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A Study on the relationship between the volume of currency future contracts traded on BSE and the rupee dollar exchange rate fluctuations during the fiscal year 2022.

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Abstract

During the fiscal 2022, almost all countries in the world has being facing inflation. Inflation in US had eventually climbed up to 9.1% in the month of June. Inflation in US had a great impact on the Indian economy. With Russia – Ukraine war and with global oil supply shock, had it impact on almost all economies. To curb inflation US Fed had increased its policy rates which resulted in the appreciation of the greenback against all major currencies in the world. With people preferring to invest the safe haven asset, Indian saw huge massive outflows of FPIs during the same period. With high demand for US dollars, Indian rupee depreciated to a great extend. During the same period it was seen that Indian traders and investors were increasingly entering into derivative market to square off their position in the market. People anticipated that the rupee would further decline and as a result increased trading of future contracts were seen in the Indian stock exchanges.

Keywords: Rupee, Dollar, depreciation, derivative currency futures, FPIs, BSE.

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1. Introduction

Depreciation reduces the worth of a country's currency when compared with the currency of other countries. Depreciation discourages imports because the imported goods become more expensive due to decline in the value of currency. As the goods become more and more expensive it eventually leads to inflation. Weaker rupee should theoretically give a boost to India's exports, but in an environment of uncertainty and weak global demand, a fall in the external value of rupee may not correspond into higher exports. Its negative impact is that it poses the risk of imported inflation, and may make it difficult for the central bank to maintain interest rates at a record low for longer. Also India meets more than two-thirds of its domestic oil requirements through imports. India is also one of the top importer of edible oils. A weaker currency will further elevate imported edible oil prices and lead to a higher food inflation.
The Indian Rupee depreciated by around 10% against the US dollar and the rupee was the worst-performing Asian currency in 2022. This decline was mainly due to the appreciation in the US currency on safe haven appeal amid fears of recession and inflation across many parts of the world and Russia-Ukraine war. During the year, the rupee declined to a lifetime low of 83.2 against the dollar. Compared to the rupee, depreciation of other Asian currencies was to a lesser extent. During the year, the Chinese Yuan, Philippine Peso and Indonesian Rupiah fell around 9%. South Korean Won and Malaysian Ringgit declined by nearly 7% and 6%, respectively. However, the Reserve Bank of India heavily intervened in the forex market to defend rupee. Since the beginning of 2022, the country's foreign exchange reserves have fallen by USD 70 billion. It stood at USD 562.81 billion as of 23rd December 2022. Reserves have witnessed a bit of decline but the central bank is now starting to again build up its reserves and that would act as a buffer in times of uncertainty. The main reason for capital outflows from India was the US Fed aggressively raised interest rates by 425 basis point (bps) in 2022 in its fight against inflation. This led to a higher interest rate differential between the US and India, and investors pulled out money from the Indian market and started investing in the US market to take advantage of higher rates. In 2022, Foreign Portfolio Investors (FPIs) pulled out Rs 1.34 lakh crore from the Indian markets – the highest-ever yearly net outflow. They withdrew Rs 1.21 lakh crore from the stock markets and Rs 16,682 crore from the debt market in 2022, putting pressure on the rupee to decline further. Russian-Ukraine war (Arora, 2014) accentuated the FPI withdrawals with the global economic slowdown making inflows tougher.

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2. Literature Review

(Arora, 2014) studied the real impact of the depreciation of the rupee on the Indian economy and showed that in the long run, the Indian economy has more to lose and less to gain with weaker rupee. The study concluded that the Indian Rupee has depreciated significantly against the US Dollar causing a new risk for Indian economy. Unpleasant global economic outlook along with high inflation, widening current account deficit and FII outflows have contributed to this fall. RBI has responded with timely interventions by selling dollars intermittently in the spot markets. But in times of global uncertainty, investors prefer USD as a safe haven to invest. To attract investments, RBI can ease capital controls by increasing the FII limit on investment in government and corporate debt instruments and also by introducing higher ceilings in ECB's. Government can create a stable political and economic environment. However, a lot depends on the Global economic outlook and the future of Eurozone which will determine the future of Rupee

(Saxena, 2000) shows the reason for the Indian bop crisis in 1991. In the mid 1991 India's exchange rate was subject to several adjustments. This event began with the slide of the value of the rupee upto the mid 1991. The authorities at the RBI took partial action defending the currency by expending foreign exchange reserves. However in mid 1991, with foreign exchange reserve nearly depeleted the Indian government permitted a sharp depriciation that took place in two steps within three days against major foreign currencies. With assistance from the IMF and after an initial stage of stablisation through administrative controls the government embarked on an adjustment program featuring macro economics stabilisation and structural reforms. Structural measures initially resulted in accelerating the process of industrial and inport delicensing and then shifted to further trade liberalisation, finalcial sector reforms, and tax reforms. However despite progress in liberalising trade and capital flows, India is relatively closed and capital inflows have been well below those in other ancient economies.

3. Statement of Problem

The Indian stock market has a prolonged obsession with the US Fed. Every time the US Federal Reserve meets to announce its domestic macroeconomic data, and interest rates, the Indian market and market participants keenly scrutinize the proceedings amidst a lot of volatility. A rise or decline or a few base points in the US Federal rates results in massive swings in the market on either side depending upon cues from the US Federal interest rates. The US Fed aggressively raised interest rates by 425 basis point (bps) in 2022 in its fight against inflation. This led to a higher interest rate differential between the US and India, and investors pulled out money from the domestic market and started investing in the US market to take advantage of higher rates. During the year, the rupee fell to a lifetime low of 83.2 against the dollar. Compared to rupee,depreciation of other Asian currencies was to a lesser extent.The Indian Rupee depreciated by around 10% against the US dollar and the rupee was the worst-performing Asian currency in 2022. This is really a worse off situation for Indian traders especially Indian importers as they now have to shell out more foreign exchange to buy the same amount of goods which could have being brought at a lower rate. During this situation Indian trader have entered extensively in derivative market to square off their position. These traders hedged their position in the market by entering into future contracts.

4. Rationale

The research was undertaken with the purpose to analyze the behavior of Indian traders to the falling Indian rupee to US dollar in terms of hedging activities. It was very evident that the Indian traders were in the disadvantages position during the rupee dollar depreciation. Following are the reason why the research has being undertaken:

Firstly, Whether they have entered into the derivative market to hedge themselves from the currency risk.

Secondly, the market sentiment during this period.

Thirdly, how far currency futures has averse the risk of Indian traders and investors.

5. Objectives

i. to study the reason for rupee dollar depreciation in the year 2022.

ii. to study the sentiment of Indian trader and investors during this phrase.

iii. to study the risk management methods adopted by the Indian traders and investors.

iv. to statistically compare the relationship between the volume of currency future contracts traded on BSE and the rupee dollar exchange rate fluctuation during the fiscal 2022.

v. to suggest recommended risk management techniques to be practiced during such crisis.

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6.Hypothesis

Taking into consideration the key motivation of undertaking this research, one hypothesis is being framed.

H0. There exist no relation between volume of currency futures traded on stock market (BSE) and the rupee dollar exchange rate fluctuation.

H1 There exist relation between volume of currency futures traded on stock market (BSE) and the rupee dollar exchange rate fluctuation.

7. Research Methodology

To fulfil the above research objectives, this study is based on secondary data collected from various reliable online sources, like high impact journals, research papers, news articles, and other trusted platforms.

8. Background

A worldwide increase in inflation began in mid-2021, with many countries seeing their highest inflation rates in decades. It has been attributed to various causes, including pandemic-related economic dislocation; the fiscal and monetary stimulusprovided in 2020 and 2021 by governments and central banksaround the world in response to the pandemic were also instrumental. Unexpected recovery in demand through 2021 ultimately led to historic and broad supply shortages (including chip shortages and energy shortages) amid increasing consumer demand. Worldwide construction sectors were also hit.

In early 2022, the Russian invasion of Ukraine's effect on global oil prices, natural gas, fertilizer, and food prices further exacerbated the situation. Higher gasoline prices were a major contributor to inflation as oil producers saw record profits. Debate arose over whether inflationary pressures were transitory or persistent. Central banks responded by aggressively increasing interest rates.

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9. US inflation and Feds response

Inflation started at 7.5% in January and eventually climbed up to 9.1% in June. The inflation rate for gas prices alone was 60% at a time, largely because of repercussions from the Russia's invasion of Ukraine. Even when inflation started coming down from its peak in June, core inflation, which is the prices of all goods and services except for the volatile energy and foods markets, went up in September to 6.6%. In November the inflation rate was at 7.1%.

In its quest to tame inflation, the Federal Reserve previously raised the federal funds rate by 75 basis points four times in 2022 following two smaller hikes. Increasing the fed rate ultimately makes credit more expensive for consumers and businesses, and it's one of the only tools the Fed has to fight inflation.

The final increase for the year arrived on Wednesday, and it mirrors the increase in May. The current fed rate now sits at a range of 4.25%-4.50%.

10. Why did the US increase interest rates?

Globally economies are in a recession due to high inflationary pressure. To combat this Fed, which is the central bank of the US, is taking aggressive steps such as increase in interest rates to reduce the money supply in the economy.

A lower interest rate in the economy allows the public to take more loan to buy assets and spend more money on buying goods and services. Therefore the overall supply of money in circulation in the economy increases. This results in higher demand than supply. This demand supply gap results in a increase in the price of goods and services, which we typical call inflation.

To combat this, the central bank increases the interest rate to reduce the money supply in the economy, which therefore results in a reduction in the prices of goods and service. This eventually controls inflation.

When the Fed raises the rate, it increase the rate of credit across the country. Higher interest rates make loans more expensive for both businesses and consumers, and everyone ends up spending more on interest payments. Businesses therefore may put their capacity expansion plan on the back burner.

11. How it impacted India?

When Fed raises its interest rates, the difference between the interest rates of India and the US narrows. This making emerging countries such as India less attractive for the currency carry trade. And since India is vulnerable to US rates, it could lead to capital flows out of India, depress the Indian rupee further, prolong imported inflation and prompt more domestic rate hikes. Depreciation pressures on the rupee, along with other emerging market currencies, is expected to increase with US Federal Reserve hiking rates.

12. Indian rupee performance

The value of the Indian rupee against the U.S. dollar has steadily declined over the past few years. The Indian rupee finished 2022 at 82.72 to the U.S. dollar, down from 74.33 at the end of 2021. Currency depreciation is a fall in the value of a currency in a floating exchange rate system and the rupee depreciation means that the Indian currency has become less valuable with respect to the U.S. dollar. India's central banking institution, the Reserve Bank of India (RBI), has burnt forex reserves at a dramatic pace in 2022. The move was prompted to prevent exchange rate volatility, an intervention that many in the market believed was to defend the currency at a particular level. As the RBI sold dollars to arrest the fall of the Indian rupee, India's forex reserves depleted the most among all emerging economies. Data released by the RBI showed India's foreign exchange reserves fell by 70.8 billion dollars in 2022. The forex reserves rose 44 million dollars in the week ended December 30, 2022, to 562.9 billion dollars, data showed. In fiscal year 2023, forex reserves have declined by 44.5 billion dollars whereas for the whole of 2022, reserves are lower by 70.8 billion dollars. During the week reserves rose marginally, led largely by an increase in the gold reserves by 354 million dollars to 41.3 billion dollars. On the other hand, foreign currency assets fell 302 million dollars to end 2022 at 498.2 billion dollars.

13. Causes that triggered rupee fall

The decline of the Indian rupee against the greenback was mainly attributed to the appreciation of US dollars. Futures contracts facilitate the purchase or sale of underlying indices at a pre-determined price for delivery on a future date. Options include calls and puts. A call option facilitates the purchase of an underlying index or share at a fixed price called premium. A put option allows sale of an underlier in exchange for a premium. Retail or individual investors have largely been attracted to index futures and index options more lately inorder to hedge themselves from highly volatile market.

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The share of retail has risen by 1.7 percentage points to 31.9% in index futures and 1.8 percentage points in index options to 35.8% in index options in H1FY23 from the corresponding period of FY22. In the case of proprietary, the share in index futures rose by 3.8 percentage points to 35.2% and 1.1 percentage points to 43.4% in index options.

The outbreak of the Russia-Ukraine conflict in February 2022 disrupted the global supply chains, thereby fuelling inflation as well as inflationary expectations across the world. Financial experts argued that as inflation rose across the world and domestic growth slowed, investors usually looked to sell their domestic assets and put the money into the U.S. markets for better safety and returns. The move increased the value of the U.S. dollar worldwide. On Oct. 20, 2022, the rupee fell to a lifetime low of 83.29 against the U.S. dollar. However, the RBI heavily intervened in the forex market to defend the rupee and the imported inflation became a challenge for policymakers.

Another reason for the Indian rupee to fall against the U.S. dollar was the growing trade deficit -- imports increased at a much higher pace than exports. A weaker rupee has made imports more expensive and thus left a short-term negative effect on domestic production and gross domestic product as a whole. The increase in imports resulted from a sharp surge in oil prices following the Ukraine crisis. High crude oil prices in the international market too weighed on the rupee.

Reports said foreign investors pulled out a net sum of 1.21 trillion Indian rupees (14.7 billion dollars) from the Indian equity markets and over 166.8 billion Indian rupees (2.02 billion dollars) from the debt markets in 2022 owing to an aggressive rate hike by central banks globally.

14. Outflow of FPIs and decline in forex reserves

Till December 28, foreign portfolio investors (FPIs) have made a net withdrawal of 1.21 lakh crore (nearly USD 16.5 billion) from the Indian equity markets and net pull out of around ₹ 16,600 crore (USD 2 billion) from the debt market, as per data available with the depositories.

According to the most recent RBI data, India's foreign exchange (forex) reserves increased by $44 million to $562.85 billion in the week that ended on December 30. However, the data demonstrated that the country's forex reserves decreased by $70.1 billion throughout the entire year 2022. The RBI's intervention in the currency market in 2022 to control volatility and support the rupee led to a decrease in forex reserves.

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15. Findings

During the period of high volatility in Indian market, investors and Indian traders have increasingly entered in derivative market. Derivatives volumes on the National Stock Exchange (NSE) hit a record 17,350 trillion so far in the fiscal year, led by proprietary and retail investors. This compares with 16,952 trillion for the whole of FY22. The number of contracts traded also hit a record 19.58 billion during the period, against 18.6 billion over the whole of the FY22.
In the derivatives segment, the market share of proprietary trades as a proportion of notional turnover increased by 2.8 percentage points to 50.9%, while that of retail increased by 10 basis points to 28.5% in the first half of the current fiscal from the same period of the previous fiscal, according to NSE data.
Participants include proprietary traders, brokers who run their own trades, retail (individual domestic investors, NRIs, sole proprietorship firms and Hindu undivided families), foreign portfolio investors, domestic institutional investors, and corporates.
In accordance with the objective of the research, data related to the volume of the currency future contracts traded on BSE during fiscal year 2022 has been collected.

MONTH (YEAR 2022)	AVERAGE INR - USD EXCHANGE RATE	VOLUME OF CURRENCY FUTURES CONTRACTS (INR-USD) TRADED ON BSE 2022
JAN	74.4671	34950045
FEB	74.9863	40751711
MAR	76.2376	51962345
APR	76.1962	44012851
MAY	77.3233	43100875
JUN	78.0644	45642345
JUL	79.5207	43488619
AUG	79.5881	41641256
SEP	80.2343	57671253
OCT	82.3351	52004658
NOV	81.5582	57492671
DEC	82.4487	46849403

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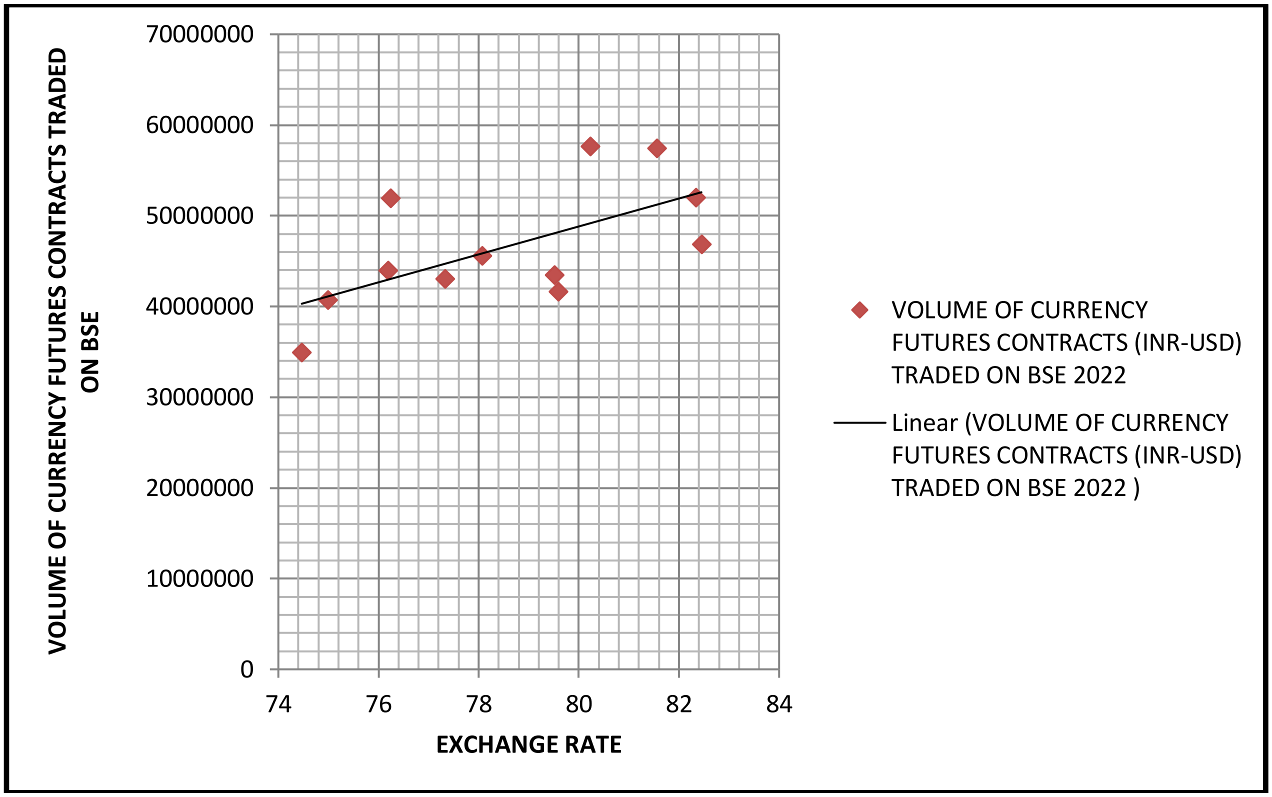

16. Calculation and results

Correlation between the two variables considered is 0.622071

This means both are positively correlation ie as the rupee depreciated, Indian traders and investors were increasingly entering to currency contracts to hedge themselves from the depreciation risk.

Based on the above result null hypothesis will be rejected and the alternative hypothesis will be accepted. Therefore, there exist positive relation between volume of currency futures traded on stock market (BSE) and the rupee dollar exchange rate fluctuation.

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17. Rupee outlook for 2023

Forex analysts say the outlook on the Indian rupee remains weak in 2023 but its depreciation may not continue for a longer period. It is also being predicted that the Indian rupee is likely to extend losses in the next fiscal year, but he does not expect any runaway depreciation, with a milder 2 percent to 3 percent drop in the fiscal year starting April 1.

RBI Governor Shaktikanta Das said in a December 2022 monetary policy announcement that when the tightening is over, the tide will surely turn and capital flows to India will improve leading to the easing of external financing conditions. He also said that the terminal interest rate for the U.S. Fed is anybody's guess, but it cannot be the case that their monetary policy will be tightened endlessly.

18. Conclusion

Many countries are still facing the problem of inflation which had began in mid 2021. It has been attributed to various causes including pandemic related problems, Russia – Ukraine war, increased global oil prices, natural gas and food prices. India is still fighting to curb inflation although it has reduced to greater extend as compared as last year. Higher inflation in US caused the Fed to increase its policy rates which affected almost every developing countries including India. This resulted in massive outflow of foreign portfolio investments out from the Indian market to invest in US. Imports being considerably greater than its exports, Indias trade account balance has for a long time remained in deficit. With high demand for dollars, our Indian rupee declined to a greater extend. The Indian rupee finished 2022 at 82.72 to the US dollars, down from 73.33 at the end 2021. During the decline of the rupee, Indian traders and investors had entered into derivative trading in order to hedged themselves from the depreciation risks. During the research it was proven that the Indian market anticipated the rupee would further decline in the future and have increasingly entered in currency future contracts in order to averse the associated risks.

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