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Research Article

A Study of Repo Rate's Impact on The Indian Stock Market

Naytik Jain*

*Pathways World School, Aravalli Retreat, Off Gurgaon-Sohna, Road, Gurugram, Haryana 122102

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ABSTRACT

The repo rate is a considerable manipulation for the economic growth and stability done by the central banks i.e. Reserve Bank of India. It is of authority on the nation's stock market also as it influences the interest rates of lending and borrowing for the companies influencing capital expenditure and investor sentiment directly. This paper analyses the relationship between the repo rate set by the Reserve Bank of India and the Indian stock market, specifically, the index - Nifty 50. The objective of the paper is to investigate the impact of the repo rate on the Indian stock market. The analysis has been conducted on the basis of correlation and covariance on the closing prices for each month of the Nifty 50 over a time period of 10 years published by the National Stock Exchange and repo rates published by the Reserve Bank of India over the same time period.

Keywords: repo rate, nifty 50, stock market, interest rate

Introduction

In an interconnected economy, the stock markets swiftly respond to adjustments in the monetary policy. The repo rate plays a pivotal role in the monetary policy, which falls within the purview of the Reserve Bank of India, and significantly influences liquidity and interest rates directly while having a ripple effect on the corporate profitability, capital expenditure and economic growth. Thereby, it also impacts other indicators of the economic health such as GDP growth rate, employment rates and foreign investment. The Nifty 50, representing the top 50 stocks by market capitalization on the National Stock Exchange, is a barometer for investor sentiment and corporate financial health. The index or the 'market' is particularly sensitive to such macroeconomic factors of the monetary policy such as repo rate changes. This research aims to explore the regression and the correlation between changes in the repo rate and the performance of the Indian stock market, in this case, Nifty 50. It has been hypothesized that a decrease in the repo rate, would mean a decrease in the interest rates (lending and borrowing rate) leading to easier access to capital for firms, fostering growth and often boosting stock market performance. Conversely, an increase in the repo rates would result in lucrative investments in fixed return assets and deprive the market of cash and liquidity to facilitate a rally in the market.

Literature Review

Kumuda PR, Komala Mahesh, Jupudy Sirisha (2016) in their study 'Interest Rate and Stock Prices - Evidence from India' investigated the impact of interest rate on stock prices and aimed to build a model for forecasting stock prices based on interest rates. After analysing eleven sectoral indices and bank rates by the Reserve Bank of India, it concluded that the overall market i.e. the Nifty 50 Index was also impacted by the interest rates.

Yash Vora (2023) in his article 'How RBI's Rate Hike Impacts the Stock Market' reasonably discussed the impact of an increase in the repo rate on the stock market performance. It emphasized on the gravity of the outcome of the monetary policy committee's quarterly meeting on the stock market. It conjectured that the impact of this event has a varied result on each sector. For example, highly capital intensive sectors are affected by a rate hike due to raising borrowing costs and reducing investor confidence for upcoming expansion plans. It asserted that the repo rate and stock market have an inverse relationship.

Muthukumaran and Somasundaram (2014) in their study 'An analytical study of interest rate and stock returns in India' revealed short term relationships between the interest rate and the stock market. In the short run, there is no causality between the interest rate and the stock returns.

Vivek Sharma (2013) in his study 'Analytical Study on the Impact of Monetary Policy and Stock Market

Volatility in India' analysed the impact of monetary policy, specifically, repo rates changes on the stock market returns. It claimed that there is generally a negative relationship between the repo rate change and the stock market performance. However, it also stated that the market's reaction is not entirely based on this factor and can be influenced by several others. For example, the expectations about the overall economic situation and the effectiveness of the monetary policy. The positive reaction to the repo rate hike in March 2011 suggested that the market sometimes recognizes the long term benefits of monetary policy actions, even in the short-term.

S Rajamohan, C Vijayakumar (2017) in their study 'Impact of Repo Rate Announcement on Index Price Movement of NSE and BSE' probed the impact of repo rate announcements on the prices of the Indian stock market indices, both NSE and BSE. The paper asserted that the stock market index has had a positive performance after the repo rate announcement. Regardless of this fact, the effect has not continued for a long time.

Senthil Kumar (2013) in his study 'Effect of Interest Rate Changes on Stock Returns of Select Indian Commercial Banks' looked at the long term effects of repo rate changes on seven public sector banks and six private sector banks with the regression technique. The study reckoned that any increase in the interest rate adversely affects the stock returns of the banking sector. The banking sector is the largest contributor to the index as it constitutes more than 18% of the Nifty 50 Index.

Pardeep Malik (2019) in his study 'Effect of Interest Rate on Indian Stock Market' examined the effect of interest rate on selected indices of Indian Stock Market. The research concluded that the interest rate affects the stock market in an inverse direction as it revealed a negative correlation of interest rate with Nifty-50 and Nifty 100-indices.

Xiufang Wang (2010) in his study 'The Relationship Between Stock Market Volatility and Macroeconomic Volatility: Evidence from China' explored the relationship between macroeconomic variable volatility, and stock market volatility for China. It was found that there was a unidirectional relationship between the interest rate and stock prices, through the direction from stock prices to the interest rate.

Md. Mahmudul Alam and Md. Gazi Salah Uddin in their study 'Relationship between Interest Rate and Stock Price: Empirical Evidence from Developed and Developing Countries' examined the market efficiency of fifteen countries and analysed the effect of interest rate on share price. The theoretical argument of a negative relationship between interest rates and share prices was generally supported.

Felicia Andersson, Robin Fogelberg (2023) in their study 'Interest rates and their impact on the stock market: Evidence from Sweden' investigated the correlation between interest rate and the Swedish stock market. The findings suggested that the short-term interest rates have a causal impact on the Swedish stock market, long-term interest rates do not. However, during the period of financial crisis, neither interest rate significantly affected the market.

Research Objectives

The primary objectives of the study are:

1. To measure the impact of change in repo rate on the NSE Nifty 50 index.
2. To study the degree of correlation between the NSE Nifty 50 index and the repo rate in India.

Research Methodology

The sample dataset for the study of correlation includes 24 annual observations collected over a 24-year period from March 2001 to March 2024 for the NSE Nifty 50 index, the repo rate, the gross domestic product, and the consumer price index. The Nifty 50 index data, sourced from the National Stock Exchange (NSE), represents the broader Indian stock market as it includes the largest 50 listed companies in terms of market capitalization. The repo rate data, obtained from the Reserve Bank of India, is used as a primary indicator of monetary policy and interest rate trends. Additional macroeconomic variables - GDP and CPI - are incorporated as independent variables to ensure a robust model. The data for GDP has been collected in Billion USD and the data for CPI has been collected with the base year as 1960, wherein the CPI was 100. These data points are sourced from the Ministry of Statistics and Programme Implementation.

Two analytical methods will be applied to investigate the relationship. Firstly, to measure the impact of change in repo rate on the NSE Nifty 50 index, a multivariate logarithmic regression model is used. This model can be represented as:

$$\ln(Y) = \alpha + \beta_1 \ln(X_1) + \beta_2 \ln(X_2) + \beta_3 \ln(X_3)$$

KEY

- *Y denotes the Nifty 50 index*
- X_1 *denotes the repo rate*
- X_2 *denotes the nominal GDP*
- X_3 *denotes the CPI*
- α *is a constant*
- $\beta_1, \beta_2, \beta_3$ *is the elasticity coefficient for respective variables*

Moving on, Karl Pearson's coefficient of correlation is calculated to study the strength and direction of the association between the repo rate and the Nifty 50. This method is going to provide an insight into the relationship existing between the stock market index and the repo rate.
The methodology uses correlation and regression and aims to provide a clear, quantifiable understanding of how variations in the repo rate influence the Indian stock market, as represented by the Nifty 50 index. The correlation coefficient has been calculated through excel and the regression has been computed through python programming following the log-log regression model.

Hypotheses

H0 - There is no significant impact of repo rate on the Nifty 50 ($\beta_1 = 0$)
H1 - There is significant impact of repo rate on the Nifty 50 ($\beta_1 \neq 0$)

Results and Analysis

	Repo Rate	GDP	CPI	Nifty 50
0	6.5	3549.92	8736.063191	22604.85
1	6.5	3353.47	8268.871927	18065.00
2	4.0	3167.27	7749.645667	17102.55
3	4.0	2674.85	7371.488317	14631.10
4	4.4	2835.61	6913.795082	9859.90

OLS Regression Results

Dep. Variable:	log_Nifty50	R-squared:	0.956
Model:	OLS	Adj. R-squared:	0.949
Method:	Least Squares	F-statistic:	143.8
Date:	Sat, 16 Nov 2024	Prob (F-statistic):	1.06e-13
Time:	12:39:20	Log-Likelihood:	6.2769
No. Observations:	24	AIC:	-4.554
Df Residuals:	20	BIC:	0.1585
Df Model:	3		
Covariance Type:	nonrobust		

	coef	std err	t	P>|t|	[0.025	0.975]
const	-0.3797	1.568	-0.242	0.811	-3.651	2.892
log_RepoRate	-0.0823	0.195	-0.423	0.677	-0.488	0.324
log_GDP	1.5284	0.300	5.100	0.000	0.903	2.154
log_CPI	-0.2437	0.420	-0.580	0.568	-1.120	0.632

Omnibus:	0.313	Durbin-Watson:	1.381
Prob(Omnibus):	0.855	Jarque-Bera (JB):	0.482
Skew:	0.169	Prob(JB):	0.786
Kurtosis:	2.393	Cond. No.	446.

Notes:
[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.

Results for the Multivariate Logarithmic Regression

The regression model explores the relationship between the NSE Nifty 50 index, repo rate, nominal GDP and CPI. The adjusted R-squared value for all the variables is 94.9% which confirms the validity of the model and indicates that the predictors explain a substantially high proportion of the variation of the Nifty 50 index.
The coefficient for the repo rate, as expected, has found out to be NEGATIVE (-0.0823), indicating an inverse relationship between the repo rate and Nifty 50 index; The coefficient, however, is found to be statistically insignificant at 5% confidence level (p-value = 0.677).

The coefficient for the GDP is POSITIVE (1.5284) and is found to be highly statistically significant (p-value = 0.000); the coefficient for the CPI is NEGATIVE (-0.2437) but statistically insignificant (p-value = 0.568).

The correlation coefficient between the repo rate and the Nifty 50 index is found to be -0.13 (rounded from -0.1288), indicating a weak negative correlation, which is in line with the theory. This implies that as the repo rate increases, Nifty 50 tends to decrease slightly but other macroeconomic variables play a dominant role leading to a weak and statistically insignificant relationship.

Conclusion

Supporting the earlier theory on the relationship between the repo rate and the Nifty 50 index, this study finds a negative repo rate coefficient and relationship. However, these results are found to be statistically insignificant indicating that there is no independent impact found of repo rate on the Indian stock market (Nifty 50) during the analysed period - March 2001 to March 2024. Therefore, the null hypothesis (H0 - There is no significant impact of repo rate on the Nifty 50 ($\beta_1 = 0$)) cannot be rejected.

References

1. author. (2019). *Reserve Bank of India*. Rbi.org.in. https://www.rbi.org.in
2. *Government of India | Ministry of Statistics and Programme Implementation | MOSPI*. (n.d.). Www.mospi.gov.in. https://www.mospi.gov.in
3. India, N. (2021). *NSE - National Stock Exchange of India Ltd: Live Share/Stock Market News & Updates, Quotes- Nseindia.com*. NSE India. https://www.nseindia.com
4. Andersson, F., & Fogelberg, R. (2023). *Interest rates and their impact on the stock market: Evidence from Sweden*.
5. Kumar, S. (2013). *Effect of interest rate changes on stock returns of select Indian commercial banks*.
6. Malik, P. (2019). *Effect of interest rate on Indian stock market*.
7. Muthukumaran, K., & Somasundaram, M. (2014). *An analytical study of interest rate and stock returns in India*.
8. Rajamohan, S., & Vijayakumar, C. (2017). *Impact of repo rate announcement on index price movement of NSE and BSE*.
9. Sharma, V. (2013). *Analytical study on the impact of monetary policy and stock market volatility in India*.
10. Vora, Y. (2023). *How RBI's rate hike impacts the stock market*.
11. Wang, X. (2010). *The relationship between stock market volatility and macroeconomic volatility: Evidence from China*.
12. Alam, M. M., & Uddin, M. G. S. (n.d.). *Relationship between interest rate and stock price: Empirical evidence from developed and developing countries*.
13. Kumuda, P. R., Mahesh, K., & Sirisha, J. (2016). *Interest rate and stock prices: Evidence from India*.