AN EMPIRICAL STUDY OF RELATION BETWEEN INDIAN STOCK MARKET AND INFLATION, INTEREST RATES AND EXCHANGE RATES

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ABSTRACT

The relationship between inflation, interest rates, exchange rates and Indian Stock Market has been a subject to extensive research in the past decades and has aroused the interests of researchers, academics, practitioners and policy makers globally, particularly since 1990's. This research paper tries to examine the relationship of inflation, interest rates, and exchange rates with Indian stock market. Further this research paper attempts to investigate to what extent inflation along with interest rates and exchange rates affects stock market. For this purpose BSE stock index Sensex is selected.

In my research, the inflation data is taken according to CPI, the interest rates are taken according to RBI and exchange rates are taken according to global exchange rates. The statics has been used in this research to analyse the data on yearly basis and to find out the overall relationship between them.

INTRODUCTION

From last few months the market has been more volatile as compared to the last few years. The investors and the hedge funders are busy making their guesses on whether the market is going to rise or fall. This provoked a curiosity to know the reason behind the markets rise and fall. United States has been in a huge debt and some investors around the world are making their predictions of an economic global crisis. Within a period of few months, the markets of china, India, Japan and other countries around the world have seen the steep fall in their major stock indexes making them to lowest prices in the last few years. The year 2015 has seen the one of the nations going bankrupt and other nations devastating share prices along with the self devaluation of Yuan. These factors along with the change in economic stats all round the globe were far more than enough to generate my interest to study more about the market and the factors causing it the fluctuations. I was also interested about a pattern from the research of the other investors and the modern day tools to compare which factors really work out in the real life scenarios to be less speculative and to make an algorithm which can figure out whether to go for an intraday trading session or to go for an invest and hold trading pattern. When it comes to economics the inflation of a country plays a very important role

in determining the economic conditions of the nation. The interest rate is the factor which is used to control the inflation of the country. Exchange rate is also the factor which has direct impact on Sensex and the nifty.

LITERATURE REVIEW

The previous empirical works on the link between macroeconomic factors and stock returns can be divided into two broad categories. The first category is such studies which investigated the impact of macroeconomic factors on stock prices. The second category is such study that focuses on the relationship between the stock market volatility and volatility in the macroeconomic indicators. Since the present study is based on the second category, some of the relevant literatures on the macroeconomic determinants of stock prices have been reviewed.

Schwert (1981) analyzed the reaction of stock prices to the new information about inflation. He stated that the important reason to expect a relationship between stock returns and the unexpected inflation was that unexpected inflation contained new information about future levels of expected inflation. Despite of debtor or creditor hypothesis, it was difficult to predict the distributive effects of unexpected inflation on stock returns. The unexpected inflation have variety of effects on the value of the firm, and unexpected increase in expected inflation could cause government policy-makers to react by changing monetary of fiscal policy in order to counteract higher inflation. He found that the stock market seem not react to unexpected inflation during the period of consumer price index was sampled on several weeks before the announcement date.

Poshakwale, Sunil (2002) examined the random walk hypothesis in the emerging Indian stock market by testing for the nonlinear dependence using a large disaggregated daily data from the Indian stock market. The sample used was 38 actively traded stocks in the BSE national index. He found that the daily returns from the Indian market do not conform to a random walk. Daily returns from most individual stocks and the equally weighted portfolio exhibit significant non-linear dependence. This is largely consistent with previous research that has shown evidence of non-linear dependence in returns from the stock market indexes and individual stocks in the US and the UK. Noor, AzuddinYakob, Diana Beal and Delpachitra, Sarath (2006) studied the stock market seasonality in terms of day-of-the-week, month-of-the year, monthly and holiday effects in nine Asian stock markets, namely, China, Hong Kong, Japan, India, Indonesia, Malaysia, Singapore, South Korea and Taiwan. He concluded that the existence of seasonality in stock markets and also suggested that this is a global phenomenon.

Early studies (aggarwal, 1981; soenen and hennigar, 1988) in this area considered only the correlation between the two variables-exchange rates and stock returns. Theory explained that a change in the exchange rates would affect a firm's foreign operation and overall profits which would, in turn, affect its stock prices, depending on the multinational characteristics of the firm. Conversely, a general downward movement of the stock market will motivate investors to seek for better returns elsewhere. This decreases the demand for

money, pushing interest rates down, causing further outflow of funds and hence depreciating the currency. While the theoretical explanation was clear, empirical evidence was mixed. It was maysami-koh (2000), who examined the impacts of the interest rate and exchange rate on the stock returns and showed that the exchange rate and interest rate are the determinants in the stock prices. It was in 1992 that oskooe and sohrabian used co-integration test for the first time and concluded bidirectional causality but no long term relationship between the two variables. Najang and seifert(1992), employing garch framework for daily data from the U.S., Canada, UK, Germany and Japan, showed that absolute differences in stock returns have positive effects on exchange rate volatility ajayi and mougoue in 1996 picked daily data from 1985 to 1991 for eight advance economic countries; employed error correction model and causality test and eventually discovered that increase in aggregate domestic stock price has a negative short-run effect and a positive long-run effect on domestic currency value. On the other hand, currency depreciation has both negative short-run and long-run effect on the stock market. Abdalla and Murinde(1997) used data from 1985 to 1994, giving results for India, Korea and Pakistan that suggestedexchange rates granger cause stock prices. But, for the Philippines the stock prices lead the exchange rates.Furthering into Indian context, work in this area for the Indian economy has not progressed much. Abhaypetheand aid karnik (2000) have investigated the inter – relationships between stock prices and importantmacroeconomic variables, viz., exchange rate of rupee vis - a -vis the dollar, prime lending rate, narrow moneysupply, and index of industrial production. The analysis and discussion are situated in the context ofmacroeconomic changes, especially in the financial sector, that have been taking place in India since the early1990s.

To summarize, even though the theoretical explanation may seem obvious at times, empirical results have always been mixed and existing literature is inconclusive on the issue of causality. This paper attempts to investigate into the causal relationship between the two variables. The period of the study has been taken from 2005-2014. Also the analysis is based on the broader-based Bombay stock exchange index, Sensex, composed of 30 stocks.

RESEARCH OBJECTIVES

The overall objective in this study is to re-examine the relationship Between Inflation, Interest Rates and Currency Exchange Rates on the Bombay Stock Exchange.

It is a well known fact that Inflation, Interest Rates and Stock Exchange have impact on Stock Returns and Stock Market. The research identifies that either the chosen determinants have positive or negative relation with Bombay Stock Exchange (Sensex).

DATA COLLECTION

The secondary data is used in forming the table. The table below shows the data for the years 2005-2014. The method used in calculating the data is

Value = Value of total observations / Total no. of observations

Table-1

Year	Inflation (jan-dec)	Interest rates(jan-dec)	USD exchange rates (as per financial year)	BSE Sensex (jan-dec)
2005	4.25	6.04	44.274	7498.368
2006	5.79	6.73	45.285	11663.58
2007	6.39	7.00	40.241	15901.44
2008	8.32	6.93	45.917	14028.76
2009	10.83	4.59	47.417	13941.48
2010	12.11	5.18	45.577	18207.56
2011	8.87	7.55	47.923	17724.38
2012	9.30	8.12	54.409	17834.85
2013	10.92	7.52	60.413	19727.08
2014	6.37	8.00	61.137	24941

(Source: http://www.tradingeconomics.com;http://www.x-rates.com; https://rbi.org.in; http://www.bseindia.com)

METHODOLOGY

Multiple Regressions is used to identify the relation between the chosen determinants and the Bombay Stock Exchange.

Regression

Table -2 Descriptive Statistics

	Mean	Std. Deviation	N
BSE	16146.8498	4761.48589	10
Usd	49.2593	7.02292	10
Int	6.7660	1.17377	10
Inf	8.3150	2.56429	10

Table -3 Variables Entered/Removed

Model	Variables Entered	Variables Removed	Method
1	Inf, usd, Int	.	Enter

a. Dependent Variable: BSE

b. All requested variables entered.

Table -4 ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	132780613.288	3	44260204.429	3.726	.080
	Residual	71265117.343	6	11877519.557		
	Total	204045730.631	9			

a. Dependent Variable: BSE

b. Predictors: (Constant), Inf, usd, Int

Table -5 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.807	.651	.476	3446.37774	.651	3.726	3	6	.080

a. Predictors: (Constant), Inf, usd, Int

Table -6 Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-14483.544	9327.316		-1.553	.171
	Usd	288.194	222.066	.425	1.298	.242
	Int	1513.342	1342.405	.373	1.127	.303
	Inf	745.023	533.745	.401	1.396	.212

a. Dependent Variable: BSE

FINDINGS

Primarily the data collected showed in table 1 is collected from secondary sources for the year 2005-2014. Data consist of interest rates, inflation, exchange rates and Bombay stock exchange index (Sensex).

From table-3, we could see that the interest rates, inflation and exchange rates are independent variables and Bombay Stock exchange index (Sensex) as dependent variables.

From table- 4, the level of significance is 8% which being greater than 5% shows that the regression analysis done on the given data is not strongly associated.

From table -5, shows the model summary. Here the value of r^2 is .651 which is equivalent to 65.1% depicts that the relation in between independent variables and dependant variable is not much strong.

From table- 6, the significance of inflation, interest rates, exchange rates are 21.2%, 30.3%, 24.2% respectively which denies the fact that dependent and independent variables are not strongly associated.

CONCLUSION

The project clearly defines that there does not exist any association between the dependent variable Bombay Stock Exchange Index (SENSEX) and the independent variables Inflation, Interest Rates and Exchange Rate. So there is no defined guarantee that with the increase or decrease in the independent variables, there would be any change in the dependent variable.

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