**A study on Currency Futures And Impact Of Macro-Economic Indicators On Currency Movements**

**Gadige Dharani**

Roll No: 212122672079, Department of Management Studies

Aristotle PG College,Chilkur, Moinabad, Ranga Reddy District, Telangana.

**Ms.C.Jyothika Sony**

Assistant Professor

Aristotle PG College, Chilkur, Moinabad, Ranga Reddy District, Telangana.

[jyothika.chh@gmail.com](mailto:jyothika.chh@gmail.com)

**Abstract:**

Currency futures are a linear product, and calculating profits or losses on Currency Futures will be similar to calculating profits or losses on Index futures. In determining profits and losses in futures trading, it is essential to know both the contract size (the number of currency units being traded) and also what the tick value is. A tick is the minimum trading increment or price differential at which traders are able to enter bids and offers. Tick values differ for different currency pairs and different underlings. For e.g. in the case of the USD-INR currency futures contract the tick size shall be 0.25 paise or 0.0025 Rupees. To demonstrate how a move of one tick affects the price, imagine a trader buys a contract (USD 1000 being the value of each contract) at Rs.42.2500. One tick move on this contract will translate to Rs.42.2475 or Rs.42.2525 depending on the direction of market movement.

**Keywords:** Currency futures, futures contract, market movement

**INTRODUCTION:**

**INTRODUCTION TO CURRENCY DERIVATIVES**

Each country has its own currency through which both national and international transactions are performed. All the international business transactions involve an exchange of one currency for another.

For example,

If any Indian firm borrows funds from international financial market in US dollars for short or long term then at maturity the same would be refunded in particular agreed currency along with accrued interest on borrowed money. It means that the borrowed foreign currency brought in the country will be converted into Indian currency, and when borrowed fund are paid to the lender then the home currency will be converted into foreign lender’s currency. Thus, the currency units of a country involve an exchange of one currency for another.

The price of one currency in terms of other currency is known as **exchange rate.**

With the multiple growths of international trade and finance all over the world, trading in foreign currencies has grown tremendously over the past several decades. Since the exchange rates are continuously changing, so the firms are exposed to the risk of exchange rate movements. As a result the assets or liability or cash flows of a firm which are denominated in foreign currencies undergo a change in value over a period of time due to variation in exchange rates.

This variability in the value of assets or liabilities or cash flows is referred to exchange rate risk. Since the fixed exchange rate system has been fallen in the early 1970s, specifically in developed countries, the currency risk has become substantial for many business firms. As a result, these firms are increasingly turning to various risk hedging products like foreign currency futures, foreign currency forwards, foreign currency options, and foreign currency swaps.

**HISTORY OF CURRENCY DERIVATIVES**

Currency futures were first created at the Chicago Mercantile Exchange (CME) in 1972.The contracts were created under the guidance and leadership of Leo Melamed, CME Chairman Emeritus. The FX contract capitalized on the U.S. abandonment of the Bretton Woods agreement, which had fixed world exchange rates to a gold standard after World War II. The abandonment of the Bretton Woods agreement resulted in currency values being allowed to float, increasing the risk of doing business. By creating another type of market in which futures could be traded, CME currency futures extended the reach of risk management beyond commodities, which were the main derivative contracts traded at CME until then. The concept of currency futures at CME was revolutionary, and gained credibility through endorsement of Nobel-prize-winning economist Milton Friedman.

**REVIEW OF LITERATURE:**

**ARTICLE: 1**

**Title:** Currency Forwards and Futures

**Author: Keith Cuthbertson**

**Source:** **CzOTO 2020, volume 2, issue 1, pp. 18-25**

This chapter outlines contract specifications, settlement procedures and price quotes for selected foreign exchange futures contracts also called ‘currency futures’. Currency forwards and futures are very similar analytically, even though in practice the contractual arrangements differ. Currency forwards and futures are used to hedge future cash flows in foreign currency – for example, by exporters and importers. The chapter explains that hedging and speculation with futures contracts gives a result which is very close to that when using forwards, the main difference being that the futures are often closed out before maturity and futures involves margin payments. Currency futures provide a low cost method of hedging known future foreign currency receipts or payments. There is virtually zero credit risk when using futures, because of margin requirements. Futures prices can be determined using the cost of carry approach which is equivalent to the covered interest parity condition.

**ARTICLE: 2**

**Title:** Foreign Exchange Forward and Futures Prices: Are they Equal

**Author:** Hashem Dezhbakhsh

**Source:** **The Journal of Financial and Quantitative Analysis**

Small sample t-test results are reported in the literature that indicate the difference between futures and forward exchange rates are statistically insignificant. Much research draws on this finding, which is in contrast with theory. The evidence presented here suggests this difference does not follow a normal distribution, so the small sample inferences based on the t-tests may be suspect. As appropriate alternatives, nonparametric distribution-free tests are used to reexamine the difference for two sample periods, one covering the 1970s and the other the 1970s and 1980s. A significant divergence is observed for several currencies as well as for a sample of pooled currencies. The results are stronger for samples covering the 1980s. The economic significance of the forward-futures differentials is examined and theoretical justifications are discussed.

**ARTICLE: 3**

**Tile:** Currency Futures and Forward Contracts

**Author:** Julia ) Zhu

**Source:** **IJRAR- International Journal of Research and Analytical Reviews**

Futures contracts are exchange traded through the clearing house while forward contracts are traded between two private parties. Futures contracts are standard con-tract while forward contracts are not. Futures contracts define range of delivery dates while forward contracts usually specify one delivery date. Futures contracts are settled daily while forward contracts are settled at maturity. Futures contracts usually close out prior to maturity while delivery or final cash settlement usually occurs in forward contracts. Marking-to-market is the most crucial difference between forward and fu-tures contracts. As time t approaches to maturity T , both futures rate and forward rate converge to the spot rate. In the imperfect financial market, default risk problem can be solved by setting credit limit, requiring margin, and limiting maturity.6000x78335.

**RESEARCH GAP:**

The results show that there is virtually zero credit risk when using futures, because of margin requirements. Futures prices can be determined using the cost of carry approach which is equivalent to the covered interest parity condition.

**OBJECTIVES:**

1. To study the basic concept of currency future.

2. To study exchange traded currency future

3. To analyze the impact of different Macro-Economic indicators on Indian currency.

* Inflation
* Crude Oil Prices
* Gold prices
* GDP
* Nifty index

4. To study different currency derivatives products.

5. To know the factors that would be most helpful to boost currency derivative trading in India.

**RESEARCH METHODOLOGY:**

**Need For The Study**

* Derivatives are advanced financial instruments introduced in the year 2023 to minimize risk and maximize return.
* In the emerging markets like India there is high degree of volatility; Investors generally face lot of risk in investment.
* To know the balance of payments.

**Scope Of The Study:**

1. Study mainly concentrates on USD/INR EXHANGE RATE contracts though NSE has introduced trading in currency futures based on

* Euro (EUR)-INR
* Pound Sterling (GBP)-INR
* Japanese Yen (JPY)-INR exchange rates

2. The main factor that affects the USD/INR EXHANGE RATE or any other currency is the Demand/supply dynamics for the individual currencies. However the Demand/supply dynamics is influenced by many other factors such as interest rates, inflation, money supply, trade balance, growth in imports, exports, capital flows, and overall economic growth in the country and global developments. Due to time constraints only major economic indicators are selected for analysis.

**Methodology**

Research methodology is a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically. So, the research methodology not only talks about the research methods but also considers the logic behind the method used in the context of the research.

**Primary Data: -** The data collected by discussing by the guide and other staff members of the company.

**Secondary Data** - The secondary data which is collected from company’s website and various other websites, journals, magazines and financial books.

**Limitations Of The Study**

* Detailed study of the topic was not possible due to limited size of the project.
* Only five economic indicators are selected for the study.
* Some part of analysis was purely based on the secondary data. So any error in the secondary data might also affect the study undertaken.
* There is a constraint with regard to time allocation for the research study.
* The behavior of the customer while approaching them to fill the questionnaire was unpredictable.

**DATA ANALYSIS & INTERPRETATION:**

**TECHNICAL ANALYSIS:**

**CORRELATION BETWEEN EXCHANGE RATES AND INFLATION RATE FOR THE YEAR 2022&2023.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **YEAR** | **CURRENCY RATE X** | **INFLATION RATE Y** | **XY** | **X2** | **Y2** |
| JAN-2022 | 45.9216 | 10.45 | 479.88072 | 2108.793 | 109.2025 |
| APR-2022 | 44.4714 | 8.7 | 386.90118 | 1977.705 | 75.69 |
| JUL-2022 | 46.8363 | 11.89 | 556.883607 | 2193.639 | 141.3721 |
| OCT-2022 | 44.425 | 11.49 | 510.44325 | 1973.581 | 132.0201 |
| JAN-2023 | 48.7326 | 16.22 | 790.442772 | 2374.866 | 263.0884 |
| APR-2023 | 50.0596 | 13.91 | 696.329036 | 2505.964 | 193.4881 |
| JUL-2023 | 48.4358 | 9.88 | 478.545704 | 2346.027 | 97.6144 |
| OCT-2023 | 46.7192 | 9.7 | 453.17624 | 2182.684 | 94.09 |
| SUM | 375.6015 | 92.24 | 4352.602509 | 17663.26 | 1106.566 |

r = n∑xy-∑x∑y = 0.623

√[n∑x2-(∑x)2][n∑y2-(∑y)2]

**INTERPRETATION**

The coefficient correlation (r = 0.623) shows that there is a positive correlation. Though there is no strong correlation between two. Positive values indicate a relationship between x and y variables such that as rate of inflation increases, values of USD/INR exchange rate also increases.

**CORRELATION BETWEEN EXCHANGE RATES AND CRUDE OIL PRICES FOR THE YEAR 2022&2023**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **YEAR** | **CURRENCY RATE X** | **CRUDE OIL PRICES Y** | **XY** | **X2** | **Y2** |
| JAN-2022 | 48.73 | 33.07 | 1611.501 | 2374.613 | 1093.625 |
| FEB-2022 | 49.19 | 31.04 | 1526.858 | 2419.656 | 963.4816 |
| MAR-2022 | 51.2 | 39.88 | 2041.856 | 2621.44 | 1590.414 |
| APR-2022 | 50.06 | 42.2 | 2112.532 | 2506.004 | 1780.84 |
| MAY-2022 | 48.55 | 51.02 | 2477.021 | 2357.103 | 2603.04 |
| JUN-2022 | 47.74 | 61.46 | 2934.1 | 2279.108 | 3777.332 |
| JUL-2022 | 48.43 | 56.16 | 2719.829 | 2345.465 | 3153.946 |
| AUG-2022 | 48.33 | 62.8 | 3035.124 | 2335.789 | 3943.84 |
| SEP-2022 | 48.36 | 60.98 | 2948.993 | 2338.69 | 3718.56 |
| OCT-2022 | 46.72 | 67.43 | 3150.33 | 2182.758 | 4546.805 |
| NOV-2022 | 46.56 | 69.43 | 3232.661 | 2167.834 | 4820.525 |
| DEC-2022 | 46.6 | 66.33 | 3090.978 | 2171.56 | 4399.669 |
| JAN-2023 | 45.92 | 69.85 | 3207.512 | 2108.646 | 4879.023 |
| FEB-2023 | 46.35 | 68.04 | 3153.654 | 2148.323 | 4629.442 |
| MAR-2023 | 45.49 | 72.9 | 3316.221 | 2069.34 | 5314.41 |
| APR-2023 | 44.47 | 76.31 | 3393.506 | 1977.581 | 5823.216 |
| MAY-2023 | 45.87 | 66.25 | 3038.888 | 2104.057 | 4389.063 |
| JUN-2023 | 46.57 | 67.12 | 3125.778 | 2168.765 | 4505.094 |
| JUL-2023 | 46.83 | 67.91 | 3180.225 | 2193.049 | 4611.768 |
| AUG-2023 | 46.57 | 68.34 | 3182.594 | 2168.765 | 4670.356 |
| SEP-2023 | 46.99 | 67.18 | 3156.788 | 2208.06 | 4513.152 |
| OCT-2023 | 44.42 | 73.63 | 3270.645 | 1973.136 | 5421.377 |
| NOV-2023 | 44.99 | 76 | 3419.24 | 2024.1 | 5776 |
| DEC-2023 | 45.11 | 77 | 3473.47 | 2034.912 | 5929 |
| SUM | 1130.05 | 1492.33 | 69800.3 | 53278.75 | 96853.98 |

r = n∑xy-∑x∑y = -0.87

√[n∑x2-(∑x)2][n∑y2-(∑y)2]

**INTERPRETATION**

The coefficient correlation (r = -0.87) shows that there is a negative correlation. Though there is no strong correlation between two. Negative values indicate a relationship between USD/INR EXHANGE Rate and Crude Oil Prices such that as Crude Oil Price decreases, values for USD/INR EXHANGE Rate increases & vice-versa.

**CORRELATION BETWEEN EXCHANGE RATES AND NIFTY INDEX FOR THE YEAR 2022&2023.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **YEAR** | **CURRENCY RATE X** | **NIFTY INDEX Y** | **XY** | **X2** | **Y2** |
| JAN-2022 | 48.73 | 2874 | 140050 | 2374.613 | 8259876 |
| FEB-2022 | 49.19 | 2763 | 135912 | 2419.656 | 7634169 |
| MAR-2022 | 51.2 | 3020 | 154624 | 2621.44 | 9120400 |
| APR-2022 | 50.06 | 3473 | 173858.4 | 2506.004 | 12061729 |
| MAY-2022 | 48.55 | 4448 | 215950.4 | 2357.103 | 19784704 |
| JUN-2022 | 47.74 | 4291 | 204852.3 | 2279.108 | 18412681 |
| JUL-2022 | 48.43 | 4636 | 224521.5 | 2345.465 | 21492496 |
| AUG-2022 | 48.33 | 4662 | 225314.5 | 2335.789 | 21734244 |
| SEP-2022 | 48.36 | 5083 | 245813.9 | 2338.69 | 25836889 |
| OCT-2022 | 46.72 | 4711 | 220227.9 | 2182.758 | 22193521 |
| NOV-2022 | 46.56 | 5032 | 234289.9 | 2167.834 | 25321024 |
| DEC-2022 | 46.6 | 5201 | 242366.6 | 2171.56 | 27050401 |
| JAN-2023 | 45.92 | 4882 | 224181.4 | 2108.646 | 23833924 |
| FEB-2023 | 46.35 | 4922 | 228134.7 | 2148.323 | 24226084 |
| MAR-2023 | 45.49 | 5249 | 238777 | 2069.34 | 27552001 |
| APR-2023 | 44.47 | 5278 | 234712.7 | 1977.581 | 27857284 |
| MAY-2023 | 45.87 | 5086 | 233294.8 | 2104.057 | 25867396 |
| JUN-2023 | 46.57 | 5312 | 247379.8 | 2168.765 | 28217344 |
| JUL-2023 | 46.83 | 5367 | 251336.6 | 2193.049 | 28804689 |
| AUG-2023 | 46.57 | 5402 | 251571.1 | 2168.765 | 29181604 |
| SEP-2023 | 46.99 | 6029 | 283302.7 | 2208.06 | 36348841 |
| OCT-2023 | 44.42 | 6017 | 267275.1 | 1973.136 | 36204289 |
| NOV-2023 | 44.99 | 5862 | 263731.4 | 2024.1 | 34363044 |
| DEC-2023 | 45.11 | 6134 | 276704.7 | 2034.912 | 37625956 |
| SUM | 1130.05 | 115734 | 5418054 | 53278.75 | 578984590 |

r = n∑xy-∑x∑y = -0.82

√ [n∑x2-(∑x) 2] [n∑y2-(∑y) 2]

**INTERPRETATION**

The coefficient correlation (r = -0.82) shows that there is a negative correlation. As x and y have a strong negative linear correlation, r is close to -1. .Negative values indicate a relationship between USD/INR EXHANGE Rate and Nifty such that as values for x increase, values for y decrease.

**CORRELATION BETWEEN EXCHANGE RATES AND GDP FOR THE YEAR 2022&2023.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **YEAR** | **CURRENCY RATE X** | **GDP Y** | **XY** | **X2** | **Y2** |
| 2003-04 | 43.11 | 7.387 | 318.4536 | 1858.472 | 54.567769 |
| 2004-05 | 44.95 | 4.03 | 181.1485 | 2022.503 | 16.2409 |
| 2005-06 | 47.19 | 5.216 | 246.143 | 2226.896 | 27.206656 |
| 2006-07 | 48.6 | 3.766 | 183.0276 | 2361.96 | 14.182756 |
| 2007-08 | 46.55 | 8.37 | 389.6235 | 2166.903 | 70.0569 |
| 2008-09 | 45.33 | 8.278 | 375.2417 | 2054.809 | 68.525284 |
| 2009-10 | 44.11 | 9.352 | 412.5167 | 1945.692 | 87.459904 |
| 2010-11 | 45.33 | 9.669 | 438.2958 | 2054.809 | 93.489561 |
| 2011-12 | 41.29 | 9.06 | 374.0874 | 1704.864 | 82.0836 |
| 2013-14 | 43.41 | 6.074 | 263.6723 | 1884.428 | 36.893476 |
| 2022-15 | 48.35 | 5.36 | 259.156 | 2337.723 | 28.7296 |
| SUM | 498.22 | 76.562 | 3441.366 | 22617.06 | 579.43641 |

r = n∑xy-∑x∑y = -0.02

√ [n∑x2-(∑x) 2] [n∑y2-(∑y) 2]

**INTERPRETATION**

The coefficient correlation (r = -0.02) shows that there is a negative correlation. Though there is no strong correlation between two .Negative values indicate a relationship between USD/INR EXHANGE Rate and GDP Growth Rate such that as values for USD/INR EXHANGE Rate increases, GDP rate shows declining trend.

The gross domestic product (GDP) is a measure of a country's overall economic output. It is the market value of all final goods and services made within the borders of a country in a year.

**CORRELATION BETWEEN EXCHANGE RATES AND GOLD PRICES FOR THE YEAR 2022&2023**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **YEAR** | **CURRENCY RATE X** | **GOLD PRICE Y** | **XY** | **X2** | **Y2** |
| JAN-2022 | 48.7326 | 14760 | 719293.2 | 2374.866 | 217857600 |
| FEB-2022 | 49.1914 | 16365 | 805017.3 | 2419.794 | 267813225 |
| MAR-2022 | 51.2062 | 16694.3 | 854851.7 | 2622.075 | 278699652 |
| APR-2022 | 50.0596 | 15718.89 | 786881.3 | 2505.964 | 247083503 |
| MAY-2022 | 48.5497 | 15903 | 772085.9 | 2357.073 | 252905409 |
| JUN-2022 | 47.7459 | 15926.58 | 760428.9 | 2279.671 | 253655950 |
| JUL-2022 | 48.4358 | 15961.26 | 773096.4 | 2346.027 | 254761821 |
| AUG-2022 | 48.3314 | 16185.13 | 782250 | 2335.924 | 261958433 |
| SEP-2022 | 48.3606 | 17000.24 | 822141.8 | 2338.748 | 289008160 |
| OCT-2022 | 46.7192 | 17190.68 | 803134.8 | 2182.684 | 295519479 |
| NOV-2022 | 46.5619 | 18510.44 | 861881.3 | 2168.011 | 342636389 |
| DEC-2022 | 46.5987 | 18651 | 869112.4 | 2171.439 | 347859801 |
| JAN-2023 | 45.9216 | 18108.82 | 831586 | 2108.793 | 327929362 |
| FEB-2023 | 46.3472 | 17908 | 829985.7 | 2148.063 | 320696464 |
| MAR-2023 | 45.4982 | 19867.7 | 903944.6 | 2070.086 | 394725503 |
| APR-2023 | 44.4714 | 18018.99 | 801329.7 | 1977.705 | 324684001 |
| MAY-2023 | 45.8716 | 19504.4 | 894698 | 2104.204 | 380421619 |
| JUN-2023 | 46.5758 | 20255.46 | 943414.3 | 2169.305 | 410283660 |
| JUL-2023 | 46.8363 | 19708.7 | 923082.6 | 2193.639 | 388432856 |
| AUG-2023 | 46.5791 | 18332.77 | 853923.9 | 2169.613 | 336090456 |
| SEP-2023 | 46.9904 | 21068 | 989993.7 | 2208.098 | 443860624 |
| OCT-2023 | 44.425 | 21029.71 | 934244.9 | 1973.581 | 442248703 |
| NOV-2023 | 44.9986 | 21743.6 | 978431.6 | 2024.874 | 472784141 |
| DEC-2023 | 45.1192 | 22130.68 | 998518.6 | 2035.742 | 489766997 |
| SUM | 1130.1274 | 436543.35 | 20493328 | 53285.98 | 8041683808 |

r = n∑xy-∑x∑y = -0.74

√ [n∑x2-(∑x) 2] [n∑y2-(∑y) 2]

**INTERPRETATION**

The coefficient correlation (r = -0.74) shows that there is a negative correlation. Negative values indicate a relationship between USD/INR EXHANGE Rate and gold Prices such that as gold Price decreases, values for USD/INR EXHANGE Rate increases & vice-versa.

**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.

Initially only NSE had the permission but now MCX has also started currency future. It is shows that how currency future covers ground in the compare of other available derivatives instruments. Not only big businessmen and exporter and importers use this but individual who are interested and having knowledge about forex market they can also invest in currency future.

Exchange between USD-INR markets in India is very big and these exchange traded contract will give more awareness in market and attract the investors.

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