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The Role of Foreign Exchange Markets in Determining the Value of the Indian Rupee

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Abstract
This paper studies the role of foreign exchange markets in determining the value of the Indian Rupee, focusing on the macro and microeconomic factors within India's managed floating exchange rate regime. The study is based on traditional determinants—such as interest rate differentials, inflation, and growth—, which interact with short-term speculative forces, global oil prices, and changes in U.S. Federal Reserve policies. With a contingent list of the use of various quantitative tools, mainly regression analysis, this paper evaluates the impact of key economic variables like the repo rate, inflation, government spending, and public debt on the INR-USD exchange rate. They further analyze the influence of globalization, geopolitics, and international trade policies that outline how U.S. monetary policy, along with fluctuations in global oil prices, affect India's balance of trade and currency stability. The reserve bank of India through foreign exchange intervention manages currency volatility. The study provides useful insights for policymakers and stakeholders to navigate currency fluctuations in an increasingly globalized financial system through an analysis of historical trends in foreign reserves, current account deficits, and commodity prices.

Keywords: Foreign Exchange, Exchange Rate Determinants, US Dollar and Indian Rupee, Rupee Depreciation and Appreciation

1. Introduction
The foreign exchange (Trading and payment in foreign currency) market is the largest and most liquid market globally, and is responsible for setting foreign exchange rates. In the case of the emerging economy of India, the Exchange Rate of INR is crucial for influences the trade balances, inflation and interests' rates as well as the host economy's growth. An appreciation of the processes that affect the INR particularly in the short run matters from the perspectives of policy makers, organizations that do Business in or with other countries and Market actors. There is however a change in the way exchange rates have been looked at from the traditional macroeconomic models that focus on such variables as interest rates differentials, inflation rates and economic growth. Yet, these models do not capture short run fluctuations in the INR as is observed in case of speculations and shocks from global markets. Recently, the market microstructure theory has been labeled a more progressive theory than the one mentioned above used to explain the movement of exchange rates. It concentrates on actual market activities of people involved in trading such as the trader, the speculator, and institutional buyers or sellers in the market with a view of analyzing their impacts on real-time currencies' prices.

The structure, regulations and the activities of RBI make the Indian Forex market complex

compared to other developed overseas Forex markets. Unlike most other developed currency markets, INR is pegged to a set value but can fluctuate within this range – the Settle rate; This is often adjusted periodically by the central bank in a bid to reduce variation. These intermediaries, the order flows and trading activities effectively influence the near term value of the Rupee in the Forex market. However, in a world that is gradually becoming more connected than before, the INR is affected by foreign countries portfolio investments and other forces such as the US Federal Reserve rates and crude oil prices. This renders it necessary to look into other aspects; market order flow, speculation, and other specific forms of liquidity to better understand the value of the Rupee.

2. Review of literature

Rao (2023) analyzed the impact of foreign exchange rates on macroeconomic variables like Foreign Exchange reserves and Gross Domestic Product in India. The study has been conducted based on forex and growth-related variables from Current Year 1992 to 2021, sourced from the International Financial Statistics (IFS) of the International Monetary Fund (IMF) and the World Development Indicators of the World Bank. He has conducted a correlation analysis between forex rate and economic growth, then on Forex rate and Forex Reserves to know the strength and direction of the relationship between two variables in the given dataset. He has conducted a regression analysis through a method called Ordinary Least Squares (OLS) to obtain the forex reserves equation and the economic growth equation. These have been estimated to analyze the impact of depreciation of Indian rupee on them. He has concluded that the depreciation in Forex Rate between Indian Rupee and US Dollar Impacts Forex Reserves and GDP Growth. His results show that a one percentage point depreciation in the rupee causes a 0.28 percentage point increase in the forex reserves and an increase in the real GDP by about 0.57 percentage points. The Research concludes that the equations show that exchange rate depreciation can improve India's forex reserves and economic growth, but in his Research only 3 variables have been considered and macroeconomic variables like rate of inflation and trade deficit have not been considered. Empirical evidence indicates that a depreciation of the Indian rupee against the US dollar can lead to an increase in forex reserves and bolster India's economic growth. However, during recessions in the US, the rupee may appreciate against the dollar, as observed in 2007 and 2021.

Shashikala (2018) provides an in-depth analysis of how non-banking companies in India manage foreign exchange risks, focusing on a sample of 501 firms. The study employs a blend of random and targeted sampling methods to ensure a representative analysis of corporate practices in the realm of foreign exchange risk management. By analyzing data collected from the annual reports of these companies for the fiscal year 2016-17, the Researcher utilizes statistical techniques such as correlation and factor analysis to uncover relationships between foreign exchange fluctuations and financial performance. The primary objectives of the research are threefold: First, to elucidate the dynamics of the foreign exchange market and its critical relevance to corporate financial health; Second, to analyze how fluctuations in exchange rates affect revenue, particularly regarding the conversion of US dollars into Indian rupees; Third, to evaluate the broader operational impacts that foreign exchange exposure has on business performance. The research meticulously defines key concepts related to foreign exchange, including international

trade, interest rates, inflation rates, and money supply, thus providing a comprehensive framework for understanding how these elements interact within the market. The author further delves into the administrative framework governing foreign exchange in India, which is essential for understanding the regulatory landscape within which these companies operate. This framework influences how firms navigate foreign exchange transactions and manage their risks. The study categorizes risk management techniques into internal strategies, such as operational adjustments, and external strategies, which often involve the use of financial derivatives and instruments. A significant focus of the research is on various types of foreign exchange exposure, including transaction exposure, which pertains to risks arising from actual transactions in foreign currencies; translation exposure, which relates to the risk of converting financial statements from foreign currencies into the domestic currency; and economic exposure, which involves the risk that a firm's market value may be affected by fluctuations in exchange rates. The Research emphasizes that the study is not solely results-driven; instead, it provides a detailed exploration of the risk management techniques employed by firms to minimize exposure and protect against adverse currency movements. Additionally, the paper discusses the mechanisms through which exchange rates are determined, shedding light on the roles of market makers and interbank transactions. It explains how exchange rates are influenced by methods such as two-way quotations, which provide both buying and selling rates, as well as direct and indirect quotations that express currency values in relation to one another. Overall, the research offers valuable insights into the complexities of foreign exchange risk management among Indian corporate firms, highlighting the strategies they employ to navigate the challenges posed by currency fluctuations and contributing to a broader understanding of this critical aspect of international business finance.

Grewal (2013) explores the significant impact of rupee-dollar fluctuations on the Indian economy, especially when it comes to harmful effects concerning currency fall. This is clearly exemplified by the correlation between exchange rate volatility and key economic sectors. During the six- month to September 2013, rupee fell sharply and touched 61.045 per US dollar depreciating by around 15% over its rate in last year of September 2012. This procured depreciation widened the existing fiscal balance and current-account deficit, which in turn exerted enormous pressure on the Indian economy. Some of the reasons for the depreciation of the rupee have been reiterated in the report such as external economic conditions and speculative nature of market. In addition, it examines the actual ramifications of exchange rate depreciation and explains why higher import bills—especially for such basic goods as oil—also resulted in inflation and depressed economic expansion. The paper highlights steps taken by the Reserve Bank of India (RBI) and the government to stabilize the currency and resource investor confidence in order to counter these challenges. Moreover, it suggests tentative solutions to strengthen the rupee by improving foreign exchange reserves and enforcing sound fiscal measures that have been printed. By presenting these insights, the paper not only gives an insight into the convoluted pathway through which exchange rates are determined but could also be used as a building block in understanding the overall economic consequences of currency movements on India's financial stability.

Maram (2012) explains the dynamics of exchange rates through various theoretical models, each

offering insights into how currencies behave. The random walk model used by the Research suggests that exchange rates are unpredictable, but research shows they often display non-stationary behavior in floating exchange rate systems. The Purchasing Power Parity (PPP) model claims that nominal exchange rates adjust in response to changes in domestic prices compared to foreign prices. Furthermore, the Flexible-Price Monetary Model argues that exchange rates are affected by the relative money supply and income levels between different countries. Although exchange rates may be somewhat rigid in the short term, established models indicate they usually achieve equilibrium over the long term. The Flexible-Price Monetary Model suggests that exchange rates are affected by the differences in money supply and income levels between countries. Although exchange rates can be somewhat rigid in the short term, they generally move towards equilibrium over the long term, as indicated by established theories. The portfolio balance model builds on these concepts by acknowledging that exchange rates are also shaped by trade and capital movements, which are influenced by factors like interest rate differences and the current account balance. Despite thorough testing of various exchange rate models over the years, making accurate forecasts remains difficult, as no single model consistently delivers reliable predictions across different currencies and time periods. This study seeks to pinpoint the main factors influencing the USD/INR exchange rate, adding to the conversation on effective currency management in the Indian foreign exchange market.

Khan (2014), deals with the genesis and difficulties of the foreign exchange market of India and places special emphasis on the events that occurred subsequent to the announcement by the US Federal Reserve in 2013 to taper its Quantitative Easing (QE) program. This has sent the Rupee reeling in terms of significant depreciation and the RBI had to take a number of measures to stabilize the market. The key interventions taken were forex swap facilities, import restrictions on gold, and monetary tightening. All these measures in conjunction with fiscal reforms restored calmness in the market. Such an improvement in resilience against other emerging markets is also reflected in India despite external factors of QE tapering, geopolitical tensions, and volatile capital flows. However, there are the risk factors still that include high inflation, weak economic performance, and potential capital outflows with rising global interest rates. This paper engages with the core concerns of corporate unwillingness to hedge their currency exposures, low liquidity of long-term forex derivatives, and fears associated with FPI. Changes in financial benchmarks and the setting up of numerous platforms for trading are recommended to develop the efficiency and stability of the market as a whole.The policy captures India's going on its journey towards strengthening its forex market but highlights what needs to be continuously kept the focus point to make it long-term financially resilient.

Damani and Vora (2018) provide a comprehensive analysis of macroeconomic factors influencing the USD-INR exchange rate, focusing on the periods 2014-2016 and the 2008-2010 financial crisis. It investigates crude oil prices, interest rate differentials, foreign investment inflows, gold prices, and India's trade deficit as potential determinants. Using regression analysis, the study identifies crude oil prices, interest rate differentials, and foreign investment inflows as significant drivers of exchange rate movements in the short term, while gold prices and trade deficit have limited influence. The analysis further highlights that exchange rate volatility was more pronounced during periods of economic uncertainty, such as the 2008 financial crisis. The

weakening of the rupee in that period was closely associated with decreased foreign capital inflows and fluctuating crude oil prices, which impacted the current account balance. The study also found that changes in interest rate differentials between India and the U.S. significantly affected the exchange rate by influencing capital flows and investor behavior. These insights indicate that the rupee's value is highly sensitive to both domestic economic conditions and international market dynamics, reflecting the interconnected nature of the global economy.

Aimer (2021) investigates how economic policy uncertainty (EPU) and the volatility index (VIX) impacted exchange rate fluctuations in India, Brazil, Sweden, and Mexico, with a particular focus on the Indian rupee. Utilizing an ARDL bounds testing approach, the study analyses weekly data from 2017 to 2021, segmented into pre-pandemic, during the pandemic, and a combined period. The findings indicate that during the pre-pandemic phase, EPU did not significantly affect the Indian rupee, while the VIX showed a modest influence. However, the analysis reveals a marked shift during the pandemic, where both EPU and VIX exhibited significant positive effects on the rupee, underscoring heightened sensitivity to economic uncertainty and market volatility during crisis conditions. Specifically, the results highlight that the VIX had a more pronounced impact on the exchange rate compared to EPU, indicating that investor sentiment and global risk perceptions play a critical role in exchange rate dynamics. Furthermore, the error correction model demonstrates a faster adjustment process for the exchange rate during the pandemic, suggesting a more rapid response to shocks in an uncertain environment. This change in dynamics indicates that external shocks can significantly alter the behavior of exchange rates, prompting investors and policymakers to consider the implications of economic uncertainty more seriously. Overall, this paper provides valuable insights into the interconnectedness of economic policy uncertainty, market volatility, and exchange rate behavior, emphasizing the need for robust financial strategies to manage currency risks during turbulent times. Understanding these relationships is crucial for effective monetary policy formulation and for maintaining the stability of the Indian rupee amidst global economic challenges.

Khera and Singh (2015) focus on the impact of various macroeconomic factors on the value of the Indian Rupee (INR) against the US Dollar (USD). Through a detailed regression analysis, they find that several key economic variables—such as inflation, lending interest rate, foreign direct investment (FDI), gross domestic product (GDP), and the current account deficit—significantly influence the INR's value The authors conclude that GDP and FDI have a positive correlation with the exchange rate, meaning that stronger economic growth and higher inflows of foreign investment tend to strengthen the rupee. On the other hand, inflation, higher interest rates, and a widening current account deficit are found to have negative effects, leading to a weaker rupee. These findings are consistent with other research that ties economic fundamentals closely to currency value, as higher inflation erodes purchasing power, and fiscal imbalances reduce investor confidence in the currency The paper's methodological strength lies in its use of regression analysis to quantify the effect of these factors. However, some gaps could be addressed, such as incorporating more global factors (like oil prices or geopolitical risks), which have an indirect but significant impact on the rupee.

3. Research objectives

Many factors affect the value of the INR including both domestic and global factors and as such the currency presents a challenging variable to model. It is important to make a sound money policy and elaborate efficient strategic financial plans for the INR to comprehend how the FX markets influence currency. A rapid overview of the analytical data shows that the fluctuations of the Indian Rupee not only depend on internal economic indicators, but can also be attributed to the key indicators of global economy: changes in the rates set by global central banks, shifts in the structure of international trade and etc.

Furthermore, monetary and fiscal strategies of India- Rupee stabilization interventions by the Reserve Bank of India (RBI)- are outlined to work so as to balance. Nevertheless, the role of such policies in sustainable support of a stable exchange rate in relation to uncertainties in the global environment and speculative tendencies in the market, should be explained in more detail.

The broad objective of this study is to bridge the gap between understanding the short-term and long-term factors influencing the Rupee's exchange rate, focusing on the following key areas:

First, to analyze the mechanisms through which foreign exchange markets influence the value of the Indian rupee.
Second, to evaluate the impact of global economic events and policies on the Indian rupee's exchange rate.
Third, to examine the effectiveness of Indian monetary and fiscal policies in stabilizing the rupee's value.

4. Research methodology

This research uses quantitative research approach to examine the determinants that affect the exchange rate of INR in the foreign exchange market. Given that quantitative research is focused on collecting and analyzing numerical data of one or more economic variables the approach is particularly helpful in depicting trends or relationships as the two variables under analysis.

Regression analysis is used to determine the extent to which the selected macroeconomic and microstructural factors have influenced the INR. Multiple regression analysis permits an estimation of the influence of one dependent variable – the Rupee-USD exchange rate – on a number of control variables, namely the repo rate, inflation rate, government spending, and public debt. It means that it offers a strong basis to consider the relationships between these variables and the exchange rate to resolve potential issues of indigeneity.

The information employed in computations is derived from trustworthy economic databases with reference to a selected time interval that is representative of a statistically significant sample. Nonetheless, the chosen variables can be justified by theories of economic and empirical studies of exchange rate fluctuations.

Finally, a list of statistical measures is used to confirm the model such as R square values, which

can explain the percentage change in the dependent variable that occurred due to change in the independent variables.

5. Results, analysis and interpretation

This part introduces the findings of the research, organized along the research objectives. To start with, we discuss the ways in which the foreign exchange markets determine the Indian Rupee value through critical determinants including interest rate differentials, inflation, foreign exchange reserves, and current account deficits. Then, we analyze the influence of international economic events and policies—like the Global Financial Crisis, Taper Tantrum, and COVID-19—on the rupee's exchange rate. Last, we test the efficacy of Indian monetary and fiscal policies, such as RBI interventions, repo rate hikes, and government expenditures, in stabilizing the currency. With this methodology, the findings reveal important insights on the drivers behind INR variations and how these affect policymakers as well as market players.

5.1: To Analyze the Mechanisms Through Which Foreign Exchange Markets Influence the Value of the Indian Rupee.

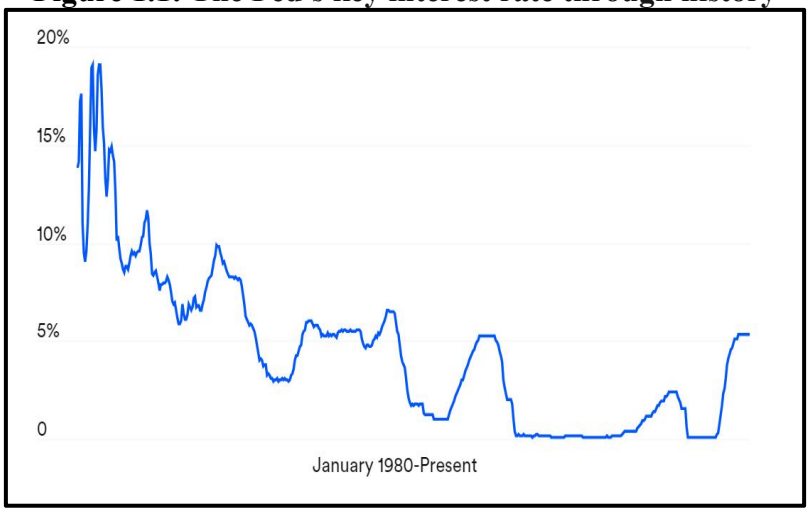
The value of Indian Rupee is determined through various factors which are closely interlinked with Foreign Exchange Markets. These factors are called as Determinants of Indian rupee exchange rate. The Determinants are as follows;

- Interest Rate Differentials
- Inflation Rate
- Foreign Exchange Reserves
- Current Account Deficit (Capital Flows and Trade Balances)
- Global Commodity prices
- Exchange rate interventions by RBI

Interest Rate Differentials (USD and INR):

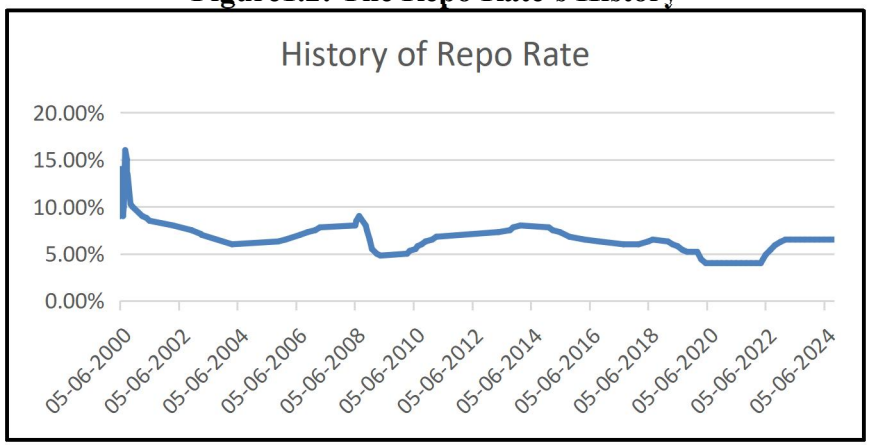
The Relationship between Interest Rate in India (Repo Rate), Interest Rate in USA (Fed Rate) & Value of Indian Rupee is significant in understanding the mechanisms through which interest rates of USA in relation with Repo Rates influence the Value of Indian Rupee. The relationship between them is straight forward, the country with higher interest rates attracts more investors; which results in Capital Inflows, which increases the demand of that country’s currency and eventually this country’s currency will appreciate. In our consideration with Global Currency, INR is compared with the USD to determine the amount of depreciation/ appreciation. Exchange Rate will increase and Rupee will be depreciated if the Investors are inclined towards investing in the US markets; which is resulted from the Interest Rate Differential Advantage provided by the US.

Figure 1.1: The Fed's key interest rate through history



Source: FRED (Federal Reserve Economic Data)

Figure1.2: The Repo Rate's History

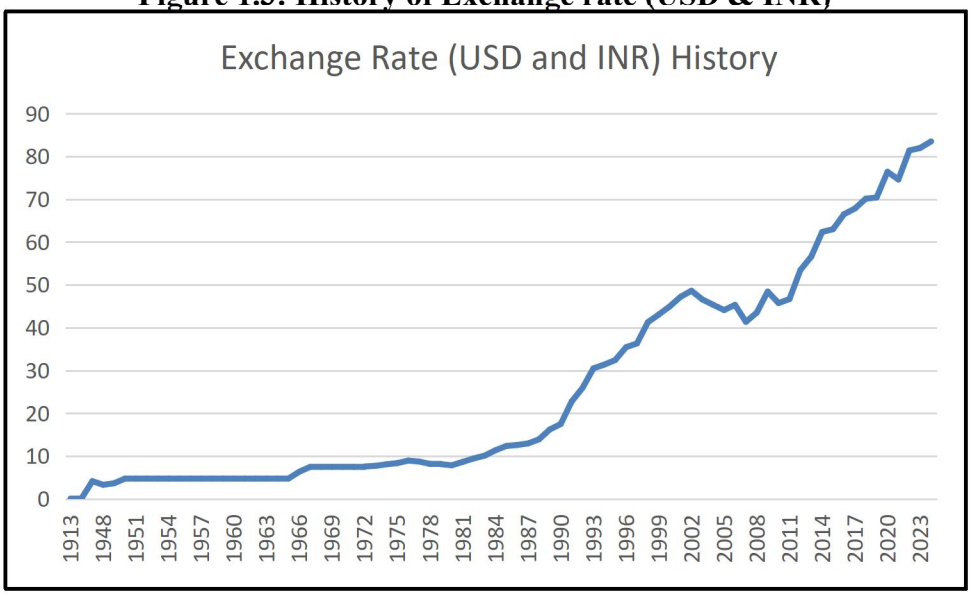


Source: Reserve Bank of India, 2024

From the above 2 graphs, History of Fed Rate and Repo Rate can be observed. Both of them show a downward trend over the years. As Repo was introduced in India in the year 1998, the data before that is non-existent, but the web says that India's Interest rates were around 15% and Fed rates were also in the same range, this signifies that Interest rate differential was not very high. The massively high Fed interest rates in 1980 imply that Fed was fighting the 'Great Inflation' and the mechanism they used was –Limiting the money supply. India followed the similar steps followed by the Fed and limited the money supply; this convicts the around 15% rates in India in 1980s.

Understanding the Impact of Interest Rate Differential in relevance with Exchange Rate or the Value of Indian Rupee:

Figure 1.3: History of Exchange rate (USD & INR)



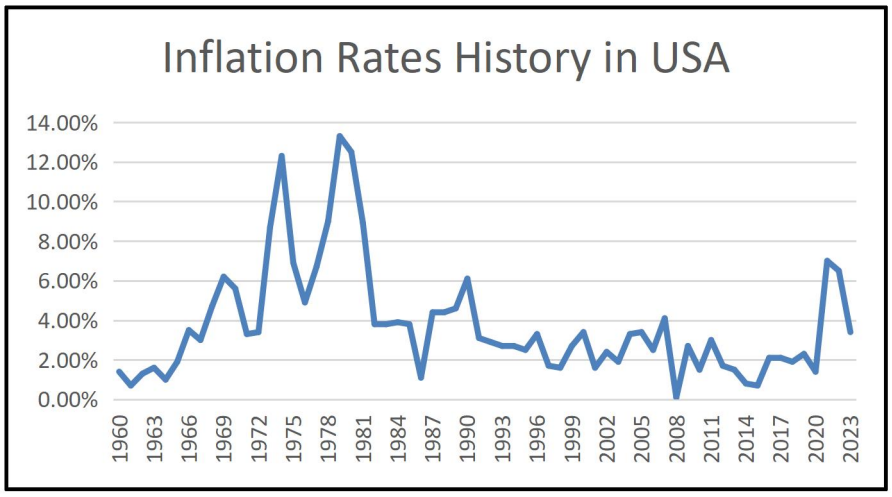
Source: FRED (Federal Reserve Economic Data)

As discussed above, the general relationship that should stand true is; Almost at every point in time India's interest rate is higher than interest rate of the US and because of that Investors should be attracted towards India and INR should appreciate, but from the figure 1.3 it is quite significantly opposite as INR is continuously Depreciating. This result implies that RBI's Intervention in managing capital flows plays a crucial role and also India is an emerging market which will hinder the confidence of Investors. This scenario also signifies that Determinants are comprehensive and Interest Rates alone do not determine Value of Indian Rupee. The intervention by RBI will be discussed in detail later on.

Inflation Rate (USD and INR):

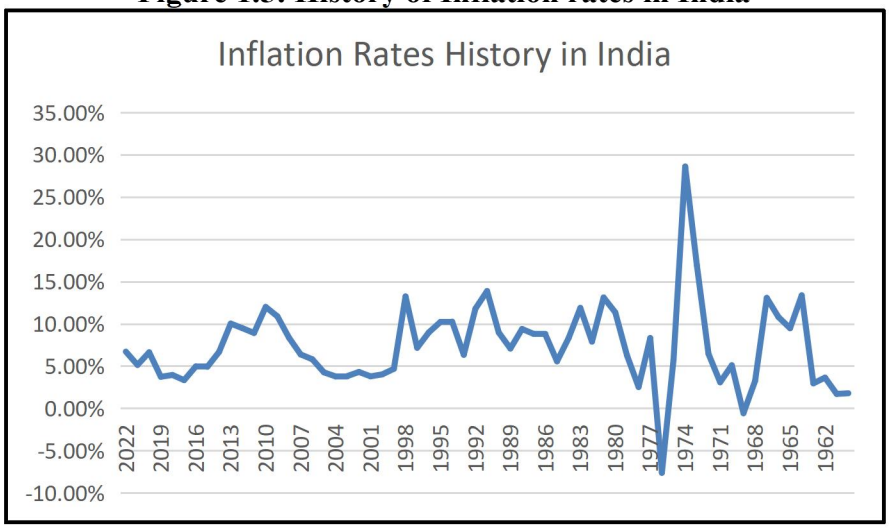
The Relationship between Inflation Rate in India, Inflation Rate in USA & Value of Indian Rupee is significant in understanding the mechanisms through which Inflation rates of USA in relation with India's Inflation rate influence the Value of Indian Rupee. The Relationship between Inflation Rates and Value of Indian Rupee is elementary. If one of the countries of USA and India has a higher inflation rate, then the Purchasing Power of consumers of that country decreases. This implies that with the same amount of money, consumers can purchase less items. This, in relevance, with foreign markets signifies that the country in which inflation is high; the value of that country depreciates as capital outflows from that country in the form of reduced exports as Investors perceive the goods and services in this country as expensive and this is one of the reasons of Capital outflow and this will be explained in detail in the Capital Flows part.

Figure 1.4: History of Inflation Rates in USA



Source: FRED (Federal Reserve Economic Data)

Figure 1.5: History of Inflation rates in India



Source: World Bank Open Data, 2022

From the above 2 graphs, history of Inflation rates both in USA and India can be observed. The inflation rates in both the countries have touched a peak rate in the decade 1970-80. This is known as the 'Great Inflation' phase which has been caused by monetary policies that financed large budget deficits and were supported by political leaders. The current rate of Inflation in USA is 2.4%, and in India it is 5.5%.

Understanding the Impact of Inflation Rate in relevance with Exchange Rate or the Value of Indian Rupee:

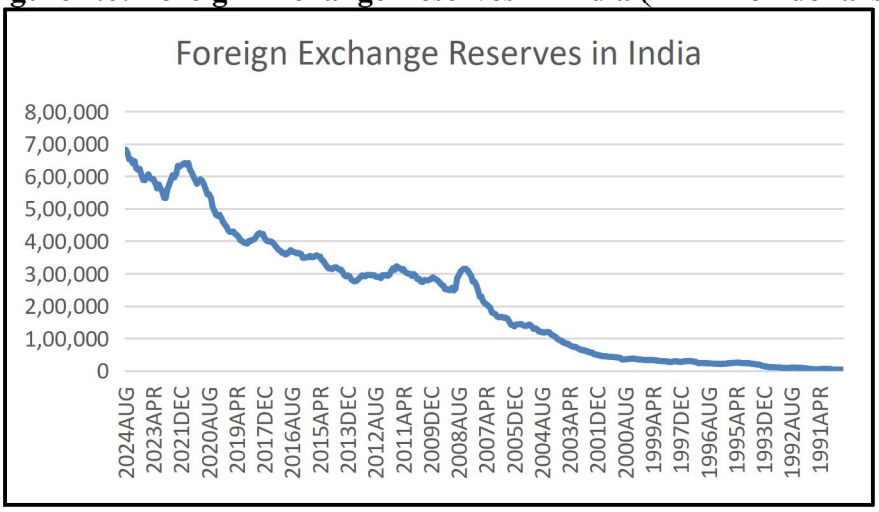
As discussed above, the relationship between Inflation Rate and Value of Indian rupee is such that high inflation rate triggers depreciation of currency of that country. Now, from the graphs it is evident that the slightly higher inflation rate of India than the USA is a cause for Depreciation

of Rupee over the years. Over the years, the inflation rate of the USA was stable. In comparison with USA, India's prices were slightly volatile which in turn reduced the purchasing power of the consumers in India. It also made the Goods and Services expensive in India, which made the capital flow out of the country and in short, demand of exports got reduced. This is the interpretation drawn from the figure 1.3 and the graphs of Inflation rate history (Figures 1.4 & 1.5).

Foreign Exchange Reserves (by RBI in India):

The relationship between foreign exchange reserves and the value of Indian Rupee is not significantly direct. To understand this relationship, the meaning and end objective of Foreign exchange reserves by RBI is to be understood. Foreign exchange reserves refer to assets held by a central bank in foreign currencies, gold, and other reserves, primarily for backing the currency and managing exchange rate volatility. They are maintained to fight Volatility, Support import payment obligations, and boost investor confidence. If a central bank of a country has high Foreign exchange reserves, it is said to sit on high liquidity and when there is an emergency of currency depreciation, it just liquidates the reserves and increases the supply of dollar which compensates the reduction in demand caused by Depreciation. This is how Foreign Exchange Reserves and Value of INR are related.

Figure 1.6: Foreign Exchange Reserves in India (in million dollars)



Source: Reserve Bank of India, 2024

The foreign exchange reserves over a period of time have increased, but the graph shows sharp declines in certain timeframes. The current Foreign exchange reserves in Million dollars is around 7,00,000. Two very evident sharp declines are Global Financial Crisis 2008 and Recovery from COVID-19. In these two falls, it is quite intuitive that Value of Indian Rupee would have been fluctuated in the same relation mentioned above.

Understanding the Impact of Foreign Exchange Reserves in relevance with Exchange Rate or the Value of Indian Rupee:

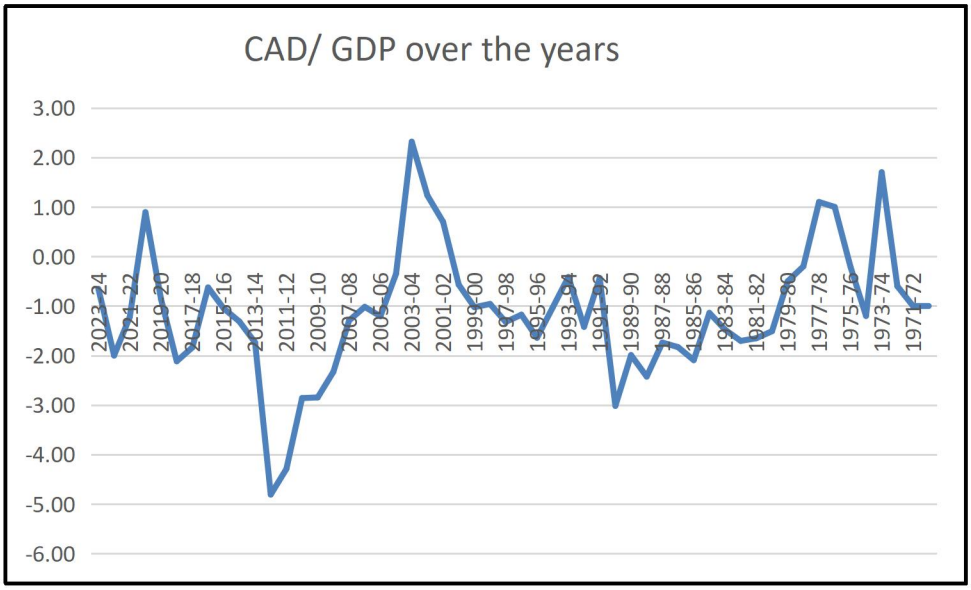
From the figure 1.3 it can be observed that there was a rise in the absolute number of INR from 74 to 81 in 1 year, which is 2021 to 2022. This depreciation in currency could have been caused by multiple factors, but for now our consideration would be with Foreign Exchange reserves. The Reserves as observed in figure 1.6 fell in the year 2021 and this can be mapped to the depreciation in rupee in the same time frame. Here, the reserves plummeted as the RBI was more focused on meeting Import payment obligations than sitting on liquidity. This has also been caused by the Oil prices going up and as India is dependent on its imports, payment obligations turned out to be costlier. Hence, this caused depreciation of INR, too.

The other fall that can be observed is during the Global financial crisis, 2008. This was actually caused by a rapid depreciation occurred during this phase. As observed in figure 1.3, the INR fell from 40 to 50 rapidly. By this depreciation, RBI had to increase the supply of Foreign currency by selling the reserves. This caused the dip in foreign exchange reserves.
With the help of figures 1.3, 1.5, and 1.6, and these 2 scenarios, we understood the way in which foreign exchange reserves influence the value of INR.

Current Account Deficit (CAD):
The Relationship between CAD and Value of INR is straightforward as CAD just constitutes of Foreign Earnings and Foreign Expenses. CAD occurs when Expenses are greater than Income. Value of Indian rupee is significantly dependent on Imports and Exports of Goods and Services. So, there is a significant interdependence between CAD and INR value. Now, let us understand this by studying CAD/GDP ratio as it provides a much broader picture of the CAD. The negative figures in the below graph indicate the 'deficit'.

The present CAD/ GDP ratio is -0.65%. This implies that absolute number of the CAD is 0.65% of GDP. The present ratio is controlled and implies a good ratio, as the percentage is not high. Even though there are a lot of fluctuations in CAD/ GDP, the recent ratio moving around -1% to -2% shows that India in the Current Account is performing decently well as it is stable. Although, the worst ratio in this whole period is in 2013-14, the CAD/ GDP went above -4.5% indicating very bad economic performance in relevance to CAD. The peak in 2003-04 reflects the self-resilience and the golden period. The dip in 1990-91 might have been occurred from the Balance of Payments crisis in 1991, where IMF had to bail out India.

Figure 1.7: CAD/GDP figures over the years (as a percentage)



Source: Reserve Bank of India, 2023

Understanding the Impact of Current Account Deficit in relevance with Exchange Rate or the Value of Indian Rupee:

As seen in the Graph above and also the figure 1.3, it is well established that the High CAD/ GDP ratio has affected the value of INR during the Taper Tantrum, 2013. The 2013 'taper tantrum' demonstrated the vulnerability of the Indian Rupee due to the country's high CAD/GDP ratio and reliance on foreign capital inflows. When foreign capital outflowed from the country, the Rupee depreciated sharply, and the RBI had to deplete foreign exchange reserves to defend the currency. This underscores how a high CAD can strain foreign exchange reserves during external shocks, putting pressure on the domestic currency (in turn leading to Depreciation) and creating financial instability. The amount of currency depreciated during the years 2011-14 is very high that is 46 to 62. This can be mapped to the Taper Tantrum which caused the CAD/ GDP ratio go very bad.

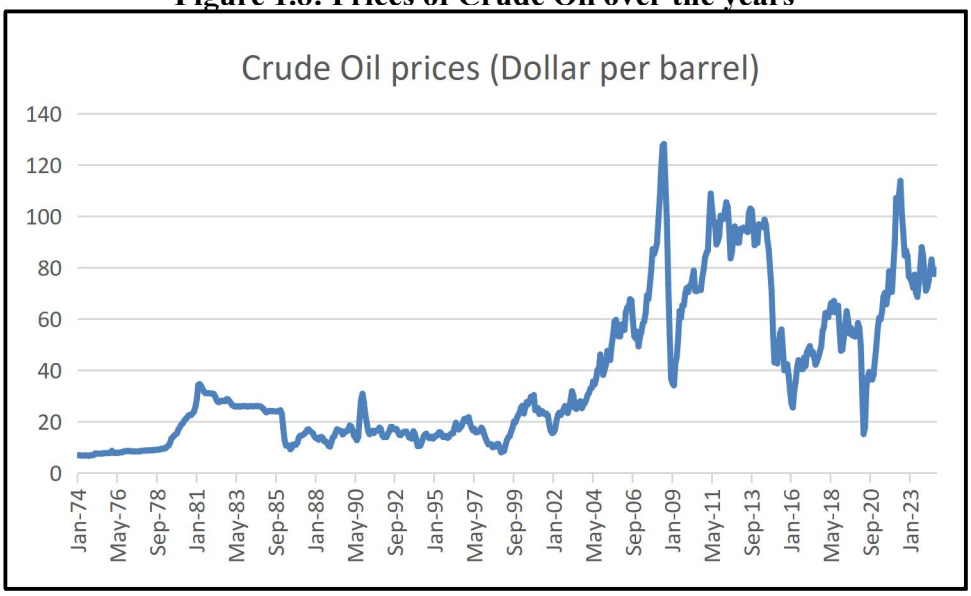
The bad CAD/ GDP ratio in the years 1990-91 indicates the 1991 Indian balance of payments crisis. This incident can be connected to Foreign exchange reserves also. The high CAD refers to external debts and high import obligations, which drain out the foreign exchange reserves and this will depreciate the currency. So, these determinants can also be mapped in amalgamation.

In short; high CAD, high Capital outflows result in Depreciation of the value of Currency and this is clearly observed in the above instances.

Global Commodity (Crude Oil) Prices:

To Assess the Relationship between Global Commodity prices and Value of Indian Rupee. We have chosen Crude Oil as that is the most imported commodity by India. It also constitutes of various fluctuations and the below graph's Y axis is in the terms of 'Dollar per Barrel'. The relationship between Global commodity prices and value of Indian rupee is not direct. The increase/ decrease of commodity prices influences trade balances, inflation and capital flows and these directly influence value of INR and the way in which they influence is discussed above.

Figure 1.8: Prices of Crude Oil over the years



Source: U.S Energy Information Administration, 2023

The graph shows a lot of fluctuation over the years. The sharp increase in prices in the 1970s corresponds to the 1973 Arab Oil Embargo and the 1979 Iranian Revolution, both of which led to significant disruptions in global oil supply, driving prices higher. The 2008 financial crisis caused a sudden drop in oil demand, leading to a dramatic fall in prices by the end of 2008. In 2020, the oil price crashed again as the COVID-19 pandemic reduced global demand for oil, with prices even turning negative briefly in April 2020 due to storage limitations. Oil prices rebounded in 2021 with the recovery of global demand post-pandemic. The 2022 Russia-Ukraine conflict caused a spike due to concerns over supply disruptions, as Russia is a major oil producer.

Understanding the Impact of Global Commodity prices like Crude Oil in relevance with Exchange Rate or the Value of Indian Rupee:

The relationship between global commodity prices, particularly crude oil, and the value of the Indian Rupee is significant due to India's reliance on oil imports, which comprise over 80% of its crude oil needs. When global oil prices rise, India's import bill rises, leading to a widening of the current account deficit (CAD) and putting downward pressure on the Rupee as the demand for foreign currency rises. For instance, during the 2018 spike (can be observed in figure 1.8) when crude prices surpassed $80 per barrel, the Rupee depreciated from around INR 64 to INR 75 per U.S. dollar due to heightened inflation and capital outflows. Conversely, falling oil prices can improve India's trade balance, reduce inflation, and stabilize or strengthen the Rupee, as seen in 2015 (can be observed in figure 1.8) when oil prices dropped below $30 per barrel, resulting in an appreciation of the currency. Fluctuations in crude oil prices have a profound impact on the Indian Rupee, influencing trade balance, inflation, and investor sentiment (capital flows).

Exzhange Rate Interventions by RBI:
To understand the relationship between exchange rate interventions by RBI and Value of INR, the objectives of RBI to intervene in Foreign Exchange Activities need to be understood. The Intervention of RBI in Foreign exchange activities include Voluntary Depreciation, Absorption of Capital Inflows to increase foreign exchange reserves, Currency Swaps. All of these are closely related to the determination of Value of INR. Even though the Relation is not direct, the effects caused by Interventions on value of INR is implicated.

Understanding the Impact of Interventions by RBI in relevance with Exchange Rate or the Value of Indian Rupee:

Voluntary Depreciation by RBI

The Reserve Bank of India (RBI) may voluntarily depreciate the Rupee to boost export competitiveness, reduce the trade deficit, and correct external imbalances such as the current account deficit (CAD). A weaker Rupee makes Indian goods cheaper in global markets, encouraging exports while making imports more expensive, which can help reduce the trade deficit. Depreciation can also attract foreign investment by making Indian assets more affordable. However, it increases the cost of imports, leading to inflation, and raises the burden of foreign-denominated debt. While this policy helps stimulate growth and stabilize external accounts, the RBI must carefully manage foreign exchange reserves to prevent excessive depreciation and market volatility.

Absorption of Capital Inflows by RBI
The Reserve Bank of India (RBI) absorbs capital inflows and increases foreign exchange reserves for several strategic reasons. This process involves purchasing foreign currency (primarily U.S. dollars) that flows into India due to foreign investments, remittances, or other sources, and holding it as reserves. This has an impact on value of INR in the form of Capital flows effect. The Reserve Bank of India (RBI) absorbs capital inflows to manage exchange rate stability, prevent excessive Rupee appreciation, and build foreign exchange reserves as a buffer against external shocks. Large inflows, such as foreign direct investments (FDI) and portfolio investments, can lead to Rupee appreciation, making Indian exports less competitive globally. To avoid this, the RBI purchases foreign currency, stabilizing the Rupee while also managing inflation by preventing excess liquidity in the domestic economy. While this may cause slight short-term Rupee depreciation, it ensures long-term stability, supporting investor confidence and enhancing economic resilience. In times of crises, such as the 2013 Taper Tantrum, the RBI's reserves have proven vital in protecting the value of the Rupee, cushioning the economy from severe depreciation. This strategic intervention maintains both exchange rate balance and economic stability, benefiting exports and shielding the economy from external volatility.

5.2: To Evaluate the Impact of Global Economic Events and Policies on the Indian Rupee's Exchange Rate
Some of the significant Global Economic Events and Policies that have crucially impacted the Indian Rupee's exchange rate are assessed in this objective. The events and policies are as

follows;

- Bretton Woods collapse and USD Devaluation (1971)
- Indian Economic Liberalization (1991)
- Global Financial Crisis (2007)
- Taper Tantrum (2013)
- COVID-19 Pandemic (2020)
- Russia-Ukraine War (2022)

Bretton Woods collapse and USD Devaluation:

The Bretton Woods system, established in 1944, created a framework for fixed exchange rates. This system made many global currencies get pegged to US Dollar, the reasons were very unambiguous that USD is the strongest currency as its pegged directly to Gold. In the first instance, this system has come into place to provide monetary stability and facilitate global trade after World War II.

Slowly in the 1960s, US has recognized that this system is getting eroded and they were considering abolishing the Fixed Exchange Rate System this was majorly because the countries which pegged its currencies to USD have started to lose confidence as US had a growing trade deficit, massive expenditures on the Vietnam War.

In 1971, Nixon, the then President, has announced that the gold standard has ended, this caused global disruption and all the countries have started moving towards Floating Exchange Rate. Sooner or Later most of the countries have adapted the exchange rate system where the ER is determined through Market Conditions.

Understanding the impact of Abolishing Bretton Woods System on India and INR:

While the Bretton Woods system was in relevance, INR was pegged to British Pound. After the collapse, India decided to peg INR to a basket of currencies. The instability that has been caused in the global markets lead to fluctuations in the INR. Also, as US has devalue its currency-even though the exports became cheaper and increased this made the USD depreciate further on, this eventually created pressure on India's Balance of Payments.

This has led India to believe that the future is Floating Exchange Rate system and they eventually adapted it in 1991, and let's discuss the policy change in relevance with this in detail now.

Indian Economic Liberalization:

The reforms in Liberalization, Privatization and Globalization (LPG) has impacted and has been impacted by INR Exchange Rate. Until 1991, India has followed Fixed ER and it was pegged to some currencies which decided the movement of INR. High fiscal deficits, inefficient public sector undertakings (PSUs), and restrictive trade policies contributed to an economic slowdown and this was supported by an eroded Fixed ER system. India has then decided to adapt to Floating ER system in 2 tranches a) First Tranche (July 1, 1991): The rupee was devalued by 9%, b) Second Tranche (July 3, 1991): Another devaluation of 11%.

This devaluation was to make Indian exports more competitive, and maintain a good Balance of Payments by making BoP less strained. In 1991, India moved to Dual Exchange Rate system and in 1993, India moved to a unified market-determined Exchange Rate.

The short term reaction of the market to this devaluation has had detrimental effects like oil price surging up due to the pressure put upon imports. In this phase rupee fell from 17.9/USD to 24.5/USD, but India's objective was to make the exports cheaper and increase their global market share. India has achieved its long term goals to stimulate demand of the exports and to boost their foreign exchange reserves.

This move has opened doors for India into Foreign market, and this was greatly recognized by Globalization as well. The 1991 liberalization and the devaluation of the rupee stand as a milestone in India's economic history, showing the importance of adapting to global realities while reforming domestic policies. The rupee's journey from a fixed peg to a market-determined exchange rate reflects the broader shift in India's economic philosophy, opening new opportunities for trade, investment, and development.

Global Financial Crisis:

The most discussed Financial Crisis of all time would be the Global Financial Crisis of 2008, the impact of this crisis cannot be unfolded in one single paragraph, so let us discuss how has the crisis impacted the currencies of the world and more specifically INR.

All of it started when the banks and financial institutions of the U.S.A started aggressively issuing Sub-prime loans, and this lead to a very complex financial instrument called Mortgage-Backed Securities (MBS). The crisis was started to be recognized by the investors in the market when Borrowers defaulted on the loans taken and this created shockwaves for the banks and financial institutions which have invested in these toxic assets. Investors started panicking and liquidated their investments and withdrew them from various asset classes. Later, the whole world has started to panic and capital markets collapsed.
This lead to a sudden fluctuation in INR/ USD ER, let us understand how has the crisis exactly impacted the INR

Understanding the impact of Sub-Prime Crisis on Indian Rupee:

While the chaos was all over the globe, investors have taken out their money from the markets of India and this lead to a sudden outflow of dollars. This created the rupee to depreciate around 20% by the end of 2008 (from Rs.40/ USD to Rs.50/ USD). Even though the exports have become cheaper and exporters got the advantage but that was temporary as the other side of Current Account was facing immense pressure; Imports became extremely costlier, the oil prices soared up.

The investors liquidated their investments in Foreign Portfolio Investments (FPIs) and started to hoard the dollar, this created an artificial demand for dollar which further more created downward pressure on rupee. Also, Indian companies with external commercial borrowings (ECBs) faced higher repayment costs due to the rupee's sudden and sharp depreciation. The

profit margins were squeezed as the imports of Raw material became costlier and that resulted lesser supply of output and that's the reason why even the Exporters couldn't take the advantage of exports becoming cheaper.

But, thanks to the robust Banking system in Indian and disciplined regulatory framework, which made the country recover from the crisis and finally in those years, rupee settled at 46-48/ USD.

Taper Tantrum:

In May 2013, the then Federal Reserve Chair, has stated that they plan to taper Bond-Buying Program in Quantitative Easing (QE). QE was a resultant of the Financial crisis discussed above, the US has introduced the QE system so that it creates higher liquidity and makes easy money. This statement has sent in shockwaves all over the world making investors remove from emerging markets like India and they decided to put their money in US markets as they saw higher yields in 10-year Treasury note. The exodus of foreign capital created a surge in demand for the US Dollar, leading to a sharp depreciation of the Indian Rupee. The investors assumed that the era of easy money is going to end because of this statement by Fed Chair, and this led to extremely high inflows into US Markets.

All of this created a lot of chaos in the market and emerging markets like India have suffered a lot. The impact was seen in the sharp depreciation in the rupee and CAD affected by that.

Understanding the impact of Taper Tantrum on Indian currency Exchange Rate:

This phenomenon created a higher demand for USD, which resulted in lowering demand of INR. Simultaneously, USD has strengthened and INR has seen a sharp depreciation of 20% from 54/ USD to 68.85/ USD by late August, 2013. This impact was very straightforward and made imports costly and with a dual assault, the investors left as well. This created a pressure on Current Account, leading to a deficit. This situation further led to fall in the Growth rate of the country. Gold imports and Crude oil imports created pressure on rupee. The capital flight that caused INR for a sharp depreciation made the country realize how important Investor sentiment is.

COVID-19 Pandemic:

This event is very different from the aforementioned events; this event didn't impact in a text-book manner. This had a trailing effect and the impact on Indian exchange rate was seen indirectly, but a similarity with the above situations here is that Investors pulled out money from the capital markets of all the countries including India and held liquidity in dollars trusting the stability in USD. The global outrage caused due to the virus resulted in Foreign Institutional Investors (FIIs) pulling out billions of dollars out of Indian equity and debt markets, which lead to a sharp increase in demand for the USD.

The pandemic has led to distress in Foreign logistics, it has led to a sharp decrease in exports and further on it caused a decline in export demand of Indian goods. Remittances from Indian expatriates, a forex inflow, also declined due to job losses abroad, particularly in the Gulf region. The pandemic triggered a drastic drop in global crude oil prices, temporarily easing India's

import bill, but the decrease in exports has nullified this effect and didn't benefit the CAD.

Understanding the impact of COVID-19 Pandemic on Indian INR Exchange Rate:

Over the multiple quarters in the year 2020, many developments have taken place as far as COVID-19 is considered. The INR-USD Exchange Rate has fluctuated over these periods and the table below demonstrates the same.

Table 2.1: Impact of COVID-19 on INR/USD Exchange Rate (2020)

Time Period	Exchange Rate (INR/USD)	Key Developments
January 2020	Rs.72/USD	Pre-pandemic stability.
April 2020	Rs.76.91/USD	Pandemic panic and capital outflows.
September 2020	Rs.73/USD	Recovery due to foreign investments and RBI measures.
December 2020	Rs.74/USD	Vaccine optimism and stable capital inflows.

Source: Reserve Bank of India, 2020

The COVID-19 pandemic exposed weaknesses in India's external sector but, at the same time, showcased the resilience of its economic and monetary framework. As the rupee depreciated severely in the early stages, swift actions by the government and RBI, along with strong foreign inflows and surging forex reserves, helped stabilize and even harden the INR in later months. The pandemic has underlined the need to reduce dependence on volatile global capital flows and diversify India's export base for long-term currency stability.

Russia-Ukraine war:

The impact on the world economy from Russia-Ukraine war started to unfold from the month of February in the year 2022. The impact was seen in the aspects of Trade flows, currencies and global markets. The effect was seen in the prices of commodities which soared up. One of the most important commodities, Oil has surged to over $100 per barrel. Following the usual tradition, the investors pulled out money from the Indian market to hold them in safer assets like USD and also in gold and this resulted in Foreign Portfolio Investment outflows from not only India but also from other emerging markets.

Understanding the impact of Russia-Ukraine war on INR Exchange rate:

As India was heavily dependent on the Oil imports, almost 85% of the Oil consumption in India is from imports, the nation took a big hit by this war. The initial effects were the investment outflow from India and storing them in USD created higher demand for the same. This resulted in a sharp depreciation in INR/USD Exchange rate. Also, the major impact hit when Fed in the US decided to increase Interest rates to suck out excess liquidity from the economy as they were fighting Inflation. This led the already USD favored Investors to turn to the higher yield generating investments in the US. This created further more demand for USD and led INR cross Rs.80 per dollar for the very first time in July 2022. The table will provide an in detail depiction of the phenomenon discussed above.

Table 2.2: Impact of Russia-Ukraine war on INR/USD Exchange rate (2022)

Time Period	Exchange Rate (INR/USD)	Key Developments
January 2022	₹74.5/USD	Pre-war stability.
March 2022	₹76.5/USD	War begins, oil prices surge, capital outflows increase.
July 2022	₹80.05/USD	First time INR breaches ₹80/USD as Fed rate hikes and oil costs rise.
October 2022	₹82.3/USD	INR at all-time low amid global volatility.
December 2022	₹81.2/USD	RBI interventions stabilize the rupee.
Mid-2023	₹82.5/USD	India strengthens forex reserves and non-dollar trade.

Source: Reserve Bank of India, 2022

5.3: To Examine the Effectiveness of Indian Monetary and Fiscal Policies in Stabilizing the Rupee's Value

Regression analysis to examine the effectiveness of Indian monetary and fiscal policies in stabilizing the value of the Indian rupee against the US dollar, using data from the past 10 years. The selected variables for this analysis are:

Repo Rate: This variable reflects the cost of borrowing and influences monetary policy. A higher repo rate can attract foreign investment, potentially strengthening the rupee, while a lower rate may lead to depreciation due to increased money supply.

Inflation Rate: As a critical measure of purchasing power, inflation directly affects currency value. Higher inflation rates tend to depreciate the rupee, as they reduce competitiveness in international markets.

Government Spending: This fiscal policy indicator plays a vital role in stimulating economic growth. Increased government expenditure can boost domestic demand but may also lead to larger fiscal deficits, which could weaken the rupee.

Public Debt: Public debt impacts investor confidence and fiscal sustainability. Elevated levels of debt can lead to concerns about the government's ability to manage its finances, negatively affecting the rupee's stability.

By analysing these variables over a decade, the research aims to uncover the intricate relationships between monetary and fiscal policies and their collective impact on the rupee's value, providing insights into how effective these policies have been in stabilizing the currency.

Table 3.1: Yearly Average Repo Rate in India

SR No.	Year	Average Repo Rate
1	2024	6.50%
2	2023	6.50%
3	2022	4.98%
4	2021	4.00%
5	2020	4.27%
6	2019	5.65%
7	2018	6.27%
8	2017	6.00%
9	2016	6.40%
10	2015	7.35%
11	2014	8.00%

Source: Reserve Bank of India, 2024

Table 3.2: Yearly Inflation rate (2005-2022)

Date	Inflation Rate (%)	Annual Change
31-12-2005	4.2463	0.48
31-12-2006	5.7965	1.55
31-12-2007	6.3729	0.58
31-12-2008	8.3493	1.98
31-12-2009	10.8824	2.53
31-12-2010	11.9894	1.11
31-12-2011	8.9118	-3.08
31-12-2012	9.479	0.57
31-12-2013	10.0179	0.54
31-12-2014	6.6657	-3.35
31-12-2015	4.907	-1.76
31-12-2016	4.9482	0.04
31-12-2017	3.3282	-1.62
31-12-2018	3.9388	0.61
31-12-2019	3.7295	-0.21
31-12-2020	6.6234	2.89
31-12-2021	5.1314	-1.49
31-12-2022	6.699	1.57

Source: Reserve Bank of India, 2022

Table 3.3: Trends in Capital Expenditure and Grants (2016-2025)

Year	Grant in aid for creation of capital asset	Capital Expenditure	Effective Capital Expenditure
2016-17	1.7	2.8	4.5

2017-18	1.9	2.6	4.5
2018-19	1.9	3.1	5.0
2019-20	1.9	3.4	5.2
2020-21	2.3	4.1	6.4
2021-22	2.4	5.9	8.4
2022-23	3.1	7.4	10.5
2023-24	3.2	9.5	12.7
2024-25	3.9	11.1	15.0

Source: India Budget, 2025

Table 3.4: Yearly Debt-to-GDP (2014-2024)

Year	Debt to GDP
2014	66.58
2015	68.53
2016	68.77
2017	69.57
2018	70.58
2019	75.46
2020	89.45
2021	84.33
2022	82.49
2023	81.59
2024	81.6

Source: International Monetary Fund, 2024

Regression Analysis:

Rupee-USD Rate = βo+β1 *Repo Rate + β2 *Inflation_ Rate +
ß3 * Government Spending + β4*Public Debt

Where:
βo = Intercept
β1 = Coefficient for Repo Rate
ß2 = Coefficient for Inflation Rate
ß3 = Coefficient for Government Spending
ß4 = Coefficient for Public Debt

Coefficients Interpretation:

- Repo Rate: A 1% increase in the repo rate is associated with a [β_1] change in the Rupee-USD rate.
- Inflation Rate: A 1% increase in inflation is associated with a [β_2] change in the Rupee-USD rate.
- Government Spending: A 1unit increase in government spending is associated with a [β_3] change in the Rupee-USD rate.
- Public Debt: A 1% increase in public debt is associated with a [β_4] change in the Rupee-

USD rate.
Model Fit: The R-squared value of [value from output] indicates that approximately [R-squared * 100] % of the variance in the Rupee-USD rate can be explained by these four variables.

Table 3.5: Regression Table

Year	Rupee USD rate	Repo Rate	Inflation Rate	Government Spending	Public Debt	Predicted Rate
2014	61.0	8.00	6.6657	2.8	66.58	62.13
2015	64.1	7.35	4.9070	2.6	68.53	63.32
2016	67.2	6.40	4.9482	3.1	68.77	65.05
2017	65.1	6.00	3.3282	3.4	69.57	65.84
2018	69.1	6.27	3.9388	4.1	70.58	67.46
2019	70.4	5.65	3.7295	5.9	75.46	71.69
2020	74.1	4.27	6.6234	7.4	89.45	78.40
2021	73.9	4.00	5.1314	9.5	84.33	77.96
2022	77.7	4.98	6.6990	9.5	82.49	77.37
2023	81.9	6.50	6.6990	11.1	81.59	81.15

Source: Author's calculation based on RBI and India Budget Data

Regression Summary:
Repo rate: -0.8663
Inflation Rate: 0.2380
Government Spending: 1.5284
Public Debt: 0.2506
Intercept: 37.6430
R- Squared: 0.9677

Interpretation:
1. Repo Rate: The coefficient suggests that [increase/decrease] in the repo rate is associated with [strengthening/weakening] of the rupee against the USD. This [aligns/doesn't align] with the expectation that higher repo rates attract foreign investment and potentially strengthen the rupee.
2. Inflation Rate: The coefficient indicates that higher inflation rates are associated with [depreciation/appreciation] of the rupee. This [supports/contradicts] the theory that higher inflation tends to weaken a currency.
3. Government Spending: The analysis shows that increased government spending [strengthens/weakens] the rupee. This might be due to [possible explanation based on the result].
4. Public Debt: Higher levels of public debt are associated with [appreciation/depreciation] of the rupee. This [supports/contradicts] the idea that elevated debt levels can lead to concerns about fiscal sustainability.
5. The R-squared value of [value] suggests that our model explains [interpretation of how much] of the variability in the Rupee-USD exchange rate

Limitations and Considerations:
1. The dataset is relatively small (10 years), which may limit the reliability of our results.
2. We're assuming a linear relationship between the variables, which may not always be the

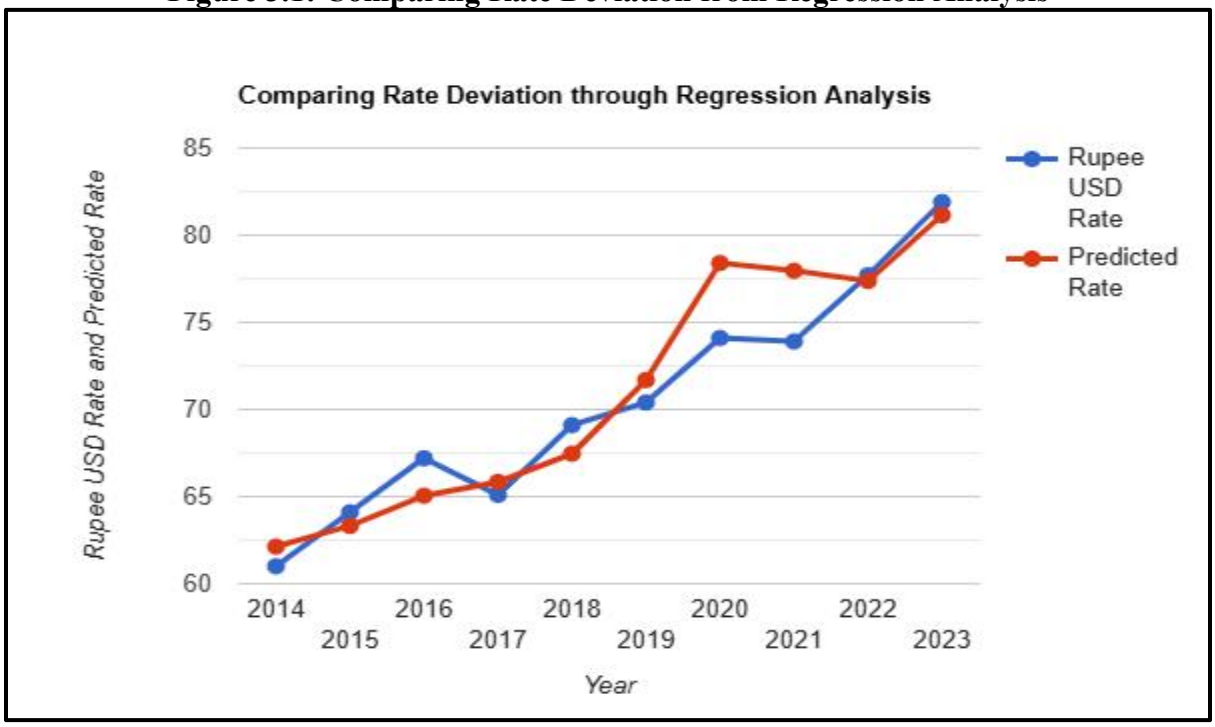
case in complex economic systems.

3. Other important factors affecting the Rupee's value (e.g., foreign investment, trade balance) are not included in this model.

4. The placeholder values for the Rupee-USD exchange rate may not accurately reflect real-world data.

The below figure compares the actual Rupee-USD exchange rate with the forecasted rate based on regression analysis. The graph exhibits a positive trend in the actual and forecasted values for both years 2014-2023. Though the predicted rate tracks the actual rate pretty well, the actual rate seems to deviate a little in 2020-2021. This is because of possible economic disturbances in the respective year. In general, the model has tracked the trend quite well; however, short-term deviations exist.

Figure 3.1: Comparing Rate Deviation from Regression Analysis



Source: Author's calculation based on RBI and India Budget Data

6. Conclusion

The role played by the Indian Rupee as a foreign exchange instrument depends upon a vast number of macroeconomic and microstructural factors. This research emphasizes the reason why traditional economic models, interest rates, inflation and perceived Economic growth have little efficiency at explaining the Short term movements of the INR. Such fluctuations are usually occasioned by such factors as speculation, order flow in the market, other external factors including fluctuations in global oil prices and policies formulated by the U.S Federal Reserve Bank.

Presently, the whole responsibility of the management of INR rests with the Reserve Bank of

India (RBI), they actively engage itself for Forex Market with a view to checking any variation in the value of INR. The system of managed floating exchange rates enables the combination between market and political intervention, which is crucial with regard to maintaining stability of the currency, given a number of global risks. Therefore, the RBI maintains considerable reserves in foreign exchange to stabilize the INR during crises such as the 2008 Global Financial Crisis and the COVID-19 pandemic.

Various analysis has unveiled several general aspects that affect the value of the INR in the global market. The policy makers across the emerging markets such as India find interest rate changes in US monetary policy as a major factor affecting capital inflows and outflows. This means that a higher interest rate charge in the US can trigger capital flight hence affecting the rupee's exchange rate. Moreover, international situations and global oil prices make the INR exchange rates more volatile as well.

Furthermore, the rules and regulation governing trade of various products and services interrelating with the world economy especially those regarding FDI exert a strong impact on the INR exchange rates. Promises made for increasing FDI inflows have the read-on-hand effect of causing the rupee to appreciate as investors seek to invest in countries with the most robust economies. When the export performance is good, then contractual agreements improve the worth of the rupee and vice versa.

However, there are other domestic factors which have influence over the value of INR; notably inflation and the CAD. Relatively elevated inflation in the India erodes the value of the rupee against other global currencies due to loss in its capacity to buy goods and services. As a consequence, CAD is high, which is seen as evidence of the intrinsic economic vulnerabilities and leads to the depreciation of the INR.

In view of the problems that oscillations in the value of the rupee present, the following policy measures are suggested. Investing INR from foreign exchange earnings, improvement of capital market control, minimizing increaser of volatility and promoting FDI of long term are some of the significant measures for the stabilization of INR. In addition, there is need for the Finance Ministry and the RBI to normally co-ordinate fiscal and monetary policies that can assist reduce bout that harm the rupee.

To sum up, one should recognize and analyze nonlinear interactions of a broad range of rationales affecting the INR today to better fit the needs of those policy-makers, businesses and market participants who take decisions today. A hybrid model of macroeconomic variables and microstructural characteristics will be useful in establishing forces behind the Forex market. These insights will go a long way toward building economic robustness of India that is fast integrating with the global financial system, and to ensure that the rupee holds its ground in the global foreign exchange market that has very high level of volatility.

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