rates, current account deficits, public debt, the terms of trade, economic and political factors, FDI, FII, etc. From these, four independent variables have been identified for the purpose of the study.

- 1) Inflation Rate
- 2) Lending Interest Rate
- 3) Foreign Direct Investment (FDI)
- 4) Gross Domestic Product (GDP) Growth Rate

So, the following 4 Null hypotheses were formed:

1st Ho: Inflation rate does not have relation with the exchange rate of Indian Rupee.

2nd Ho: Lending Interest rate does not have relation with the exchange rate of Indian Rupee.

3rd Ho: FDI do not have relation with the exchange rate of Indian Rupee.

4th Ho: GDP Growth Rate does not have relation with the exchange rate of Indian Rupee.

The corresponding Alternative Hypotheses are listed below:

H1: Inflation rate has a relation with the exchange rate of the Indian Rupee.

H2: Lending Interest rate has a relation with the exchange rate of the Indian Rupee.

H3: FDI has a relation with the exchange rate of the Indian Rupee.

H4: GDP Growth Rate has a relation with the exchange rate of the Indian Rupee.

Statistical Methods and Techniques Used for Data Analysis

- To run the Correlation and Regression test, we used SPSS software.
- MS EXCEL has been used to generate Tables, Charts and Graphs.

DATA ANALYSIS AND INTERPRETATION

YEARS	Exchange rate against \$	Inflation Rate	Interest rate	FDI (Current US \$ billion)	GDP Growth rate (%)
1991-92	22.6890	13.9	17.9	0.74	1.1
1992-93	25.9206	11.8	18.9	2.77	5.5
1993-94	31.4439	6.4	16.3	5.5	4.8
1994-95	31.3742	10.2	14.8	9.73	6.7
1995-96	32.4198	10.2	15.5	21.44	7.6
1996-97	35.4280	9.0	16.0	24.26	7.5
1997-98	36.3195	7.2	13.8	25.77	4.0
1998-99	41.2665	13.2	13.5	26.35	6.2
1999-2000	43.0552	4.7	12.5	21.69	8.8
2000-01	44.9401	4.0	12.3	34.8	3.8
2001-02	47.1857	3.7	12.1	66.15	4.8
2002-03	48.5993	4.4	11.9	88.03	3.8
2003-04	46.5818	3.8	11.5	88.86	7.9
2004-05	45.3165	3.8	10.9	102.02	7.9
2005-06	44.1000	4.2	10.8	260.32	9.3
2006-07	45.3070	6.1	11.2	677.42	9.3
2007-08	41.3485	6.4	13	756.43	9.8
2008-09	43.5049	8.4	13.3	905	3.9
2009-10	48.4049	10.9	12.2	718	8.5

Table No. 1: Macroeconomic Variables in India for the Period of 1991 to 2013

SOURCE: RBI Publications and World bank website

ANALYSIS

1. Inflation Rate: The inflation rate of a country can have a significant impact on its exchange rate. In general, when a country experiences high inflation, its currency tends to depreciate relative to other currencies. This is because inflation erodes the purchasing power of a currency, meaning that it takes more of the local currency to buy the same amount of goods or services. This reduces the attractiveness of the currency to foreign investors, who may be less willing to hold onto it and may instead choose to sell it for a stronger currency. As a result, a country with high inflation may experience a decrease in demand for its currency, which can cause the exchange rate to fall. On the other hand, a country with low inflation may experience an increase in demand for its currency, which can cause the exchange rate to rise.

Result: A correlation of -0.578 between exchange rate and inflation rate indicates a moderate negative correlation between these two variables.

Correlations between Exchange rate & Inflation rate

		Inflation rate	Exchange rate against US\$
Inflation rate	Pearson Correlation	1	-.578**
	Sig. (2-tailed)		.008
	N	20	20
Exchange rate against US\$	Pearson Correlation	-.578**	1
	Sig. (2-tailed)	.008	
	N	20	20

** . Correlation is significant at the 0.01 level (2-tailed).

A negative correlation means that as one variable in this case, inflation rate increases, the other variable that is exchange rate tends to decrease. In this case, it suggests that when the inflation rate of country rises, its currency tends to depreciate relative to other currencies.

2. Lending Interest rate: Interest rates can have a significant impact on exchange rates, as they affect the demand for a country's currency. In general, when a country's interest rates are higher relative to other countries, its currency tends to appreciate, while a decrease in interest rates relative to other countries can lead to a depreciation of its currency.

Higher interest rates can make a country's currency more attractive to investors seeking higher returns on their investments, as they can earn a higher yield on assets denominated in that currency. This increased demand for the currency can drive up its value relative to other currencies in the foreign exchange market. Conversely, when a country's interest rates are lower than those of other countries, investors may be less willing to hold assets denominated in that currency, as they can earn a higher yield elsewhere. This can lead to a decrease in demand for the currency, which can cause its value to depreciate relative to other currencies.

Correlations between Exchange rate & Lending Interest rate

		INT rate	Exchange rate against US\$
INT rate	Pearson Correlation	1	-.896**
	Sig. (2-tailed)		.000
	N	20	20
Exchange rate against US\$	Pearson Correlation	-.896**	1
	Sig. (2-tailed)	.000	
	N	20	20

** . Correlation is significant at the 0.01 level (2-tailed).

Result: A correlation of -0.896 between exchange rate and interest rate indicates a strong negative correlation between these two variables.

A negative correlation means that as one variable in this case, interest rate increases, the other variable that is exchange rate tends to decrease. In this case, it suggests that when the interest rate of a country rises, its currency tends to depreciate relative to other currencies.

3. Foreign Direct Investment (FDI): FDI is one of the popular sources of business investments by big companies or individuals from other countries to invest their capital in a company that originated from another country.

Correlations between Exchange rate & FDI

		Exchange rate against US\$	FDI
Exchange rate against US\$	Pearson Correlation	1	.445*
	Sig. (2-tailed)		.050
	N	20	20
FDI	Pearson Correlation	.445*	1
	Sig. (2-tailed)	.050	
	N	20	20

*. Correlation is significant at the 0.05 level (2-tailed).

Result: A correlation coefficient of 0.445 suggests a positive, but relatively weak, correlation between exchange rate and FDI. This means that there is a tendency for FDI to increase as the exchange rate strengthens, but the relationship is not particularly strong between both variables.

4. GDP Growth Rate: The GDP growth rate is one of the key factors that can influence exchange rates. GDP is the overall market value of finished goods and services produced in a particular country over a particular period of time (one year). To determine a country's standard of living, GDP is a good indicator.

Correlations between Exchange rate & GDP

		Exchange rate against US\$	GDP growth rate
Exchange rate against US\$	Pearson Correlation	1	.406
	Sig. (2-tailed)		.075
	N	20	20
GDP growth rate	Pearson Correlation	.406	1
	Sig. (2-tailed)	.075	
	N	20	20

Result: A correlation of 0.406 between the exchange rate and GDP indicates a positive but moderate correlation between the two variables.

This means there is a tendency for an increase in exchange rate to be associated with an increase in GDP, and vice versa. However, the strength of this relationship is not particularly strong, as a perfect positive correlation would have a coefficient of 1.

CONCLUSION:

Hypothesis No	H0: NULL HYPOTHESIS	H1: ALTERNATIVE HYPOTHESIS	SIGNIFICANCE LEVEL	DECISION	CONCLUSION
1	Inflation rate do not have relation with exchange rate of Indian rupee	inflation rate has relation with exchange rate of Indian rupee	-0.578	Reject Null Hypothesis	A correlation of -0.578 between exchange rate and inflation rate indicates a moderate negative correlation between these two variables.
2	Lending interest rate do not have relation with exchange rate of Indian rupee	Lending interest rate has relation with exchange rate of Indian rupee	-0.896	Reject Null Hypothesis	A correlation of -0.896 between exchange rate and interest rate indicates a strong negative correlation between these two variables.
3	FDI do not have relation with exchange rate of Indian rupee	FDI has relation with exchange rate of Indian rupee	0.445	Reject Null Hypothesis	A correlation coefficient of 0.445 suggests a positive, but relatively weak, correlation between exchange rate and FDI.
4	GDP do not have relation with exchange rate of Indian rupee	GDP has relation with exchange rate of Indian rupee	0.406	Reject Null Hypothesis	A correlation of 0.406 between the exchange rate and GDP indicates a positive but moderate correlation between the two variables.

REFERENCES

1. Chellasamy (2013) :<https://api.semanticscholar.org/CorpusID:213804377>
2. Kotai (2013) :https://www.ripublication.com/gjmbs_spl/gjmbsv3n8_12.pdf
3. Kaur Sirohi (2013): <https://www.ijsrp.org/research-paper-1013/ijsrp-p2272.pdf>
4. Mirchandani(2013):https://www.researchgate.net/publication/282606310_Analysis_of_Macroeconomic_Determinants_of_Exchange_Rate_volatility_in_India
5. Bandari(2014):http://ijrcm.org.in/download.php?name=ijrcm-3-IJRCM-3_vol-7_2017_issue-11-art-12.pdf&path=uploaddata/ijrcm-3-IJRCM-3_vol-7_2017_issue-11-art-12.pdf
6. Kareethedath&Shanmugasundaram(2012):https://papers.ssrn.com/sol3/papers.cfm?abstract_id=225836
7. Styendra Saho (2012): <https://rbi.org.in/scripts/PublicationsView.aspx?id=14302>
8. K. khera & Indrapal Singh (2015):
<https://www.indianjournals.com/ijor.aspx?target=ijor:dbr&volume=16&issue=1&article=008>
9. world bank data <https://data.worldbank.org/country/india>

