

Analysis of Macro-Economic Determinants of Exchange Rate Volatility in India

Dr. G. Indhumathi

Associate Professor, Department of Commerce, Mother Teresa Women's University, Kodaikanal, Tamilnadu, India.

DOI: <https://doi.org/10.47772/IJRISS.2026.100800745>

Received: 29 August 2026; Accepted: 08 September 2026; Published: 17 September 2026

ABSTRACT

The present study investigates the macroeconomic determinants of exchange rate volatility in India for the period from 2010-11 to 2023-24. Exchange rate stability is important for economic growth, international trade, foreign investment, inflation control and financial stability. This study aims to analyze the trend of Indian Rupee against US Dollar and to find out its relationship with selected macroeconomic variables such as inflation, interest rate, Gross Domestic Product, current account balance, Foreign Direct Investment and external debt. The study is based on time series data and the analysis takes into account a total of annual observations. The selected macroeconomic variables are examined using descriptive statistics and Pearson correlation analysis. The results revealed that Indian Rupee has shown overall deprecating trend against the US Dollar during the period of study and it indicate a significant negative relationship between exchange rate and inflation, and exchange rate and interest rate. It is observed that there is a very strong positive relationship between exchange rate and GDP and exchange rate and external debt. However, the relationship between exchange rate and current account balance and between exchange rate and FDI is weak and statistically insignificant. The study also reveals that the exchange rate movements in India are influenced by domestic and international economic factors. Therefore, a technique needs to be found to effectively manage inflation, interest rates, external debt, foreign exchange reserves and investment flows to sustain exchange rate stability. The study provides suggestions for policymakers to evolve appropriate economic policies to curb exchange rate volatility and support sustainable economic growth.

Keywords: Exchange Rate Volatility, Inflation, Interest Rate, GDP, External Debt

INTRODUCTION

Macroeconomic variables are important indicators that help assess the performance of an economy, its stability and how it is growing. In India, variables such as GDP, inflation, interest rate, current account balance, FDI, external debt, crude oil price, gold price play a major role in determining the economic conditions. These variables are interrelated so changes in one can affect others and thereby impact economic growth, financial stability, international competitiveness and exchange rate movements.

Exchange rate volatility is the fluctuation or instability in the value of a domestic currency against foreign currencies over time. High volatility suggests quick and unpredictable fluctuations, whereas low volatility represents generally stable movements. These changes are impacted by macroeconomic variables such as inflation, interest rates, economic growth, trade balance, capital flows, and foreign investment, as well as worldwide economic situations. Exchange rate volatility is significant because it influences international trade, investment, inflation, financial risk, and general economic stability.

Since the 1991 economic liberalization changes, India's currency rate volatility has grown significantly as the country has become more integrated with the global economy. The Indian rupee, particularly against the US dollar, is influenced by both domestic economic conditions and international factors, such as global commodity prices. Understanding the relationship between macroeconomic variables and exchange rate volatility is critical for analyzing India's economic stability and global competitiveness. Such research can assist policymakers in developing effective strategies to promote currency stability, attract foreign investment,

manage external risks, and support long-term economic growth.

Impact of Exchange rate volatility on Macroeconomic variables:

- Exchange rate movements affect trade, inflation, investment, interest rates, and economic growth.
- Trade and Economic Growth: Rupee depreciation makes exports cheaper and imports costlier, which may improve net exports and support GDP growth.
- Investment and Investor Confidence: Stable exchange rates encourage FDI and portfolio investment, while high volatility can discourage investors and cause capital outflows.
- Inflation and Oil Prices: Rupee depreciation increases the cost of imported goods, particularly crude oil, leading to higher fuel prices and greater fiscal pressure on the government.
- Interest Rates and Investment: Higher interest rates may help stabilize the currency and attract foreign capital but can reduce domestic investment and consumption.
- External Debt and Corporate Sector: Depreciation increases the rupee cost of foreign-currency debt repayments and affects companies engaged in imports, exports, and foreign borrowings, potentially reducing profitability.
- Market Stability: Stable exchange rates strengthen investor confidence, reduce uncertainty, and support long-term economic planning.

REVIEW OF LITERATURE

Arup Banik (2025) examined the factors that influence currency rate volatility in India from 2010 to 2024. The study used data from the RBI, IMF, World Bank, Ministry of Finance, and BSE. It discovered that crude oil prices, gold prices, inflation, FDI, balance of payments, budget deficit, and investor behavior all influenced the Indian rupee. The study emphasized the importance of correct economic policies in ensuring currency stability.

Shivani Gupta and Priti Sharma (2025) analysed the impact of macroeconomic variables on India's exchange rate. They used data from 1993-94 to 2023-24 and employed the OLS regression approach. According to the study, the balance of payments and GDP had a considerable influence on the exchange rate. Foreign investment and foreign exchange reserves had less impact.

Namithkumar Nair and M. S. Suganthiya (2025) studied the impact of interest rates, inflation, GDP growth, and FDI on exchange rates in India from 2014 to 2023. The researchers discovered that higher interest rates had a considerable impact on exchange rate movements. FDI, GDP growth, and inflation had weaker effects.

Raj Kumar Singh, Tarun Sharma, Yashvardhan Singh, Ajay Kumar, and Sunil Kumar (2025) investigated volatility spillovers across BRICS foreign exchange markets between 2015 and 2025. The study discovered that market links grew stronger during crisis moments. India was mostly the recipient of volatility from other markets. Negative shocks had a significant impact on cross market volatility.

Bhagyajyothi S. Kannur and Manjulamma B. S. (2025) used the ARDL approach to investigate the factors that influence currency rates in India. The study looked at GDP, FDI, FII, current account deficit, foreign exchange reserves, and inflation. It discovered both short- and long-term correlations between these variables and exchange rate changes. The study stressed the necessity of macroeconomic stability.

Ashima Goyal and Sritama Ray (2025) investigated the effects of currency rate volatility on borrowing rates in emerging markets. The researchers discovered that significant exchange rate volatility raised currency risk and borrowing costs. India could mitigate these risks by managing exchange rate flexibility and properly regulating capital flows.

Neeraj Emmanuel Eusebius (2025) examined the impact of exchange rates, crude oil prices, and GDP on

inflation in India between 1987 and 2023. The study discovered that currency devaluation and rising crude oil prices greatly boosted inflation. GDP had a lower short-term effect. The analysis emphasized the need of exchange rate and oil price stability.

Himanshi Garg and Shakti Singh (2025) looked at the relationship between currency rates, Indian stocks, and American Depository Receipts. The analysis discovered a high short- and long-run correlation between exchange rates and stock prices. Exchange rates played a significant role in integrating the Indian and US financial systems.

Tarif Hussain and Amiya Sarma (2025) examined the factors influencing the rupee-dollar exchange rate between 1993 and 2023. The study used the ARDL model to determine how inflation, interest rates, foreign portfolio investment, the current account balance, and oil prices affected the exchange rate. The study emphasized the significance of coordinating economic policy.

Vikkirala Sai Akash and M. Prasad Rao (2025) analysed the relationship between macroeconomic indicators, exchange rate fluctuations, and the Indian stock market. The study looked at GDP growth, inflation, interest rates, the budget deficit, and the INR/USD exchange rate. It discovered that economic conditions and exchange rate movements have a considerable impact on investor behavior and stock market performance.

Aamir Aijaz Syed, Assad Ullah, Simon Grima, Muhammad Abdul Kamal, and Kiran Sood (2025) investigated the effects of COVID-19 and lockdown measures on exchange rate volatility in India. The researchers discovered that the early phases of COVID-19 enhanced volatility. Later, rigorous lockdowns helped to limit instability. The study found both epidemic circumstances and government policy influenced currency movements.

Doyel Aich and Shankhadeep Mondal (2026) examined the factors of Indian rupee depreciation versus the US dollar between 2010 and 2024. The study made use of the ARDL model. Crude oil prices and the strength of the US dollar were shown to have a considerable short-term impact on the rupee. Inflation and interest rate changes had a less impact.

Imran Khan (2026) investigated the factors that influenced foreign financial inflows into India from 1991 to 2023. According to the study, GDP growth, trade openness, and currency rate stability all contribute to attract foreign investment. Higher interest rates and a stronger exchange rate may deter some capital inflows. The study emphasized the necessity of economic stability.

Nikhil Bhardwaj, Ivana Miklošević, and Naline Chauhan (2026) examined the impact of global shocks on India's macroeconomic indicators between 1993 and 2024. The study concentrated on oil price shocks, the global financial crisis, and COVID-19. It discovered that global shocks influenced inflation, industrial production, and exchange rates. India had some resilience, but remained vulnerable to foreign shocks.

OBJECTIVES OF THE STUDY

The present study aims to analyse exchange rate volatility in India and understand its changing patterns over time. It also seeks to examine the relationship between the exchange rate and major macroeconomic variables such as inflation, interest rate, Gross Domestic Product (GDP), current account balance, Foreign Direct Investment (FDI), and external debt. Further, the study aims to identify the key macroeconomic factors that significantly influence exchange rate fluctuations in India.

HYPOTHESIS OF THE STUDY

The following are the Null Hypothesis of this study.

H01: There is no significant relationship between Exchange Rate and Inflation Rate.

H02: There is no significant relationship between Exchange Rate and Interest Rate.

H03: There is no significant relationship between Exchange Rate and Current Account Balance.

H04: There is no significant relationship between Exchange Rate and GDP.

H05: There is no significant relationship between Exchange Rate and FDI.

H06: There is no significant relationship between Exchange Rate and External Debt.

METHODOLOGY OF STUDY

The study uses 14 annual observations covering the period from 2010–11 to 2023–24. The study is based on secondary time-series data, with each year considered as one observation. Thus, the total sample size is 14 years. This period helps to study the trends and relationship between exchange rate volatility and selected macroeconomic variables, including both short-term fluctuations and long-term changes.

The main sources of data are the Reserve Bank of India (RBI) and the World Bank. The RBI provides data on exchange rates, interest rates, and other financial indicators. The World Bank provides data on GDP, inflation, external debt, and Foreign Direct Investment (FDI). The collected data are organized and used for statistical analysis to achieve the objectives of the study.

TOOLS USED FOR ANALYSIS

Descriptive statistics summarize the data using mean, standard deviation, minimum, and maximum values. They help to understand the average, variation, and overall pattern of the variables. Correlation analysis measures the relationship between exchange rate and macroeconomic variables. The Pearson correlation coefficient ranges from -1 to +1, showing the direction and strength of the relationship. A p-value below 0.01 indicates a significant relationship.

ANALYSIS OF MACRO-ECONOMIC DETERMINANTS OF EXCHANGE RATE VOLATILITY IN INDIA

Table 1 – Exchange Rate of Indian Rupee against US \$ for the period from 2010-11 to 2023-24

Year	Exchange Rate against US \$
2010-11	45.56
2011-12	47.92
2012-13	54.41
2013-14	60.50
2014-15	61.14
2015-16	65.47
2016-17	67.07
2017-18	64.45
2018-19	69.92
2019-20	70.90
2020-21	74.23
2021-22	74.50
2022-23	80.36
2023-24	82.79

Source: RBI Publications – World Development Indicators

The exchange rate of the Indian Rupee against the US Dollar shows an overall depreciating trend during 2010–11 to 2023–24. The rupee moved from ₹45.56 per US dollar in 2010–11 to ₹82.79 in 2023–24. Although there were some temporary improvements, the overall trend indicates a weakening of the rupee. Global economic conditions, inflation, import costs, and changes in capital flows may have contributed to this movement.

Table 2 – Inflation Rates in India for the period from 2010-11 to 2023-24

Year	Inflation (CPI)
2010-11	8.91
2011-12	9.48
2012-13	10.02
2013-14	6.67
2014-15	4.91
2015-16	4.95
2016-17	3.33
2017-18	3.94
2018-19	3.73
2019-20	6.62
2020-21	5.13
2021-22	6.7
2022-23	5.65
2023-24	4.95

Source: RBI Publications – World Development Indicators

Inflation showed considerable fluctuations during the study period. It was high in the early years, reaching 10.02% in 2012–13, and then declined to 3.33% in 2016–17. After 2019–20, inflation increased again but gradually moderated to 4.95% in 2023–24. Overall, inflation moved from a high level to a more moderate and stable level.

Table 3 – Interest Rate (Lending Rates) in India for the period from 2010-11 to 2021-22

Year	Interest Rate % (Lending Rates)
2010-11	10.2
2011-12	10.6
2012-13	10.3
2013-14	10.3
2014-15	10.0
2015-16	9.7
2016-17	9.5
2017-18	9.5
2018-19	9.5
2019-20	9.2
2020-21	8.7
2021-22	8.6

Source: RBI Publications – World Development Indicators

The lending interest rate was relatively high during the beginning of the study period, reaching 10.6% in 2011–12. It gradually declined in the later years and reached 8.6% in 2021–22. This indicates a general reduction in lending rates, which may support borrowing, investment, and consumption.

Table 4 – Current Account Balance (Current US \$) in India for the period from 2010-11 to 2023-24

Year	Current Account Balance (Current US \$ million)
2010-11	-62517.64
2011-12	-91471.25
2012-13	-49122.67
2013-14	-27314.28

2014-15	-22456.84
2015-16	-12113.79
2016-17	-38167.66
2017-18	-65599.44
2018-19	-29762.86
2019-20	32730.05
2020-21	-33422.36
2021-22	-79050.94
2022-23	-31955.50
2023-24	-32148.82

Source: RBI Publications – World Development Indicators

India's current account balance showed significant fluctuations and remained mostly in deficit during the study period. The deficit was particularly high in 2011–12 and 2021–22. India recorded a surplus only in 2019–20, mainly due to lower imports and favourable trade conditions. Overall, the data indicate a continuing imbalance between exports and imports.

Table 5 – GDP Growth (Current US \$) in India for the period from 2010-11 to 2023-24

Year	GDP (Current US \$ Billion)
2010-11	1823.05
2011-12	1827.64
2012-13	1856.72
2013-14	2039.13
2014-15	2103.59
2015-16	2294.80
2016-17	2651.47
2017-18	2702.93
2018-19	2835.61
2019-20	2674.85
2020-21	3167.27
2021-22	3346.11
2022-23	3638.49
2023-24	3909.89

Source: RBI Publications – World Development Indicators

India's GDP showed a clear increasing trend from \$1,823.05 billion in 2010–11 to \$3,909.89 billion in 2023–24. There was a temporary decline in 2019–20, but the economy recovered in the following years. This indicates overall economic growth despite occasional fluctuations.

Table 6 – Foreign Direct Investment (Current US \$) in India for the period from 2010-11 to 2023-24

Year	FDI (Current US \$ Million)
2010-11	36498.7
2011-12	23995.7
2012-13	28153.0
2013-14	34576.6
2014-15	44009.5
2015-16	44458.6
2016-17	39966.1
2017-18	42117.5
2018-19	50610.6
2019-20	64362.4

2020-21	44727.3
2021-22	49940.3
2022-23	28086.2
2023-24	27139.9

Source: RBI Publications – World Development Indicators

Foreign Direct Investment (FDI) inflows showed fluctuations throughout the study period. FDI increased significantly and reached a peak of \$64,362.4 million in 2019–20. However, inflows declined in the following years and reached \$27,139.9 million in 2023–24. The changes may reflect variations in global economic conditions, government policies, and investor confidence.

Table 7 – External Debt (Current US \$) in India for the period from 2010-11 to 2023-24

Year	External Debt (Current US \$ Billion)
2010-11	334.40
2011-12	392.58
2012-13	427.25
2013-14	457.51
2014-15	478.83
2015-16	455.54
2016-17	511.58
2017-18	521.18
2018-19	561.02
2019-20	564.98
2020-21	611.99
2021-22	615.51
2022-23	647.56
2023-24	716.46

Source: RBI Publications – World Development Indicators

India's external debt generally showed an increasing trend, rising from \$334.40 billion in 2010–11 to \$716.46 billion in 2023–24. Although there was a small decline in 2015–16, external debt increased steadily afterward. This indicates greater use of external financing and India's growing integration with international financial markets.

Table 8 – Analysis of relationship between Exchange Rate and Inflation Rate

Descriptive Statistics

	Mean	Std. Deviation	N
Exchange Rate	65.6586	11.10283	14
Inflation Rate	6.0707	2.12657	14

Correlations

		Exchange Rate	Inflation Rate
Exchange Rate	Pearson Correlation	1	-.638**
	Sig. (1-tailed)		.007
	N	14	14
Inflation Rate	Pearson Correlation	-.638**	1
	Sig. (1-tailed)	.007	
	N	14	14

** . Correlation is significant at the 0.01 level (1-tailed)

The descriptive statistics show that the mean exchange rate during the study period was 65.6586, with a

standard deviation of 11.10283 based on 14 observations. This indicates that the exchange rate experienced a moderate level of variation over the study period. The mean inflation rate was 6.0707%, with a standard deviation of 2.12657, indicating moderate fluctuations in inflation levels.

The correlation analysis shows a negative relationship between exchange rate and inflation rate, with a Pearson correlation coefficient of -0.638. This indicates a moderate to strong inverse relationship, suggesting that an increase in the exchange rate is associated with a decrease in the inflation rate, and vice versa, within the study data. The p-value of 0.007 is less than the 0.01 significance level. Therefore, the relationship is statistically significant at the 1% level, and the null hypothesis

(H01) “There is no significant relationship between Exchange Rate and Inflation Rate” is rejected.

Table 9 – Analysis of relationship between Exchange Rate and Interest Rate (Lending Rates)

Descriptive Statistics

	Mean	Std. Deviation	N
Exchange Rate	63.0058	9.57499	12
Interest Rate	9.6750	.63550	12

Correlations

		Exchange Rate	Interest Rate
Exchange Rate	Pearson Correlation	1	-.894**
	Sig. (1-tailed)		.000
	N	12	12
Interest Rate	Pearson Correlation	-.894**	1
	Sig. (1-tailed)	.000	
	N	12	12

** . Correlation is significant at the 0.01 level (1-tailed)

The descriptive statistics indicate that the mean exchange rate is 63.0058, with a standard deviation of 9.57499, based on 12 observations. This shows that the exchange rate experienced a moderate level of variation during the study period. The mean interest rate is 9.6750%, with a standard deviation of 0.63550, indicating that the interest rate remained relatively stable with only limited fluctuations.

The correlation analysis shows a strong negative relationship between the exchange rate and interest rate, with a Pearson correlation coefficient of -0.894. This indicates that the two variables tend to move in opposite directions; when the exchange rate increases, the interest rate tends to decrease, and vice versa. The p-value of 0.000 is less than the 0.01 significance level, indicating that the relationship is statistically significant at the 1% level. Therefore, the null hypothesis **(H02) “There is no significant relationship between Exchange Rate and Interest Rate”** is rejected, confirming that there is a significant relationship between exchange rate and interest rate.

Table 10 – Analysis of relationship between Exchange Rate and Current Account Balance

Descriptive Statistics

	Mean	Std. Deviation	N
Exchange Rate	63.0058	9.57499	14
Current Account Balance	9.6750	.63550	14

Correlations

		Exchange Rate	Current Account Balance
Exchange Rate	Pearson Correlation	1	.393
	Sig. (1-tailed)		.082
	N	14	14
Current Account Balance	Pearson Correlation	.393	1
	Sig. (1-tailed)	.082	
	N	14	14

The descriptive statistics show that the mean exchange rate is 63.0058, with a standard deviation of 9.57499, based on 14 observations. This indicates a moderate level of variation in the exchange rate during the study period. The mean current account balance is 9.6750, with a standard deviation of 0.63550, indicating relatively low variation in the current account balance.

The correlation analysis shows a moderate positive relationship between the exchange rate and current account balance, with a Pearson correlation coefficient of 0.393. This suggests that an increase in the exchange rate is associated with an increase in the current account balance, although the relationship is relatively moderate. The p-value of 0.082 is greater than the 0.01 significance level. Therefore, the relationship is not statistically significant at the 1% level, and the null hypothesis (**H03**) “**There is no significant relationship between Exchange Rate and Current Account Balance**” is accepted.

Table 11 – Analysis of relationship between Exchange Rate and GDP

Descriptive Statistics

	Mean	Std. Deviation	N
Exchange Rate	65.6586	11.10283	14
GDP	2633.6821	687.13596	14

Correlations

		Exchange Rate	GDP
Exchange Rate	Pearson Correlation	1	.942**
	Sig. (1-tailed)		.000
	N	14	14
GDP	Pearson Correlation	.942**	1
	Sig. (1-tailed)	.000	
	N	14	14

** . Correlation is significant at the 0.01 level (1-tailed)

The descriptive statistics indicate that the mean exchange rate is 65.6586, with a standard deviation of 11.10283, based on 14 observations. This indicates a moderate level of variation in the exchange rate during the study period. The mean GDP is 2633.6821, with a standard deviation of 687.13596, showing considerable variation in GDP over the study period.

The correlation analysis shows a very strong positive relationship between the exchange rate and GDP, with a Pearson correlation coefficient of 0.942. This indicates that the exchange rate and GDP tend to move in the same direction, meaning an increase in the exchange rate is associated with an increase in GDP. The p-value of 0.000 is less than the 0.01 significance level, indicating that the relationship is statistically significant at the 1% level. Therefore, the null hypothesis (**H04**) “**There is no significant relationship between Exchange Rate and GDP**” is rejected, confirming that there is a significant relationship between the exchange rate and GDP.

Table 12 – Analysis of relationship between Exchange Rate and FDI

Descriptive Statistics

	Mean	Std. Deviation	N
Exchange Rate	65.6586	11.10283	14
Foreign Direct Investment	39903.029	11139.1859	14

Correlations

		Exchange Rate	FDI
Exchange Rate	Pearson Correlation	1	.249
	Sig. (1-tailed)		.196
	N	14	14
Foreign Direct Investment	Pearson Correlation	.249	1
	Sig. (1-tailed)	.196	
	N	14	14

The descriptive statistics show that the mean exchange rate is 65.6586, with a standard deviation of 11.10283, based on 14 observations. This indicates a moderate level of variation in the exchange rate during the study period. The mean Foreign Direct Investment (FDI) is 39,903.029, with a standard deviation of 11,139.1859, indicating considerable variation in FDI inflows over the study period.

The correlation analysis indicates a weak positive relationship between the exchange rate and FDI, with a Pearson correlation coefficient of 0.249. This suggests that an increase in the exchange rate is associated with a slight increase in FDI, but the relationship is weak. The p-value of 0.196 is greater than the 0.01 significance level, indicating that the relationship is not statistically significant at the 1% level. Therefore, the null hypothesis (**H05**) “**There is no significant relationship between Exchange Rate and FDI**” is accepted, indicating that there is no significant relationship between the exchange rate and FDI.

Table 13 – Analysis of relationship between Exchange Rate and External Debt

Descriptive Statistics

	Mean	Std. Deviation	N
Exchange Rate	65.6586	11.10283	14
External Debt	521.1707	105.70357	14

Correlations

		Exchange Rate	External Debt
Exchange Rate	Pearson Correlation	1	.972**
	Sig. (1-tailed)		.000
	N	14	14
External Debt	Pearson Correlation	.972**	1
	Sig. (1-tailed)	.000	
	N	14	14

** . Correlation is significant at the 0.01 level (1-tailed)

The descriptive statistics indicate that the mean exchange rate is 65.6586, with a standard deviation of 11.10283, based on 14 observations. This shows a moderate level of variation in the exchange rate during the study period. The mean external debt is 521.1707, with a standard deviation of 105.70357, indicating a considerable variation in external debt over the study period.

The correlation analysis shows a very strong positive relationship between the exchange rate and external debt, with a Pearson correlation coefficient of 0.972. This indicates that both variables tend to move in the same direction. The p-value of 0.000 is less than the 0.01 significance level, confirming that the relationship is statistically significant at the 1% level. Therefore, the null hypothesis (**H06**) “**There is no significant relationship between Exchange Rate and External Debt**” is rejected, indicating a significant relationship between the exchange rate and external debt.

FINDINGS OF THE STUDY

- Exchange rate volatility in India has increased over time due to domestic and global economic factors.
- Macroeconomic variables affect the exchange rate differently in terms of strength and direction.
- Interest rate, GDP, and external debt show strong relationships with the exchange rate.
- Inflation has a significant negative relationship with the exchange rate ($r = -0.638$).
- Interest rate has a strong negative relationship with the exchange rate ($r = -0.894$).
- GDP has a very strong positive relationship with the exchange rate ($r = 0.942$).
- External debt has a very strong positive relationship with the exchange rate ($r = 0.972$).
- Current account balance and FDI show weak and insignificant relationships with the exchange rate.
- Exchange rate movements are influenced by a combination of domestic and international factors.
- The findings highlight the need for sound macroeconomic policies and better policy coordination to maintain exchange rate stability.

SUGGESTIONS OF THE STUDY

The study suggested that inflation and interest rates must be carefully handled in order to ensure higher exchange rate stability. Efforts should also be taken to keep external debt at manageable levels while promoting consistent economic growth, enhancing exports, and effectively managing imports. To increase resilience to external shocks, the government should focus on acquiring steady, long-term FDI and boosting foreign exchange reserves. Better coordination of fiscal and monetary policy, as well as constant monitoring and timely intervention by the RBI when needed, will assist avoid excessive exchange rate volatility and boost investor confidence.

CONCLUSION

The study concludes that exchange rate volatility in India is significantly influenced by the factors like inflation, interest rates, GDP, and external debt, while current account balance and FDI have relatively weaker effects. The findings highlighted the importance of effective macroeconomic management to maintain exchange rate stability. Controlling inflation, managing interest rates, and maintaining sustainable external debt can support trade, investment, and overall economic stability in India.

REFERENCES

1. Akash, V. S., & Rao, M. P. (2025). A study on impact of macroeconomic variables and exchange rate fluctuations on the Indian stock market. *TIJER – International Research Journal*, 12(7), 1–26.
2. Aich, D., & Mondal, S. (2026). Global and macroeconomic determinants of Indian rupee depreciation against the US dollar: Evidence from an ARDL framework. *Social Science Journal for Advanced Research*, 6(1), 10–19. <https://doi.org/10.54741/SSJAR/6.1.2026.313>
3. Balikai, K. B. S., & Mustari, H. N. (2024). Unveiling dynamic volatility patterns of India’s nominal effective exchange rate through GARCH family models: An econometric analysis. *International Journal of Research and Management*, 6(2), 1–9.

4. Banik, A. (2025). Exchange rate volatility in India: A review of macroeconomic interactions (2010–2024). *Journal of Emerging Technologies and Innovative Research (JETIR)*, 12(6), 1–8.
5. Bhardwaj, N., Miklošević, I., & Chauhan, N. (2026). India's macroeconomic variables response to global scenarios—Evidence from oil price shocks, global financial crisis and COVID-19. *Econometrics*, 14(2), Article 26. <https://doi.org/10.3390/econometrics14020026>
6. Eusebius, N. E. (2025). Macroeconomic influences on India's inflation: An econometric analysis of exchange rate, oil prices and GDP. *PRAGATI: Journal of Indian Economy*, 12(2), 1–16.
7. Garg, H., & Singh, S. (2025). Cross-border dynamics: Analyzing exchange rates' impact on Indian underlying stocks and ADRs. *Arthshastra Indian Journal of Economics & Research*, 14(1), 82–97. <https://doi.org/10.17010/aijer/2025/v14i1/174337>
8. Goyal, A., & Ray, S. (2025). *Exchange rate volatility and its impact on borrowing costs* (Mumbai Working Paper No. 2025-026). Indira Gandhi Institute of Development Research.
9. Gupta, S., & Sharma, P. (2025). Role of macroeconomic factors in shaping India's exchange rate. *Journal of Advanced Management Studies*, 2(3), 1–14.
10. Hussain, T., & Sarma, A. (2025). Factors influencing rupee-dollar exchange rates in the post-reform period: An ARDL approach. *Journal Space and Culture, India*, 13(3), 1–14.
11. Jagannayaki, K., Yerramilli, S., Thavva, V. L., & Suresh, N. (2024). Assessment of exchange rate volatility using GARCH models: A case study from Indian markets. *Contemporary Research in Business, Management and Economics*, 7, 1–14.
12. Kannur, B. S., & Manjulamma, B. S. (2025). Factors influencing exchange rate in India: An ARDL approach. *International Journal of Management*, 16(4), 1–18.
13. Khan, I. (2026). An empirical analysis of macroeconomic determinants of foreign fund inflows in India. *Journal of Financial Economic Policy*, 18(1), 155–180. <https://doi.org/10.1108/JFEP-10-2024-0304>
14. Kumar, N., & Goel, D. (2024). Macroeconomic determinants of price dynamics in the Indian stock market. *Indian Journal of Finance*, 18(9), 25–41. <https://doi.org/10.17010/ijf/2024/v18i9/174457>
15. Kushwah, S. V., & Negi, P. (2024). COVID-19 pandemic and volatility spillover effects on foreign exchange rates. *Indian Journal of Finance*, 18(6), 1–6.
16. Maitra, B., & Ganguli, D. (2024). Fiscal policy and real exchange rate variations in India. *Eurasian Economic Review*, 14(3), 619–640. <https://doi.org/10.1007/s40822-024-00276-w>
17. Mohapatra, A. K., Mohanty, D., Sardana, V., & Shrivastava, A. (2024). The ripple effect: Examining the spillover effects of foreign exchange rate volatility on selected sectoral indices. *Indian Journal of Finance*, 18(2), 1–24.
18. Mundada, P., Sah, J., & Kalyani, A. (2025). An analysis of the determinants of exchange rate and their impact on international trade. *International Journal of Scientific Development and Research*, 10(5), 1–6.
19. Nair, N., & Suganthiya, M. S. (2025). A study on the impact of macroeconomic factors on exchange rate with reference to Indian economy. *International Journal of Research Publications and Reviews*, 6(4), 1–4.
20. Pachiyappan, S., Jain, A., Raj, V. J. P., & Vellaiyan, S. (2023). Exploring the influence dynamism of economic factors on fluctuation of exchange rate: An empirical investigation for India using ARDL model. *Journal of Environmental Management and Tourism*, 14(2), 1–16.
21. Pandey, A., & Kumar, S. (2024). An empirical analysis of exchange rate volatility in India during COVID-19 pandemic and Russia-Ukraine war. *MUDRA: Journal of Finance and Accounting*, 11(1), 85–103. <https://doi.org/10.17492/jpi.mudra.v11i1.1112405>
22. Rai, S. K., & Sharma, A. K. (2022). Do lagged terms affect exchange rate volatility in India? An analysis using ARIMA model. *Indian Journal of Finance*, 16(10), 1–16.
23. Rai, S. K., & Sharma, A. K. (2023). Forecasting exchange rate volatility in India under univariate and multivariate analysis. *Bulletin of Monetary Economics and Banking*, 26(1), 1–17.
24. Shah, M. S. (2024). Analysing the factors behind exchange rate fluctuations in India. *International Journal for Research in Applied Science & Engineering Technology*, 12(4), 1–26.
25. Singh, R. K., Sharma, T., Singh, Y., Kumar, A., & Kumar, S. (2025). Modeling asymmetric volatility connectedness and spillover dynamics in emerging forex markets through the lens of a TVP-VAR framework. *Indian Journal of Finance*, 19(10), 8–38. <https://doi.org/10.17010/ijf/2025/v19i10/175677>

26. Syed, A. A., Ullah, A., Grima, S., Kamal, M. A., & Sood, K. (2025). Modeling exchange rate volatility in India in relation to COVID-19 and lockdown stringency: A wavelet coherence and quantile causality approach. *MDPI Journals*, 13(9), 1–48.
27. Thacker, N. (2022). Impact of macroeconomic variables on exchange rate of Indian currency. *International Journal of Creative Research Thoughts*, 10(11), 1–5.
28. Usha, B., & Thimmaiah, N. B. (2024). Effect of select macroeconomic factors on exchange rate volatility (with reference to INR/USD). *Shodhkosh: Journal of Visual and Performing Arts*, 5(4), 1–9.
29. Vijayakumar, S., & Karthikeyan, P. (2024). Volatility integration of world GDP and world inflation rate with crude oil prices. *Indian Journal of Finance*, 18(8), 1–14.