THE EFFECTS OF CURRENCY FLUCTUATIONS ON THE INDIAN ECONOMY-A STUDY

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ABSTRACT

The study aimed to investigate the effects of currency fluctuations on the Indian economy. Using a Vector Error Correction model and Wald tests, the study found that the currency fluctuations of the Rupee are positively related to the GDP and Inflation, while the Index of Industrial Production and Repo-Rate have a negative relationship with the currency fluctuation. However, there was no long-run relationship observed between these variables and the currency fluctuation of the Rupee. The study also found that a decrease in GDP or IIP can lead to a decrease in the value of the Rupee, while inflation can lead to a depreciation of the Rupee's value. Overall, the study suggests that the performance of the economy, reflected by GDP and IIP, can significantly impact the currency fluctuation of the Rupee, and policymakers should take measures to maintain stable economic growth to avoid adverse effects on the currency.

Keywords: Currency fluctuations, Indian economy, Vector Error Correction model, Gross Domestic Product, Inflation, Index of Industrial Production, Repo-Rate

INTRODUCTION

Currency fluctuations, often referred to as exchange rate movements, play a pivotal role in shaping the economic landscape of nations across the globe. These fluctuations have far-reaching implications for various sectors of an economy, including trade, investment, inflation, and overall economic stability. In the context of the Indian economy, currency fluctuations have emerged as a critical factor that influences both short-term policy decisions and long-term economic strategies. This essay delves into the intricate relationship between currency fluctuations and the Indian economy, exploring how exchange rate movements impact various facets of India's economic landscape. India's economy is one of the fastest-growing in the world, characterized by a diverse mix of industries, a burgeoning middle class, and a youthful demographic. Over the past few decades, India has made significant strides in liberalizing its economy, which has led to increased integration with the global marketplace. This integration,

however, exposes the Indian economy to the ebbs and flows of international financial markets, particularly through the dynamics of currency fluctuations. Exchange rates, the relative values of one currency against another, are subject to constant change due to a myriad of factors. These factors can be broadly categorized into macroeconomic and microeconomic determinants. On the macroeconomic front, factors such as interest rates, inflation, and the overall economic health of a nation play a pivotal role in determining the strength of its currency. On the microeconomic front, market sentiment, speculative activities, and geopolitical events can lead to abrupt and sometimes unpredictable currency movements.

The Indian rupee (INR), like all other currencies, is not immune to these fluctuations. The INR's exchange rate is influenced by both domestic and international factors. Domestically, India's fiscal and monetary policies, inflation rates, and economic growth trends all contribute to the value of the rupee. Internationally, global economic conditions, trade balances, and geopolitical events have a substantial impact on the rupee's exchange rate. As a result, the Indian economy must navigate the challenges and opportunities presented by these fluctuations effectively. One of the most direct effects of currency fluctuations on the Indian economy is their impact on international trade. India is a net importer of goods and services, meaning it imports more than it exports. A weaker rupee can make imports more expensive, leading to an increase in the cost of living for the Indian population. Conversely, a stronger rupee can make exports more expensive for foreign buyers, potentially reducing demand for Indian goods and services abroad. This dynamic underscores the delicate balance that policymakers must strike in managing the rupee's value to support both domestic consumers and exporters. Furthermore, currency fluctuations can affect the foreign exchange reserves held by the Reserve Bank of India (RBI). The RBI routinely intervenes in the foreign exchange market to stabilize the rupee or manage its direction. Sharp depreciations can deplete foreign exchange reserves, potentially impacting India's ability to finance its international obligations and respond to financial crises. Conversely, a strong rupee can lead to an accumulation of foreign exchange reserves, providing a buffer for times of economic uncertainty.

REVIEW OF LITERATURE

The literature on exchange rate fluctuations and their impact on various aspects of the Indian economy reveals a complex web of relationships and consequences. **Basirat, Nasirpour, and Jorjorzadeh (2014)** delve into the multifaceted effect of exchange rate fluctuations on economic growth, highlighting the role of financial market development in mediating these

effects. Their empirical analysis showcases both positive and negative impacts contingent on the level of financial market development. In a complementary vein, **Mahapatra and Bhaduri (2019)** scrutinize the dynamics of currency fluctuations' impact on Indian stock markets, underlining the pricing of exchange rate risks as a crucial factor. Their research underscores a significant link between exchange rate fluctuations and stock market returns, emphasizing the relevance of considering these risks in investment decisions. Turning to the macroeconomic realm, **Anshu Grewal's study in 2013** navigates the broader consequences of Rupee-Dollar fluctuations on the Indian economy, particularly concerning the Reserve Bank of India (RBI) and the government. Through qualitative analysis, it unravels the challenges posed by currency fluctuations, including inflation, trade imbalances, and foreign exchange reserves management, advocating for proactive policy responses. **Chowdhury and Anuradha (2016)** zoom in on the impact of currency fluctuation, this time on Foreign Direct Investment (FDI) in India. Their econometric approach discerns a substantial influence of currency fluctuations on FDI, reinforcing the importance of currency stability in attracting foreign investment.

Nidhi Garg and Dr. Shakti Singh's research in 2018 reaffirms the overarching significance of rupee-dollar fluctuations on the Indian economy. Employing a mixed-method approach, their study unveils far-reaching effects on trade balances, inflation rates, and overall economic stability, underlining the need for proactive economic policies to manage currency fluctuations. **Anuradha.A (2018)** continues to explore the ramifications of exchange rate fluctuations, this time focusing on stock market volatility in India. Employing statistical analysis, the research exposes a robust correlation between exchange rate movements and stock market volatility, illuminating the potential of exchange rates as indicators for economic trends. In the intersection of markets, **Ingalhalli, G., and Reddy (2016)** dissect the intricate relationship between oil, gold, forex (foreign exchange), and stock markets in India. Their quantitative analysis uncovers significant correlations and dependencies among these markets, underscoring the need to consider these relationships in investment strategies and risk management. In a historical context, **Pattnaik, Kapur, and Dhal's (2003)** research scrutinizes India's experience with exchange rate policy and management. This historical and analytical approach provides insights into the effectiveness of India's exchange rate policies, offering valuable lessons for future policy decisions.

Zooming in on a critical sector of the Indian economy, **Dash and Madhava (2008)** probe the impact of currency fluctuation on the Indian IT sector. The research, utilizing both quantitative

and qualitative methods, highlights the sector's vulnerability to currency fluctuations, which affect competitiveness and profitability. To maintain stability, the study emphasizes the need for risk management strategies and policies in the IT sector. Finally, **Raju and Gokhale (2013)** delve into the intricate causality relationship between exchange rates and foreign exchange reserves in India. Their time-series data analysis unveils bidirectional causality, underscoring the importance of effective management of both variables for financial market stability. In a nuanced exploration of trade dynamics, **Bhat and Bhat (2021)** employ an asymmetric nonlinear cointegration approach to dissect the impact of exchange rate changes on India's trade balance. Their findings illuminate both short-term and long-term asymmetric relationships, advocating for policy considerations that encompass these nonlinear effects in trade and exchange rate management.

RESEARCH GAP

The review of literature brings to light aspects that haven't been considered in relation to currency fluctuations and their effect on an Economy, particularly the Indian Economy. Through a comprehensive view of the various abstracts collected for the review of literature, it is found that there are factors that have not been inquired upon, when it comes to the effect Currency fluctuations have on key factors of the Indian Economy. In conclusion, these factors are all interconnected and can influence currency fluctuations in India. While existing literature has explored these factors to some extent, further research is required to understand how these factors interact and impact different sectors of the Indian economy. Moreover, further research is needed to develop an effective policy intervention that could mitigate the impact of currency fluctuations on the Indian economy.

OBJECTIVES OF THE STUDY

1. To Understand the relationship of currency fluctuation with select economic factors.
2. To measure the impact of currency fluctuations on select economic factors

HYPOTHESIS

H0: There is no significant relationship of currency with select economic factors

H0: There is no Impact of currency fluctuations on select economic factors

SCOPE OF THE STUDY

In the economy, currency fluctuations play a significant role. The need for the study is explained by the following major points: In both developing and developed markets, current currency rates have an impact on foreign exchange investors, exporters, importers, bankers,

businesses, economic institutions, political decision-makers, and visitors. the effects of currency fluctuations on the debt and equity markets. the relationship between different asset types and currency prices. The knowledge of asset price transmission of currency prices in the Indian economy and its effects on company sectors, the interaction of various asset classes with the Indian economy's IT industry and the flow of capital. The present study has been emphasised on currency fluctuations impact on Indian economy. The study will consider the economic factors like Gross domestic product, Inflation, Interest rate. Index of Industrial production from the period of 2013-14 to 2023-24 years.

RESEARCH METHODOLOGY

The present study has considered the secondary data comprising the currency prices and the historical price data of economic factors by using Trading Economics, Reserve bank of India, Securities Exchange Board of India.

Research Design

The study is quantitive in nature, using analytical research methods to perform exploratory research having applied the following statistical tools to reach an accurate interpretation and conclusion.

STATISTICAL TOOLS:

VECM (Vector Error Correction Model): The vector error correction model is a cointegrated VAR model. The Vector Error Correction Model (VECM) consists of a VAR p - 1 model of the differences of the variables and an error correction term derived from a known or estimated cointegration relationship, in the attempt to define the relation between independent and dependent inputs. Vector error correction model is used to finalise the direction of causality between the variables. Vector Error Correction Model can be used when there is any co-integration between the variables. This model also consists of a VAR model of the p – 1 on the differences of the variables, and error correction means cointegrated relationship. VECM is used to interpret long term and short-term equations.

Ordinary Least Square: Ordinary Least Square is used to measure the effect of independent variables on additive variables. It is a standard approach to approximate the results in a linear method. This is the technique for estimating coefficients of linear regression equations and also describes the relationship between one or more independent quantitative variables and a

dependent variable. The Ordinary Least Square method is used to estimate the parameter of a linear regression model, it also reduces the squared errors.

The methodology also involves the construction of Currency fluctuation prices which is considered as an Independent Variable the below table shows the Dependent variables and their Representation

Independent Variable	**Dependent variables**	**Representation of Dependent Variable**
Currency Prices	Gross Domestic Product	GDP
	Inflation	Inflation
	Interest rate	Repo rate
	Index of Industrial Production	IIP

RESULTS AND DISCUSSION

Stationarity:

A stationarity time series is one whose properties do not depend on time at which the series is observed. Being a vital concept in Time series analysis, many analytical tools and statistical tests, and models rely on it. We used unit root test in E-Views to know whether the data taken for study is stationary or not and remove any seasonality effect in data.

Table 1

Unit Root Test of Currency and economic factors

FACTORS	**Prob.***
GDO	0.0055
Repo Rate	0.0234
Rupee	0.0004
Inflation	0.035
Index Of Industrial Production	0.006

The table presents the results of unit root tests for various economic factors, including GDP, REPO RATE, RUPEE, Inflation, and the Index of Industrial Production. The "Prob." column displays the associated p-values for each factor. A low p-value (typically below 0.05) suggests that the series is stationary, while a higher p-value indicates non-stationarity. In this context, the results indicate that the RUPEE and GDP series have p-values of 0.0004 and 0.0055, respectively, which are below the 0.05 threshold. This suggests that these two variables are stationary. However, the REPO RATE, Inflation, and Index of Industrial Production series are also with p-values of 0.0234, 0.035, and 0.006, respectively, indicating stationary.

This study embarks on a journey to unravel and comprehend the intricate ***relationship between currency fluctuation and a set of carefully selected economic factors.*** *To embark on this exploration, the study delves into an analysis of currency in conjunction with these economic variables. The research approach hinges on the use of the Vector Error Correction Model (VECM) as the data under scrutiny follows a time series pattern, encapsulating four distinct indices based on their tenure. In pursuit of this investigation, the study formulates a set of hypotheses, each aimed at shedding light on the interplay between currency dynamics and the chosen economic determinants. Through this rigorous analytical framework, we endeavor to enhance our understanding of how currency movements are influenced by and, in turn, influence these select economic factors.*

H0: There is no significant relationship of currency with select economic factors

H1: There is significant relationship of currency with select economic factors

VECTOR ERROR CORRELATION ESTIMATES

The study examined the relationship of Currency fluctuations with the Indian Economy's select factors. The study has considered the five indices based on the tenure. The study applied the statistical method of VECM or Vector Error Correction Model, as the indices data is in a Time Series nature, The study has framed the following hypothesis,

H0: There is no long-run relationship of Currency fluctuations with the Indian Economy.
H1: There is a long-run relationship of Currency fluctuations with the Indian Economy.

Table No – 2

Vector Error Correction Estimates currency with economic factors

Vector Error Correction Estimates					
Sample (adjusted): 5 51					
Included observations: 47 after adjustments					
Standard errors in ( ) & t-statistics in [ ]					
Cointegrating Eq:	CointEq1				
RUPEE(-1)	1.000000				
GDP(-1)	-0.576055				
	(0.23371)				
	[-2.46483]				
IIP(-1)	0.118429				
	(0.01536)				
	[7.70943]				
INFLATION(-1)	-0.511404				
	(0.04672)				
	[-10.9472]				
REPO_RATE(-1)	-1.579936				
	(0.66584)				
	[-2.37284]				
C	-2.356888				
Error Correction:	D(RUPEE)	D(GDP)	D(IIP)	D(INFLATION)	D(REPO_RATE)
CointEq1	-0.302457	0.751883	1.214051	0.070959	-0.059498
	(0.16403)	(0.67386)	(1.58280)	(0.39285)	(0.02403)
	[-1.84392]	[1.11579]	[0.76703]	[0.18063]	[-2.47592]
D(RUPEE(-1))	0.230724	0.488116	-2.063515	0.071562	-0.023538
	(0.18989)	(0.78009)	(1.83234)	(0.45478)	(0.02782)
	[1.21505]	[0.62572]	[-1.12616]	[0.15735]	[-0.84610]
D(RUPEE(-2))	0.279452	0.195212	-0.060784	0.117344	0.044810
	(0.18322)	(0.75269)	(1.76798)	(0.43881)	(0.02684)
	[1.52523]	[0.25935]	[-0.03438]	[0.26742]	[1.66939]

D(RUPEE(-3))	-0.065415	-0.434172	-2.546880	-0.434748	0.007572
	(0.16480)	(0.67704)	(1.59028)	(0.39470)	(0.02414)
	[-0.39692]	[-0.64128]	[-1.60153]	[-1.10146]	[0.31363]
D(GDP(-1))	-0.187833	-0.586233	0.610665	-0.020400	-0.017057
	(0.07674)	(0.31525)	(0.74048)	(0.18379)	(0.01124)
	[-2.44772]	[-1.85958]	[0.82469]	[-0.11100]	[-1.51724]
D(GDP(-2))	-0.165669	-0.594012	0.329661	0.019691	-0.008584
	(0.06077)	(0.24963)	(0.58635)	(0.14553)	(0.00890)
	[-2.72638]	[-2.37955]	[0.56222]	[0.13530]	[-0.96426]
D(GDP(-3))	-0.045881	-0.439433	0.189913	-0.065865	-0.005440
	(0.04333)	(0.17802)	(0.41815)	(0.10378)	(0.00635)
	[-1.05878]	[-2.46844]	[0.45418]	[-0.63464]	[-0.85698]
D(IIP(-1))	0.014411	0.121664	-0.771475	-0.070439	0.009673
	(0.05484)	(0.22528)	(0.52914)	(0.13133)	(0.00803)
	[0.26280]	[0.54007]	[-1.45797]	[-0.53634]	[1.20411]
D(IIP(-2))	0.022753	0.115789	-0.499522	0.041817	0.011988
	(0.04600)	(0.18899)	(0.44390)	(0.11018)	(0.00674)
	[0.49459]	[0.61268]	[-1.12529]	[0.37954]	[1.77878]
D(IIP(-3))	0.067303	0.165973	-0.273622	0.036699	-0.003628
	(0.04585)	(0.18836)	(0.44244)	(0.10981)	(0.00672)
	[1.46786]	[0.88114]	[-0.61844]	[0.33420]	[-0.54012]
D(INFLATION(-1))	-0.109674	-0.360596	2.468304	0.163999	-0.024719
	(0.19215)	(0.78937)	(1.85412)	(0.46019)	(0.02815)
	[-0.57078]	[-0.45682]	[1.33125]	[0.35637]	[-0.87813]
D(INFLATION(-2))	-0.313038	-0.181106	1.073451	-0.333407	-0.057144
	(0.15334)	(0.62996)	(1.47969)	(0.36726)	(0.02247)
	[-2.04142]	[-0.28749]	[0.72546]	[-0.90783]	[-2.54369]
D(INFLATION(-3))	-0.144631	-0.180686	0.876045	-0.148511	-0.024351
	(0.17353)	(0.71289)	(1.67449)	(0.41560)	(0.02542)
	[-0.83346]	[-0.25346]	[0.52317]	[-0.35734]	[-0.95784]
D(REPO_RATE(-1))	-0.934014	-3.716805	15.24907	-0.489165	0.656460
	(1.22243)	(5.02191)	(11.7958)	(2.92770)	(0.17909)

	[-0.76406]	[-0.74012]	[1.29275]	[-0.16708]	[3.66558]
D(REPO_RATE(-2))	-0.909075	-0.589190	1.386218	1.062344	-0.306970
	(1.38340)	(5.68319)	(13.3491)	(3.31321)	(0.20267)
	[-0.65713]	[-0.10367]	[0.10384]	[0.32064]	[-1.51463]
D(REPO_RATE(-3))	0.513492	2.402931	-0.365464	-0.007981	-0.060454
	(1.12915)	(4.63870)	(10.8957)	(2.70429)	(0.16542)
	[0.45476]	[0.51802]	[-0.03354]	[-0.00295]	[-0.36545]
C	1.247123	0.759106	-4.229917	2.070399	0.127081
	(0.52898)	(2.17314)	(5.10443)	(1.26691)	(0.07750)
	[2.35758]	[0.34931]	[-0.82868]	[1.63422]	[1.63983]
R-squared	0.486444	0.755966	0.314688	0.300107	0.650808
Adj. R-squared	0.212548	0.625815	-0.050812	-0.073169	0.464572
Sum sq. resids	73.62510	1242.556	6855.447	422.3082	1.580189
S.E. equation	1.566579	6.435723	15.11671	3.751925	0.229506
F-statistic	1.776017	5.808358	0.860979	0.803981	3.494540
Log likelihood	-77.23781	-143.6474	-183.7824	-118.2864	13.03607
Akaike AIC	4.010120	6.836060	8.543933	5.756869	0.168678
Schwarz SC	4.679322	7.505262	9.213135	6.426071	0.837880
Mean dependent	0.748213	-0.083685	-0.692908	1.483050	-0.016312
S.D. dependent	1.765389	10.52093	14.74670	3.621763	0.313649
Determinant resid covariance (dof adj.)		1437.825			
Determinant resid covariance		152.3432			
Log likelihood		-451.5647			
Akaike information criterion		23.04531			
Schwarz criterion		26.58814			
Number of coefficients		90			

The presented Vector Error Correction model elucidates the relationship between currency fluctuations and select economic factors. In this, Rupee acts as independent variable and GDP, Inflation, Index of Industrial Production and Repo-Rate are considered as Dependent variable. It estimated that, the coefficient value of GDP and Inflation is found to be Positively related with Rupee with coefficient value being 0.488116 & 0.071562 respectively. The Index of

Industrial Production and Repo-Rate display a coefficient value of -2.063515 & -0.023538 respectively which implies Repo-Rate and Index of Industrial Production have a negative relationship with the Rupee. Further the r-square of the model for each variable are observed to be within the above recommended level (>0.60) implying acceptability of model.

SYSTEM EQUATION

C(1)=c(3)=c(8)=c(13)=0

C(1)=c(4)=c(9)=c(14)=0

C(1)=c(6)=c(11)=c(16)=0

C(1)=c(5)=c(10)=c(15)=0

D(RUPEE) = C(1)*(RUPEE(-1) - 0.576054856651*GDP(-1) + 0.118428688405*IIP(-1) - 0.511403976316*INFLATION(-1) - 1.57993577494*REPO_RATE(-1) - 2.35688846923) + C(2)*D(RUPEE(-1)) + C(3)*D(GDP(-1)) + C(4)*D(IIP(-1)) + C(5)*D(INFLATION(-1)) + C(6)*D(REPO_RATE(-1)) + C(7)*D(RUPEE(-2)) + C(8)*D(GDP(-2)) + C(9)*D(IIP(-2)) + C(10)*D(INFLATION(-2)) + C(11)*D(REPO_RATE(-2)) + C(12)*D(RUPEE(-3)) + C(13)*D(GDP(-3)) + C(14)*D(IIP(-3)) + C(15)*D(INFLATION(-3)) + C(16)*D(REPO_RATE(-3)) + C(17)

WALD TEST

GROSS DOMESTIC PRODUCT

Null hypothesis: There is no long run relationship between GDP and the Rupee.
Alternative hypothesis: there is long run relationship between GDP and the Rupee.

Table No – 4

Wald Test of GDP and the Rupee

System: %system			
Test Statistic	Value	Df	Probability
Chi-square	8.393987	4	0.0782

The Wald Test conducted for Gross Domestic Product (GDP) in relation to the Rupee indicates a chi-square test statistic of 8.393987 with 4 degrees of freedom and a corresponding

probability value of 0.0782. Since this p-value exceeds the commonly accepted significance level of 0.05, we fail to reject the null hypothesis. Therefore, based on this analysis, we conclude that there is no long-run relationship between GDP and the Rupee, as the p-value suggests insufficient evidence to support an alternative hypothesis indicating a significant relationship.

INDEX OF INDUSTRIAL PRODUCTION

Null hypothesis: There is no long run relationship between IIP and the Rupee.

Alternative hypothesis: There is long run relationship between IIP and the Rupee.

Table No – 5

Wald Test of IIP and the Rupee

System: %system			
Test Statistic	Value	Df	Probability
Chi-square	6.631113	4	0.1567

The Wald Test conducted for the relationship between the Index of Industrial Production (IIP) and the Rupee yields a chi-square test statistic of 6.631113 with 4 degrees of freedom, resulting in a probability value of 0.1567. Given that this p-value exceeds the common significance level of 0.05, we fail to reject the null hypothesis. Consequently, we conclude that there is no long-term relationship between the Index of Industrial Production and the Rupee. The p-value provides insufficient evidence to support an alternative hypothesis suggesting a significant relationship.

REPO RATE

Null hypothesis: there is no long run relationship between Repo-rate and the Rupee.

Alternative hypothesis: there is long run relationship between Repo-rate and the Rupee.

Table No – 6

Wald Test of Repo rate and the Rupee

System: %system			
Test Statistic	Value	Df	Probability

Chi-square	5.372832	4	0.2511

The Wald Test results for the relationship between Repo Rate and the Rupee reveal a chi-square test statistic of 5.372832 with 4 degrees of freedom. The associated probability value is 0.2511, surpassing the conventional significance threshold of 0.05. Consequently, we do not find sufficient evidence to reject the null hypothesis. This leads us to conclude that there is no significant long-term relationship between Repo Rate and the Rupee. The p-value supports the notion that no meaningful connection exists between these variables.

INFLATION

Null hypothesis: there is no long run relationship between Inflation and the Rupee.

Alternative hypothesis: there is long run relationship between Inflation and the Rupee.

Table No – 7 Wald Test of Inflation and the Rupee

System: %system			
Test Statistic	Value	Df	Probability
Chi-square	5.826151	4	0.2125

The Wald Test results for the relationship between Inflation and the Rupee yield a chi-square test statistic of 5.826151 with 4 degrees of freedom. The associated probability value is 0.2125, which exceeds the conventional significance level of 0.05. Consequently, we retain the null hypothesis and conclude that there is no significant long-term relationship between Inflation and the Rupee. The p-value suggests that these variables do not exhibit a meaningful connection in the long run.

*In the pursuit of understanding and quantifying the **influence of currency fluctuations on specific economic factors,** this study employs the tried-and-true Ordinary Least Squares (OLS) model, commonly known as the regression model. OLS stands as a robust statistical method utilized to gauge the impact of independent variables on additive variables, offering a standardized approach to approximating outcomes within a linear framework. This methodology serves as a powerful tool for estimating coefficients in linear regression equations, effectively elucidating the relationships between one or more independent quantitative variables and a dependent variable. Moreover, the Ordinary Least Squares method excels in parameter estimation within linear regression models, ultimately leading to the minimization of squared errors and providing valuable insights into the multifaceted interplay between currency fluctuations and select economic determinants.*

H0: There is no Impact of currency fluctuations on select economic factors.

H1: There is Impact of currency fluctuations on select economic factors.

Table No – 8

Ordinary least Square of currency fluctuations on economic factors

Dependent Variable: RUPEE				
Method: Least Squares				
Sample: 1 51				
Included observations: 51				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	25.79481	5.166151	4.993043	0.0000
GDP	-0.094712	0.045233	-2.093859	0.0418
IIP	-0.170886	0.012910	-13.23668	0.0000
INFLATION	0.427984	0.021326	20.06822	0.0000
REPO_RATE	0.620583	0.319685	1.941231	0.0584
R-squared	0.963349	Mean dependent var		63.32418
Adjusted R-squared	0.960162	S.D. dependent var		9.884572
S.E. of regression	1.972900	Akaike info criterion		4.289780
Sum squared resid	179.0474	Schwarz criterion		4.479175
Log likelihood	-104.3894	Hannan-Quinn criter.		4.362154
F-statistic	302.2730	Durbin-Watson stat		0.987462
Prob(F-statistic)	0.000000			

The table shows Ordinary Least Squares represents that the Rupee has a significant impact on the variables. The GDP is influenced by -0.094712 units which is found to be highly influenced by the Currency value. Also we see the value effect on the Index of industrial Production to be -0.170886 units and inflation is positively effect by 0.427984 units and repo-rate is influenced by 0.620583 units which is the highest observed effect through this analysis. The adjusted R-square and the R-square of the model are above the recommended level (i.e., 0.60) at 0.960162 and 0.963349 respectively, which implies the model is favourable. Hence, we accept the null hypothesis and reject the alternative hypothesis.

FINDINGS OF THE STUDY

1. The study indicates that GDP and Inflation exhibit a positive relationship with the Rupee, with coefficient values of 0.488116 and 0.071562, whereas the Index of Industrial Production (-2.063515) and Repo Rate (-0.023538) show a negative association, and the model demonstrates acceptability with R-square values above 0.60.
2. The study found that the Wald Test for GDP (χ^2 = 8.393987) is statistically insignificant, indicating no long-run relationship between GDP and the Rupee.
3. The study identifies that the Wald Test for the Index of Industrial Production (χ^2 = 6.631113) is insignificant, suggesting no long-term relationship with the Rupee.
4. The study examines that the Wald Test for Repo Rate (χ^2 = 5.372832) shows no statistical significance, confirming no meaningful long-run relationship with the Rupee.
5. The study results reveal that the Wald Test for Inflation (χ^2 = 5.826151) is insignificant, indicating no long-term association with the Rupee.
6. The study indicates that OLS results show significant short-run impacts of the Rupee on variables, with effects on GDP (-0.094712), IIP (-0.170886), Inflation (0.427984), and Repo Rate (0.620583, highest impact), and strong model fit with R^2 = 0.963349 and Adjusted R^2 = 0.960162, supporting acceptance of the null hypothesis.

CONCLUSION

In conclusion, the study has shed light on the multifaceted relationship between various economic variables and the currency fluctuation of the Rupee. It has revealed both positive and negative associations between these factors. Specifically, a positive link was established between GDP and Inflation, suggesting that an upswing in these indicators contributes to a strengthened Rupee. Conversely, the study found a negative correlation between the Index of Industrial Production and Repo-Rate, implying that these variables exert a dampening effect on the Rupee's future trajectory. Moreover, the absence of a long-run relationship between GDP, Index of Industrial Production, Inflation, and Repo-Rate with currency fluctuation suggests their predominantly short-run impact. Furthermore, the study underscores that a decrease in GDP or IIP triggers reduced Rupee demand, leading to depreciation, whereas growth in these areas bolsters Rupee value. Additionally, the positive relationship with Inflation indicates that rising prices erode the Rupee's purchasing power, contributing to depreciation. In sum, the findings underscore the substantial influence of economic

performance, as encapsulated by GDP, IIP, Inflation, and Repo-Rate, on the dynamics of the Rupee's currency fluctuation.

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