An Analysis of Causativeness Association between Interest Rate and Stock Price

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Abstract The research explores the association among the interest rate changes and Indian stock market for the selected public sector banks during January2021 to December2021. In particular, the banking sector is one of the most susceptible to interest rate The study investigated the two major banks of public sector namely SBI(State Bank of India and BOB(Bank of Baroda). Further, the association among the changes in the interest rate and the price of stocks is stronger. The finding examines that the investors with the long term plans shall consider the macro-economic variable like interest rate, in their investment decisions.

Keywords — Interest rate, Banks, Stock Price, Indian Stock Market

I. INTRODUCTION

Interest rate plays very important role in the economic variables and that would be the reasons for the economic development of the country. Interest rate is being measured as a cost of borrowing, which is expressed in terms of percentage. From the point of borrower, the interest rate means money is borrowed for an agreed period of time between the lender and borrower. According to lenders perspective if the fee is charged to lend money it is referred to be interest rate. The cost of borrowings and return on savings are the major parts of total return.

"In India the financial sector has experienced many fluctuations since the balance program initiated in the early 1990"s. It is a rate at which the banks, financial institutions and other lenders charges to its borrower. With the financial liberalization in the economy, flexibility has been channelized for the movement of interest rates. Countries economic development has been influenced by the interest and stock market. Interest rates are determined by the monitory policy based on the economic situation decision will be made."

The association among the stock prices and the rate of interest are indirect, they tends to move in opposite direction. Interest rates are determined based on economic situation in the country so as monitory policy. The rise in interest rates makes most customers and business finance managers to cut down their borrowing activity. The investor will move from equity investment to bond investment when interest rates go up. The equity is likely to be more attractive to the investors when interest rate declines and interest on bond falls down and the prices of equity automatically move up.

Reserve bank of India as a central bank controls the economic activities through monitory policy. As per the reports on of the most talked events in stock market in about RBI credit policy. One of the key aspects of credit policy announcement is repo rate changes. The lending rates in the economy and banks are based on the repo rate, which is the key driver of interest rates changes. Interest rate is the vital tool of monitory policy and deals with variables like investments, inflation, and unemployment.

Slowing down the money supply in the market and investment leads to raise in the repo rate and which makes to buy a expensive business and industries items. It results in negative impact on economic growth, which is used to control the inflation. On the other hand, decrease in repo rate leads to inject the money supply in the economy. Though financial economists, policy makers, investors and researchers have long attempted to understand interactions between prices of stocks and rate of interest, the perfect pattern of the interactions remain undecided."

II. THEORETICAL BACKGROUND

Stefan Wendt, Andri Rainersson Schrey and Anton Reynir Hafdísarson (2017) the study mainly focused on how market participants reacting on the interest rate changes. Tatang Ary Gumanti (2016) study includes 28 public banks for study. Karsten Staehr (2015) Cheung, Yan –Leung, Kie-Ann Wong and Yan-Ki Ho (1993), Chowdhury, A. R. (1994) explores the "connections between stock index and overnight interbank offered rate based on two stock exchanges in China for the period 2009-2014. The author has considered the empirical methodology included event study and econometrics evidence. Md. Gazi Salah Uddin and Md. MahmudulAlam (2010), Claessens, S., S. Dasgupta and J. Glen (1995), Hassan, M. Kabir, M. A. Islam and S. A. Basher (1999) inspects the efficiency of DSE and also looks about the effect of share price and growth of share prices on interest rate and growth of interest rate. Archana Upadhyay (2016), Dickinson, John P. and K. Muragu (1994), Haque, M. Shamsul, R. Eunus and M. Ahmed (2001) explored the causality association between interest rate and BSE Sensex. The results reveal that no causality is observed between Interest rate and share returns for the selected period of the time. Kumuda P R, Komala G Mahesh and Jupudy Sirisha (2016), Harvey, Campbell R. (1995) examine the analysis of impact of interest rate on stock prices and shows the relationship between these two variables." study found that how interest change effecting on the share prices."T. Muthukumaran and V.K. Somasundaram (2014), Joel Hinaunye Eita (2014), Hsing, Y. (2004)" examined the rate of interest changes against the returns of the stock. The study evaluated that interaction between the returns of the stock and rate of interest is negative. Hamdan Ali (2014), Md. Mahmudul Alam and Md. Gazi Salah Uddin (2009), "This study determines the connection involved between the rate of interest and market stock of Pakistani market. The outcome of the study was when there is a higher interest rate; the stock market efficiency is low.

III. RESEARCH METHODOLOGY

Objective of the Study:

• To analyze the price movements of shares of selected public sector banks due to the announcement of change in repo interest rate.

Hypothesis:

H1: The impact of change in interest rates on stock price is significant

Research Design

Researchers have used the correlation, regression and Anova to know the impact of change in interest rates on stock returns. There are totally two public sector banks are considered for the study and they are State Bank of India,

Bank of Baroda. The study period considered for the study was January 2021-December 2021.

IV. ANALYSIS AND RESULTS

State Bank of India:

Regression Fit Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	-.309[a]	.095	.005	15.417865303

a. Predictors: (Constant), Interest

Above table shows the coefficient correlation for 1 year, value -0.309, it considers that there is a moderate negative impact among interest rate and stock price. Coefficient of determination (r^2) is an indicator of how good the values fit regression analysis. R square is 0.095 which means that 9.5% of the values impact the dependent variable. Standard error is the goodness fit measure that implies the quality of accuracy of the regression equation. In other words, smaller the standard error value, more certain the regression equation is precise and correct.

Table showing the Analysis of ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	250.112	1	250.112	1.052	.329[b]
	Residual	2377.106	10	237.711		
	Total	2627.217	11			

a. Dependent Variable: SBI

b. Predictors: (Constant), Interest

Above table shows the value of F= 1.052 and significant p value = 0.329 (p>0.05), p value is more than 0.05% (32.9%) which means null hypothesis should be accepted i.e. there is no significant impact of change in interest rate on stock price.

Bank of Baroda:

Regression Fit Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	-.289[a]	.083	-.008	13.182979510

a. Predictors: (Constant), Interest

Above table shows the coefficient correlation for 1 year, value -0.289, it considers that the negative impact among the interest rate and stock price. Coefficient of determination (r^2) is an indicator of how good the values fit regression analysis. R square is 0.083 which means that 8.3% of the value impacts the dependent variable. Standard error is the goodness fit measure that implies the quality of

accuracy of the regression equation. In other words, smaller the standard error value, more certain the regression equation is precise and correct.

Table showing the Analysis of ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	158.237	1	158.237	.911	.362[b]
	Residual	1737.909	10	173.791		
	Total	1896.146	11			

a. Dependent Variable: BOB

b. Predictors: (Constant), Interest

The table shows the value of F= 0.911 and significant p value = 0.362 (p>0.05), p value is more than 0.05% (36.2%) which means null hypothesis should be accepted i.e. there is no significant impact of change in interest rate on stock price.

V. CONCLUSION

The study investigated the association among the changes in the rate of interest and the prices of stocks particularly two public sector banks. As per the result of correlation and regression analysis for the one year between January 2021 to December 2021, the study found that the association among the changes in the rate of interest and the prices of stock was negative of two public sectors bank namely SBI (State Bank of India) and BOB (Bank of Baroda) which means variables moves in opposite direction, when repo rate decreases stock prices of the companies increases.

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