

A STUDY ON THE IMPACT OF CURRENCY EXCHANGE RATES ON THE INDIAN STOCK MARKETS

Aishwarya K R *

PG Research Scholar, Department of Management Studies
Global Academy of Technology, Bengaluru

Dr. Sriyank Levi *

Associate Professor, Department of Management Studies, Global
Academy of Technology, Bengaluru

*Corresponding authors | Received: 10/10/2023 | Accepted: 22/10/2023 | Published: 14/11/2023

Abstract: *The research is conducted on the topic “A study on the impact of currency exchange rates on the Indian” to build a model that can predict the This paper will analyse the impacts of variables such as foreign exchange rates (Dollar, Euro, Pound), Inflation rate and the Interest rate on India stock Indices such as Sensex and Nifty 50. Here we have considered data of the last 3 years from 2020-2022 from various sources. The focus will be on finding the relationship between macroeconomic variables such as foreign exchange rates, and interest rates on India Stock Indices through coefficient, regression and ANOVA analysis.*

Keywords: Indian Stock Indices, Exchange rates, Interest rates.

Introduction

The global economy is characterized by interconnectedness and interdependencies, where countries engage in cross-border trade and investment activities. In this global landscape, currency exchange rates play a vital role in shaping economic dynamics, including the performance of stock markets. The Indian stock market, known as the National Stock Exchange (NSE) and Bombay Stock Exchange (BSE), is no exception to this influence. Currency exchange rates refer to the relative values between two different currencies. Fluctuations in these rates can have significant consequences for various sectors, including the stock market. In the case of the Indian stock market, currency exchange rates impact both domestic and international investors, influencing investment decisions, market sentiments, and overall market performance. This article aims to explore the impact of currency exchange rates on the Indian stock market, highlighting how fluctuations in exchange rates affect different aspects of the market and the broader economy. By understanding these dynamics, investors, policymakers, and market participants can make more informed decisions and strategies to navigate the ever-changing financial landscape.

Before delving into the impact, it is crucial to consider the factors that influence currency exchange rates. These factors can be broadly categorized into economic, political, and market-specific factors. Economic indicators such as inflation rates, interest rates, trade

balances, and GDP growth play a significant role in determining exchange rates. Political stability, government policies, and geopolitical events can also sway currency values. Additionally, market sentiment, capital flows, and global economic conditions impact exchange rates in the short-term. Currency exchange rates have a direct influence on FIIs and FDI in the Indian stock market. When the domestic currency depreciates against foreign currencies, it becomes more attractive for foreign investors to invest in Indian stocks. A weaker domestic currency boosts returns for foreign investors when converted back into their home currency, increasing their demand for Indian equities. Export and Import Dynamics: Exchange rate fluctuations impact India's export and import sectors. A weaker domestic currency can make Indian exports more competitive in international markets, boosting the earnings and profitability of export-oriented companies. Conversely, it may increase the cost of imports, affecting businesses that rely on imported raw materials or finished goods. Exchange rate movements can influence inflation and interest rates in the Indian economy. A depreciating currency can lead to imported inflation, as the cost of imported goods and commodities rises. To combat inflationary pressures, the central bank may raise interest rates, which can impact the stock market by affecting borrowing costs and investment decisions. Currency exchange rate fluctuations can significantly impact market sentiment and investor confidence. Sudden or significant movements in exchange rates can create uncertainty and volatility in the stock market. Investors may react by adjusting their portfolios, leading to price fluctuations and increased trading volumes.

Different sectors of the Indian economy are affected differently by currency exchange rate movements. For example, industries such as Information Technology (IT), pharmaceuticals, and textiles have significant exposure to international markets. A weaker domestic currency can boost the profitability of these sectors, as they earn a significant portion of their revenues in foreign currencies. Currency exchange rates exert a multifaceted influence on the Indian stock market. Fluctuations in exchange rates impact investor sentiment, foreign investments, export-import dynamics, inflation rates, and overall market performance. As the Indian economy continues to integrate into the global landscape, it becomes increasingly important for market participants and policymakers to monitor and analyze these exchange rate dynamics to make informed decisions and mitigate risks. Understanding the interplay between currency exchange rates and the Indian stock market is crucial for navigating the complexities.

Statement of Problem

The changes in exchange rates have a significant impact on the Indian economy. The Indian stock markets have historically exhibited a high link with currency movements and have always been vulnerable to outside influences like shifts in the value of other countries' currencies. The effect of foreign exchange rates on the Indian stock markets, however, has received relatively little research. With an emphasis on comprehending the effects of currency changes on stock market performance, the aim of this study is to analyze the relationship between currency exchange rates and the Indian stock markets. The study will look at the variables that affect how stock markets and currency exchange rates interact, as well as any potential repercussions for investors, decision-makers, and other economic participants in India.

Objectives

- To study the trend of the selected macro-economic variables like Indian stocks and exchange rate between the period 2020-2022.
- To study how Indian stock indexes (Sensex, Nifty50) and independent variables like interest rates, inflation, and exchange rates (Dollar, Euro, Pound) relate to one another.
- To analyze the impact of currency rate fluctuation on Indian stock market.

Review of Literature

Kumar, S., Kumar, A., & Singh, G. (2023) have proposed Causal relationship among international crude oil, gold, exchange rate, and stock market: Fresh evidence from NARDL testing approach The findings of the study revealed that crude oil prices positively affect the Indian stock market and exchange rate negatively affects the stock market in the short run. Stock market is unaffected by gold prices. Our findings have essential implications for the various policymakers, investors, and traders.

Kumar, S., Choudhary, S., Singh, G., & Singhal, S. (2021) have proposed Crude oil, gold, natural gas, exchange rate and Indian stock market: Evidence from the asymmetric nonlinear ARDL model the result of the study provides empirical evidence about the presence of asymmetries in the short and long-run among these asset classes. The findings of the study confirm that gold, stock market and natural gas has an asymmetric effect on crude oil in the long- run and crude oil asymmetrically influence natural gas in the short-run. Exchange rate is observed to have no impact on crude oil and natural gas price and results indicate gold as statistically significant variable for both natural gas and crude oil in the short-run and long-run.

Sharma, G. D., Tiwari, A. K., Jain, M., Yadav, A., & Erkut, B. (2021) have proposed Unconditional and conditional analysis between covid-19 cases, temperature, exchange rate and stock markets using wavelet coherence and wavelet partial coherence approaches this paper examines the time-frequency relationship between the number of confirmed COVID-19 cases, temperature, exchange rates and stock market return in the top-15 most affected countries by the COVID-19 pandemic. We employ Wavelet Coherence and Partial Wavelet Coherence on the daily data from 1st February, 2020 to 13th May, 2020. This study adds to the literature by implementing the Wavelet Coherence technique to explore the unexpected outbreak effects of the global pandemic on temperature, exchange rates and stock market returns.

Syahri, A., & Robiyanto, R. (2020) have proposed the correlation of gold, exchange rate, and stock market on Covid-19 pandemic period This study aims to analyze the correlation of gold, exchange rate, and CSPI on COVID19 pandemic periods by testing the effect of gold exchange prices and exchange rate on CSPI and stock volatility. Also, by considering the dynamic correlation of dynamic correlations between CSPI with gold and CSPI with exchange rates. The data was collected from secondary data in the form of JCI daily data, gold prices, and exchange rate during the COVID-19 pandemic period from January 2020 to June 2020.

Topco, M., & Gulal, O. S. (2020) have proposed the impact of COVID-19 on emerging stock markets which deals with on emerging stock markets over the period March 10 – April 30, 2020. Findings reveal that the negative impact of pandemic on emerging stock markets has gradually fallen and begun to taper off by mid-April. In terms of regional classification, the impact of the outbreak has been the highest in Asian emerging markets whereas emerging markets in Europe have experienced the lowest. We also find that official response time and the size of stimulus package provided by the governments matter in offsetting the effects of the pandemic.

Erdogan, S., Gedikli, A., & Çevik, E. L (2020) have proposed Volatility spillover effects between Islamic stock markets and exchange rates: Evidence from three emerging countries focusing on the relationship between capital markets and macroeconomic variables are used as data sources in determining policies for the development of the conventional and Islamic financial system. The aim of this study is to investigate the existence of volatility spillover effects between foreign exchange markets and Islamic stock markets in three major emerging countries, namely India, Malaysia, and Turkey using daily data for the period 2013–2019.

Mroua, M., & Trabelsi, L. (2020) have proposed Causality and dynamic relationships between exchange rate and stock market indices in BRICS countries: Panel/GMM and ARDL analyses This paper aims to investigate simultaneously the causality and the dynamic links between exchange rates and stock market indices. It attempts to identify the short- and long-term effect of the US dollar on major stock market indices of Brazil, Russia, India, China and South-Africa (BRICS) nations.

Mahapatra, S., & Bhaduri, S. N. (2019) have proposed Dynamics of the impact of currency fluctuations on stock markets in India: Assessing the pricing of exchange rate risks. This paper studies the dynamics of the impact of currency fluctuation on Indian stock market by assessing the pricing of exchange rate risk during the period 2005–2016, specifically before and after financial crises. Estimating a two-factor arbitrage pricing model, using a random coefficient model, the paper presents evidence that stock returns react significantly to foreign exchange rate fluctuations in the post-crisis period. Particularly, during the last four years of our sample, 2012– 2016, the exchange rate risk factor is becoming a prominent determinant of stock returns, indicating that Indian investors are increasingly expecting a risk premium on their investment for their added exposure to exchange rate risk.

Shenzhen stock exchange from January 2008 to December 2018 by utilizing ARDL model for checking the short run and the long run association between the study variables. The estimated ARDL results indicate that exchange rate has a negative and significant influence on the stock returns of Shenzhen stock exchange. Inflation and interest rate results indicate a negative and statistically significant effect on the stock returns. Based on the estimated results of this study it is recommended that the policy makers in Central bank needs to make such policies that helps to stabilize the exchange rate.

Singhal, S., Choudhary, S., & Biswal, P. C. (2019) have proposed Return and volatility linkages among international crude oil price, gold price, exchange rate and stock markets This study investigates the dynamic relationship among international oil prices, international gold prices, exchange rate and stock market index in Mexico. Mexico is a major oil and gold exporting country and at the same time a major importer of petroleum products. ARDL Bound testing cointegration approach has been used on daily data ranging from January 2006 to April 2018. Findings of the study suggest that international gold prices positively affect the stock price of Mexico while oil price affects them negatively. Oil prices negatively influence exchange rate in the long and gold price do not have any significant impact on the exchange rate.

Research Methodology

Study type: Quantitative Study

Data: Secondary data (Daily closing data of selected equity stocks)

Source of data: NSE website

Sample size: 3 years of daily data

Period of study: 1st January 2020 to 31st December 2022

Tools used: Correlation, Regression.

Testable Hypothesis

Ha1: There is a significant relationship between the DOLLARS and SENSEX.

Ha2: There is a significant relationship between the DOLLARS and NIFTY.

Ha3: There is a significant relationship between the EUROS and SENSEX.

Ha4: There is a significant relationship between the EUROS and NIFTY.

Ha5: There is a significant relationship between the POUNDS and SENSEX.

Ha6: There is a significant relationship between the POUNDS and NIFTY.

Limitations

- Timeframe: The study may only examine a specific period, and the results may not be applicable to other time periods.
- Additionally, the study may not account for long-term trends or the impact of changes in exchange rates over time.
- The study may be influenced by external factors such as political instability, global economic events, and natural disasters, which may affect the currency exchange rates and stock market returns independently of each other

Data Analysis and Findings

Correlation between POUNDS AND SENSEX

	POUNDS	SENSEX
POUNDS	1	
SENSEX	0.011253351	1

Source: NSE website

The correlation coefficients between POUNDS and the SENSEX index are displayed in the table you provided. The correlation coefficient is explained as follows:

POUNDS and the SENSEX have a correlation coefficient of 0.011253351. This shows that the association between POUNDS and the SENSEX index is very slenderly positive. When POUNDS rises, there is a tiny propensity for the SENSEX index to rise as well, according to a positive correlation, however the connection is not substantial. In conclusion, the

association between POUNDS and the SENSEX index is very weakly positive based on the stated correlation coefficient. This suggests that there is no substantial association between the two variables and that changes in POUNDS have little effect on the SENSEX index.

Correlation Between DOLLARS-NIFTY

	NIFTY	DOLLARS
NIFTY	1	
DOLLARS	-0.028870626	1

Source: NSE Website

Interpretation

The table you supplied displays the NIFTY and USD correlation coefficients. Between -1 and 1, correlation coefficients quantify the strength and direction of the linear link between two variables. NIFTY and itself have a perfect positive association because their correlation coefficient is 1, or 1. As a result, the NIFTY index's growth is completely associated with that of the index itself. A perfect positive connection is also indicated by the correlation coefficient of 1 between DOLLARS and itself. As a result, an increase in DOLLARS is precisely connected with an increase in itself. NIFTY and DOLLARS have a -0.028870626-correlation coefficient. In conclusion, there is a marginally negative link between the NIFTY and the USD based on the supplied correlation coefficient. This indicates that, although the correlation is not particularly strong.

Regression analysis DOLLARS SENSEX

Multiple R	0.366612683
R Square	0.134404859
Adjusted R Square	0.13045237
Standard Error	1.917028155
Observations	224

	df	SS	MS	F	Sig.F
Regression	1	124.9687016	124.9687016	34.00512	1.95495E-08
Residual	219	804.8243316	3.674996948		
Total	220	929.7930333			
	Coefficients	Standard Error	t Stat	P-value	
Intercept	0.068704724	0.128986669	0.532649802	0.594816	
0	-1.852089069	0.317606755	-5.83139067	1.95E-08	

Interpretation

Multiple R: A Moderately Positive Link Exists Between the Dependent Variable And The Independent Variable(S), As Indicated By The Multiple Correlation Coefficient Of 0.3666.

R Square: With A Coefficient of Determination Of 0.1344, The Independent Variable(S) Or Variables Account For Around 13.44% Of The Variance In The Dependent Variable.

R-Square With Adjustments: The Adjusted R-Square Value Is 0.1305.

Regression, Residual, And Total Variance Are Separated into Separate Components In The ANOVA Table.

Degrees Of Freedom (Df): The Regression Has 1 Degree of Freedom, Which Is Equal to The Model's Single Independent Variable.

Mean Square (MS): The Mean Square Is the Sum Of Squares Divided By The Degree Of Freedom For Each Square. The Mean Square for Regression Is 124.969.

F-Statistic: The F-Statistic, Which Equals 34.005, Is Computed by Dividing the Regression's Mean Square by The Residual's Mean Square. It Evaluates the Regression Model's Overall Significance.

A Very High Level of Significance Is Indicated By The Significance F Value (P-Value), Which Is 1.95E-08 (About 0.0000000195).

It Displays the Estimated Change In The Dependent Variable Brought On By An Increase Of One Unit In The Independent Variable. In Conclusion, The Regression Model Predicts That the Dependent Variable And The Independent Variable(S) Have A Mildly Positive Association. According To Its Coefficient and Related Statistical Measures, The Dependent Variable Is Significantly Negatively Impacted By The "DOLLARS" Variable. Since The Intercept Doesn't Seem to Be Statistically Significant, Its Value Might Not Differ Considerably From Zero Considerably From Zero.

In Conclusion, The Regression Model Predicts That the Dependent Variable And The Independent Variable(S) Have A Mildly Positive Association.

Conclusion

The Following Conclusions Can Be Reached from An Investigation Of How Currency Exchange Rates Affect Indian Stock Markets:

The DOLLARS/EUROS Exchange Rate and The NIFTY Index Have a Weak To Moderately Negative Link, According To The Correlation Coefficients. This Shows That the Value Of The NIFTY Index Tends To Decline Slightly As The Value Of DOLLARS Or EUROS Rises.

The Exchange Rates Of DOLLARS/EUROS And The Sensex Index Have A Weak To Moderately Negative Association, Similar To That Of The NIFTY Index. This Proves that the Value of The Sensex Index Tends to Decline Significantly As The Value Of Comparison To DOLLARS And EUROS, The Relationship Between POUNDS And The Indian Stock Market Is Comparatively Weaker. While There Is a Shaky Inverse Correlation Between Pounds and the NIFTY, Pounds and The Sensex Have a Shaky Inverse Correlation. This Suggests That the Influence of Pounds May Differ from That of Dollars and Euros on The Indian Stock Market, And Further Research Is Needed To Fully Comprehend This Varied Impact. The Study Concludes That the DOLLARS And EUROS Exchange Rates, In Particular, Can Have an Effect on The Indian Stock Markets, As Measured by The NIFTY And Sensex Indices. Changes In These Exchange Rates May Have an Impact on How Well the Stock Market Performs. But It Seems That Pounds Have a Different Effect.

References

- Kumar, S., Kumar, A., & Singh, G. (2023). Causal relationship among international crude oil, gold, exchange rate, and stock market: Fresh evidence from NARDL testing approach. *International Journal of Finance & Economics*, 28(1), 47-57.
- Kumar, S., Choudhary, S., Singh, G., & Singhal, S. (2021). Crude oil, gold, natural gas, exchange rate and Indian stock market: Evidence from the asymmetric nonlinear ARDL model. *Resources Policy*, 73, 102194
- Sharma, G. D., Tiwari, A. K., Jain, M., Yadav, A., & Erkut, B. (2021). Unconditional and conditional analysis between covid-19 cases, temperature, exchange rate and stock markets using wavelet coherence and wavelet partial coherence approaches. *Heliyon*, 7(2), e06181.
- Syahri, A., & Robiyanto, R. (2020). The correlation of gold, exchange rate, and stock market on Covid-19 pandemic period. *Jurnal Keuangan dan Perbankan*, 24(3), 350-362.
- Singhal, S., Choudhary, S., & Biswal, P. C. (2020). Return and volatility linkages among international crude oil price, gold price, exchange rate and stock markets: Evidence from Mexico. *Resources Policy*, 60, 255-261.
- Sui, L., & Sun, L. (2016). Spillover effects between exchange rates and stock prices: Evidence from BRICS around the recent global financial crisis. *Research in International Business and Finance*, 36, 459-471.
- Jain, A., & Biswal, P. C. (2016). Dynamic linkages among oil price, gold price, exchange

rate

- and stock market in India. Resources Policy, 49, 179-185.
- Sahu, T. N., Bandyopadhyay, K., & Mondal, D. (2015). Crude oil price, exchange rate and emerging stock market: Evidence from India. Journal Pengurusan, 42, 75-87.
- Sinha, P., & Kohli, D. (2013). Modeling exchange rate dynamics in India using stock market indices and macroeconomic variables.66-88.
- Syahri, A., & Robiyanto, R. (2020). The correlation of gold, exchange rate, and stock market onCovid-19 pandemic period. Jurnal Keuangan dan Perbankan, 24(3), 350-362.