

**ANALYSIS OF CURRENCY DERIVATIVES LISTED IN NSE**

**MANCHINENI MEGHANA CHOWDARY**, II- MBA, Malla Reddy Engineering College (Autonomous), Hyderabad. E-mail: [manchinenimeghana99@gmail.com](mailto:manchinenimeghana99@gmail.com).  
**DR. N. RAMANJANEYULU**, Professor & Head, Department of MBA, Malla Reddy Engineering College(Autonomous),Hyderabad. E-mail:[ramanjimba09@gmail.com](mailto:ramanjimba09@gmail.com).

**Abstract**

Currency Derivatives are playing an instrumental role in these days as the volume of world trade has increased enormously. The growing demand for the exports and imports, world trade has opened up for a new segment in the stock trading i.e., Currency Derivatives segment. Amid growing popularity of the currency derivatives segment during the time when world is facing intense crisis the study is an effort to analyse and compare the performance of currency derivatives of Indian Rupee(INR) pegged against American Dollar, Europe's Euro. In this study sample is taken from the year 2021 – 2022 and the selection of data was based up on National Stock Exchange ("NSE's"). The study uses three major currencies (USD, Euro, INR) for a duration of 2021-2022. Further, it is observed that the foreign currency derivatives use enhances firm value, however there is no hedging premium associated with foreign currency debt hedging, except when paired with foreign currency derivatives risk is enhanced, according to the project linked to the value effects of foreign currency hedging. The findings of the study for the duration of Jan-21 to May-22 the calculated RSI indicated that both the dollar price and euro price are in down trend. This result was arrived after calculating and comparing the Test Statistics and simulation.

**Keywords:** Currency Derivatives, Test Statistics, National Stock Exchange, Hedging, Relative strength index (RSI).

**I. Introduction**

Currency derivatives are considered to be one of the best options to manage any risk against foreign currency exchange rate volatility. Currency derivatives are exchange-based futures and options contracts that allow one to hedge against currency movements. Simply put, one can use a currency future contract to exchange one currency for another at a future date at a price decided on the day of the purchase of the contract. In India, one can use such derivative contracts to hedge against currencies like dollar, euro, U.K. pound and yen. Corporates, especially those with a significant exposure to imports or exports, use these contracts to hedge against their exposure to a certain currency. While all such currency contracts are cash-settled in rupees, the Securities and Exchange Board of India (SEBI), early this year, gave a go-ahead to start cross currency contracts as well on euro-dollar, pound-dollar and dollar-yen.

The two national-level stock exchanges, BSE and the National Stock Exchange (NSE), have currency derivatives segments. The Metropolitan Stock Exchange of India (MSEI) also has such a segment but the volumes are a fraction of that witnessed on the BSE or the NSE. One can trade in currency derivatives through brokers. Incidentally, all the leading stock brokers offer currency trading services too.

**II. Review Of Literature**

**Dr. E.V.P.A.S. Pallavi (2015)** the introduction of currency derivatives in India has taken about eight years, and various adjustments to the trading system have been made in that time. The major goal of this research is to examine India's currency derivatives development. The number of contracts exchanged, trading volume, and open interest at the NSE are all examined in order to determine the growth of currency derivatives. Investors and hedgers alike have been enthusiastic about currency derivatives.

**Prashant Sharma (2019)** The current research examines the effectiveness of the currency derivatives market by evaluating its contribution to the price discovery process using spot and future prices of four currencies traded on the National Stock Exchange (NSE) of India (USD/INR, EURO/INR, GBP/INR, and JPY/INR). According to the findings, spot rates and future rates have a long-run equilibrium connection, with unidirectional causation going from future rates to spot rates for all currencies under study. Because the futures markets play a larger role in price discovery, more investors are drawn to them. As a result, more logical price discovery occurs.

**Anwar Hasan Abdullah Othman (2021)** in a non-linear framework, this research investigates the influence of hedging on the firm value of Shariah compliant enterprises (SCFs). To investigate the impact of derivatives, use on firm value (Tobin's Q, ROA, and ROE), and this research uses the system-GMM for dynamic panel data. From 2000 to 2017, the sample included 59 non-financial SCFs that were involved in derivatives (18 years).

**Abhishek Kumar Sinha (2019)** the phenomenal rise of the Indian economy in recent years has fueled the growth of the Indian Forex market. India now has a key role in the global economic landscape and is regarded as one of the world's developing economies. The constant development of the Indian economy, as well as the diversification of India's industrial sectors, have aided the Indian Forex Market's fast expansion. The volume of transactions in the Foreign Exchange Market has increased as a result of India's extensive globalisation and liberalisation. As a result, an active and liquid forex derivative market is required to supply a basket of hedging products for effective foreign currency risk management.

**Sung Bae (2017)** we find that enterprises with greater export, more foreign currency debt, and larger exchange rate exposures are more likely to employ currency derivatives for hedging, using firm-level data for Korean firms. More currency derivatives usage does not lead to decreased company risk, but such transactions, particularly sell transactions, bring in greater firm values, according to 2SLS regressions. Furthermore, the usage of currency derivatives by enterprises with substantial exposures is linked to reduced company risk as well as lower firm value. These results show that currency futures might help enterprises with minimal and controllable exposures manage risk and safeguard their assets.

**Piotr Wybieralski (2021)** the purpose of this chapter is to examine the influence of the Covid-19 epidemic and increased market volatility on risk management in Poland's OTC derivatives market. The chapter begins by describing the legal backdrop of derivatives trading with non-financial firms, then analyses the major dangers and explores market players' potential responses. The research does a volatility analysis based on chosen market data in this respect. **Arjun Gope (2014)** financial derivatives are used by a variety of institutions, including businesses, commercial banks, institutional investors, and individuals, to decrease risk, "lay off," or speculate on different hazards. Despite the fact that India's financial derivative market is not very old, the nation has emerged as a big and active derivative market in the global context. In 2012, India's National Stock Exchange (NSE) was rated third in the world, after CME Group and Eurex.

**Saurabh Ghosh (2003)** in recent years, derivative products such as futures and options on Indian stock exchanges have become essential price discovery, portfolio diversification, and risk hedging strategies. Using the ARCH/GARCH approach, this study investigates the influence of index futures on spot market volatility on the S&P CNX Nifty and the BSE Sensex. According to the empirical investigation, following the introduction of index futures, spot market volatility decreased as the influence of fresh news grew and the effect of uncertainty emanating from old news decreased. Further study demonstrates, however, that market-wide volatility has decreased throughout the time period under review

**S. Dinesh (2011)** the introduction and proliferation of financial derivatives has been one of the most important developments in the securities markets. In recent years, derivative products such as futures and options on Indian stock exchanges have become essential price discovery, portfolio diversification, and risk hedging strategies. According to the empirical investigation, following the introduction of index futures, spot market volatility decreased as the influence of fresh news grew and the effect of uncertainty emanating from old news decreased.

**Dr Nalla Bala Kalyan (2019)** the derivatives market has a crucial function to play in the economic growth of a nation. The goal of the research is to look at the impact of financial derivatives on underlying market volatility (futures and options). Financial derivatives are now becoming more popular and widely employed in the financial sector. This has expanded at such a rapid rate over the globe that it is now known as the derivatives revolution. The inception and expansion of the derivatives market is considerably greater in India. Derivative. This essay will look at futures and options using the Indian stock market as a case study. This article tries to advise investors on the best strategies to increase their earnings in derivative markets.

**Kishan Egurla (2018)** India's derivative market, like its international equivalents, is growing in importance. Derivatives have gained in popularity dramatically since their introduction in the year 2000. The fact that the daily turnover in the derivatives section of the National Stock Exchange is presently in the crores, much larger than the turnover in the cash markets on the same exchange, demonstrates this. The entire turnover in the equities cash market was about Rs 60.5 lakh crore in fiscal 2016-17, while the same for equity derivatives was around Rs 944 lakh billion.

**Dr. G. Prabakaran (2017)** In India's derivatives industry, futures and options are one of the most significant areas. Financial derivatives have grown to become one of the world's biggest markets in terms of trading volume, number of index and stock options available for trading, and investor engagement in the derivatives market during the last two decades.

**James Weston (2001)** The usage of foreign currency derivatives (FCDs) in a sample of 720 big nonfinancial enterprises in the United States between 1990 and 1995 is investigated, as well as the possible influence on company value. We establish a positive relationship between firm value and the adoption of FCDs using Tobin's Q as a proxy for firm value. For enterprises with exposure to exchange rates, the hedging premium is statistically and economically substantial, accounting for 4.87 percent of company value on average. We also discover some data that supports the premise that hedging increases business value.

**Prakash Basanna (2019)** Foreign Exchange Risk Management (FERM) entails the use of both internal and external currency derivatives such as forwards, futures, options, and swaps. Currency derivatives are more often used by companies with more development potential and tighter financial limitations. Currency forwards, options, futures, and swaps are some of the derivative products available in the forex market for hedging currency risks. The purpose of this article is to investigate the effect of different FERM Techniques utilised in the Indian FMCG industry on exchange gains and losses.

**Shinhua Liu (2019)** Because of the increased information provided by currency derivatives trading, underlying exchange prices should be less predictable than before, and underlying currency markets should be more efficient as a result. For the first time, this theory was tested using a clean sample of three key kinds of currency derivatives introduced in two significant markets from 1982 to 1997. Various statistical studies show that once the derivative contracts were introduced, the underlying exchange rates grew more random, and the currencies involved tended to be priced more efficiently, supporting the premise.

**III. Need for the study**

The project relating to the value effects of foreign currency hedging indicate that foreign currency derivatives use increases firm value but there is no hedging premium associated with foreign currency debt hedging, except when combined with foreign currency derivatives risk is increased. The study tries to analyze the current trend in currency derivatives market, so it helps for market evaluation. The study helps to identify the concept of hedging in a simplified manner.

**IV. Scope of the study**

The need of the study is to know the performance of derivative hedging and working and understanding about how to derivative help people to manage the risk and increase the profitability. Most of the investors are not aware about investing in currency derivatives. My project will be helpful for Investors who wants to gain profitability in Foreign currencies.

**V. Objectives of the study**

- To analyze the various currency derivatives in NSE.
- To evaluate the performance of currency derivatives.
- To analyze the currency derivatives fluctuations using RSI Tools.
- To suggest best currency in Investment Management.

**VI. Research Methodology**

**Research Design:** Refers to the framework of market research methods and techniques that are chosen by a researcher. The design that is chosen by the researchers allow them to utilise the methods that are suitable for the study and to set up their studies successfully in the future as well.

Since the study is on the currency derivatives segment. The whole research is based secondary sources only

**Secondary data sources**

For the purpose of data analysis I have taken four pairs traded in NSE. To get more information about this` I collected data from websites, articles and journals related to currency derivative market. For academic point of knowledge I referred NISM currency derivative module work book

**Sample size:**

- USD/INR
- EUR/INR

**Sample duration:**

One year data is taken for analysis purpose.

Use of Test Statistics, simulations and software if any

**Statistical tools:**

$$\text{Relative Strength Index (RSI)} = 100 - \frac{100}{1+RS}$$

**VII. Empirical Results**

For the purpose of data analysis I have taken four pairs traded in NSE. To get more information about this` I collected data from websites, articles and journals related to currency derivative market. For academic point of knowledge I referred NISM currency derivative module work book.

$$\text{Relative Strength Index (RSI)} = 100 - \frac{100}{1+RS}$$

Date	Price	Change	Gain	Loss	Avg Gain	Avg Loss	RS	14-Day RSI
Jan 21, 2021	73.03	-0.05	0.00	0.05	0.06	0.08	0.76	43.22
Jan 22, 2021	72.96	-0.07	0.00	0.07	0.06	0.08	0.71	41.64
Jan 25, 2021	72.94	-0.02	0.00	0.02	0.05	0.08	0.70	41.18

Jan 27, 2021	72.82	-0.12	0.00	0.12	0.05	0.08	0.62	38.42
Jan 28, 2021	73.28	0.46	0.46	0.00	0.08	0.07	1.07	51.75
Jan 29, 2021	73.17	-0.11	0.00	0.11	0.07	0.08	0.96	49.02
Feb 01, 2021	73.32	0.15	0.15	0.00	0.08	0.07	1.11	52.69
Feb 02, 2021	73.21	-0.11	0.00	0.11	0.07	0.07	0.99	49.86
Feb 03, 2021	73.13	-0.08	0.00	0.08	0.07	0.07	0.92	47.84
Feb 04, 2021	73.15	0.02	0.02	0.00	0.06	0.07	0.94	48.40
Feb 05, 2021	73.07	-0.08	0.00	0.08	0.06	0.07	0.86	46.26
Feb 08, 2021	73.1	0.03	0.03	0.00	0.06	0.06	0.89	47.20
Feb 09, 2021	73.04	-0.06	0.00	0.06	0.05	0.06	0.83	45.48
Feb 10, 2021	72.93	-0.11	0.00	0.11	0.05	0.07	0.74	42.42
Feb 11, 2021	72.96	0.03	0.03	0.00	0.05	0.06	0.77	43.54
Feb 12, 2021	72.71	-0.25	0.00	0.25	0.04	0.08	0.59	37.09
Feb 15, 2021	72.72	0.01	0.01	0.00	0.04	0.07	0.60	37.49
Feb 16, 2021	72.79	0.07	0.07	0.00	0.04	0.07	0.68	40.34
Feb 17, 2021	72.8	0.01	0.01	0.00	0.04	0.06	0.69	40.76
Feb 18, 2021	72.63	-0.17	0.00	0.17	0.04	0.07	0.57	36.15
Feb 22, 2021	72.47	-0.16	0.00	0.16	0.04	0.08	0.48	32.43
Feb 23, 2021	72.54	0.07	0.07	0.00	0.04	0.07	0.55	35.55
Feb 24, 2021	72.29	-0.25	0.00	0.25	0.04	0.08	0.43	30.19
Feb 25, 2021	72.72	0.43	0.43	0.00	0.06	0.08	0.83	45.44
Feb 26, 2021	74.19	1.47	1.47	0.00	0.16	0.07	2.31	69.76
Mar 01, 2021	73.76	-0.43	0.00	0.43	0.15	0.10	1.58	61.17
Mar 02, 2021	73.61	-0.15	0.00	0.15	0.14	0.10	1.41	58.47
Mar 03, 2021	73.11	-0.50	0.00	0.50	0.13	0.13	1.02	50.46
Mar 04, 2021	72.99	-0.12	0.00	0.12	0.12	0.13	0.95	48.73
Mar 05, 2021	73.31	0.32	0.32	0.00	0.14	0.12	1.14	53.32
Mar 08, 2021	73.39	0.08	0.08	0.00	0.13	0.11	1.19	54.41
Mar 09, 2021	73.14	-0.25	0.00	0.25	0.12	0.12	1.02	50.42
Mar 10, 2021	73.15	0.01	0.01	0.00	0.11	0.11	1.02	50.58
Mar 12, 2021	72.9	-0.25	0.00	0.25	0.11	0.12	0.87	46.63
Mar 15, 2021	72.62	-0.28	0.00	0.28	0.10	0.13	0.74	42.61
Mar 16, 2021	72.62	0.00	0.00	0.00	0.09	0.12	0.74	42.61
Mar 17, 2021	72.67	0.05	0.05	0.00	0.09	0.11	0.77	43.62
Mar 18, 2021	72.59	-0.08	0.00	0.08	0.08	0.11	0.73	42.34
Mar 19, 2021	72.58	-0.01	0.00	0.01	0.08	0.11	0.73	42.17
Mar 22, 2021	72.41	-0.17	0.00	0.17	0.07	0.11	0.65	39.34
Mar 23, 2021	72.54	0.13	0.13	0.00	0.08	0.10	0.74	42.52
Mar 24, 2021	72.68	0.14	0.14	0.00	0.08	0.09	0.85	45.81
Mar 25, 2021	72.62	-0.06	0.00	0.06	0.07	0.09	0.81	44.63
Mar 26, 2021	72.4	-0.22	0.00	0.22	0.07	0.10	0.68	40.51
Mar 30, 2021	73.87	1.47	1.47	0.00	0.17	0.09	1.80	64.25
Mar 31, 2021	73.42	-0.45	0.00	0.45	0.16	0.12	1.31	56.78
Apr 05, 2021	73.55	0.13	0.13	0.00	0.16	0.11	1.40	58.29
Apr 06, 2021	73.67	0.12	0.12	0.00	0.15	0.10	1.48	59.69

Apr 07, 2021	74.58	0.91	0.91	0.00	0.21	0.10	2.16	68.36
Apr 08, 2021	74.83	0.25	0.25	0.00	0.21	0.09	2.36	70.25
Apr 09, 2021	74.82	-0.01	0.00	0.01	0.19	0.08	2.34	70.07
Apr 12, 2021	75.21	0.39	0.39	0.00	0.21	0.08	2.70	72.99
Apr 15, 2021	75.21	0.00	0.00	0.00	0.19	0.07	2.70	72.99
Apr 16, 2021	74.52	-0.69	0.00	0.69	0.18	0.12	1.55	60.83
Apr 19, 2021	74.96	0.44	0.44	0.00	0.20	0.11	1.84	64.85
Apr 20, 2021	75.12	0.16	0.16	0.00	0.20	0.10	1.96	66.21
Apr 22, 2021	75.07	-0.05	0.00	0.05	0.18	0.10	1.89	65.36
Apr 23, 2021	75.05	-0.02	0.00	0.02	0.17	0.09	1.86	65.00
Apr 26, 2021	74.79	-0.26	0.00	0.26	0.16	0.10	1.52	60.35
Apr 27, 2021	74.64	-0.15	0.00	0.15	0.15	0.11	1.37	57.78
Apr 28, 2021	74.4	-0.24	0.00	0.24	0.14	0.12	1.17	53.84
Apr 29, 2021	74.37	-0.03	0.00	0.03	0.13	0.11	1.14	53.35
Apr 30, 2021	74.39	0.02	0.02	0.00	0.12	0.10	1.16	53.65
May 03,2021	74.33	-0.06	0.00	0.06	0.11	0.10	1.11	52.55
May 04,2021	74.26	-0.07	0.00	0.07	0.10	0.10	1.05	51.22
May 05,2021	74.19	-0.07	0.00	0.07	0.09	0.09	0.99	49.87
May 06,2021	73.97	-0.22	0.00	0.22	0.09	0.10	0.84	45.78
May 07,2021	73.66	-0.31	0.00	0.31	0.08	0.12	0.69	40.71
May 10,2021	73.55	-0.11	0.00	0.11	0.08	0.12	0.64	39.06

**Table No: 1.1 Tabular representation of USD/INR for the Duration Jan 2021- May22**

**Source: Author's Compilation**

From the analysis it is observed, In an uptrend, an oversold reading on the RSI is likely much higher than 30%, while in a downtrend, an overbought reading on the RSI is likely much lower than 70%. The estimated RSI indicates that Euro price is in a downtrend based on the above study of Euro price for the period Jan-2021 to Dec-2021. The RSI is currently at zero, indicating that the Dollar will most likely be volatile in the future. In an uptrend, an oversold reading on the RSI is likely much higher than 30%, while in a downtrend, an overbought reading on the RSI is likely much lower than 70%. The estimated RSI indicated that the Euro price was in an uptrend from January to May 2022, based on the above study. The RSI is currently at 70.15, indicating that the Dollar may become more bullish in the future.

## **VII. Findings, Suggestions and Conclusion**

### **Findings:**

- Dollar price for the duration of Jan-2021 to Dec-2021 the calculated RSI indicated that Dollar price in down trend. Recorded RSI is at 70.23 which mean in future Dollar may go volatility.
- Dollar price for the duration of Jan-2022 to May 2022 the calculated RSI indicated that Dollar price in down trend. Recorded RSI is at 70.23 which mean in future Dollar may go volatility.
- Euro price for the duration of Jan-2021 to Dec-2021 the calculated RSI indicated that Euro price in down trend. Recorded RSI is at 0 which means in future Dollar may go mostly volatility.
- Euro price for the duration of jan-2022 to May-2022 the calculated RSI indicated that Euro price in up trend. Recorded RSI is at 70.15 which means in future Dollar may go bullish.



**Suggestions:**

- Investor should be maintain strict stop-loss while trading in currency derivatives
- Currency Future need to change some restriction it imposed such as cut off limit of 5 million USD, Ban on NRI's and FII's and Mutual Funds from Participating.
- Now in exchange traded currency future segment only one pair USD-INR is available to trade so there is also one more demand by the exporters and importers to introduce another pair in currency trading. Like POUND-INR, CAD-INR etc.

**Conclusion:**

By far the most significant event in finance during the past decade has been the extraordinary development and expansion of financial derivatives...These instruments enhances the ability to differentiate risk and allocate it to those investors most able and willing to take it- a process that has undoubtedly improved national productivity growth and standards of livings. The currency future gives the safe and standardized contract to its investors and individuals who are aware about the forex market or predict the movement of exchange rate so they will get the right platform for the trading in currency future. Because of exchange traded future contract and its standardized nature gives counter party risk minimized.

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