IMPACT OF MACROECONOMIC FACTORS ON INDIAN STOCK MARKET

Keshav Garg

Amity Business School, Amity University, Noida, ksgarg93@gmail.com

Rosy Kalra

Associate Professor, Amity Business School, Amity University, Noida
rkalra@amity.edu

DOI: 10.23862/kiit-parikalpana/2018/v14/i1/173248

ABSTRACT

This study is on Impact of Macroeconomic factors on Indian stock market. The aim of the study is to analyze the relationship between selected macroeconomic factors and Indian stock market price. This study may also facilitate to the investors in buying and selling decisions of securities as in the study the effect of the selected macroeconomic variables on the stock market price returns is been analysed. This study may also be make investors capable to take better decision by viewing the relationship between the dependent (Sensex) and independent variables (Macroeconomic factors).

The methodology is used for the study is descriptive and Pearson correlation is used to find the relationship between the dependent and independent variables. Data over the period of 1991 to 2017 is used for the study.

The result shows that there is a positive relationship between the sensex and macroeconomic factors except avg. inflation and unemployment rate as they show negative relationship.

Key words : Stock market, Economic factors, SEBI

INTRODUCTION

The Indian stock market had seen various up-down since 1991, after the government implemented the Liberalization, Privatization and Globalization Model in India. This model has connected every country with other countries and as a result a single market is created. And thus from the economic point of view the importance of stock market is growing as it helps in movement of capital in rising and developed nations, prompting the development of industry and business of the country. There is a significant role of Indian capital market in the Indian economy growth. A small movement in the stock market affects the performance of economy. Investors regardless of whether Indians or outsiders can contribute or take the assets (funds) for capital appreciation in the capital market. An investor considers various factors before and at the time of investing his funds into the stock market. These various factors may include past performance of a company, return on index or by company, return on assets or equity, free cash flow, internal management, various macroeconomic factors like GDP, inflation, interest rate, unemployment rate etc.

It is believed that return on stock market is changed as change or fluctuations in the macroeconomic factors. Some macroeconomic factors are significantly affecting the return on stock whereas some have mild affect. The market can be classified into two i.e. Primary market and secondary market. Primary and secondary market both are inter-related to each other as primary market creates secondary market. In the primary market various companies as well as government sell the securities first time in the market and when these securities further sold in the market that market called as secondary market.

The SENSEX, propelled in 1986 is comprised of 30 of the most effectively exchanged stocks in the market. Truth be told, they represent a large portion of the BSE's market capitalisation. They speak to 13 areas of the economy and are pioneers in their individual enterprises. The SENSEX is one of the benchmark in India. The SENSEX is considered an essential indicator of the Indian securities exchange because the BSE is the main exchange of the Indian resold market. It is the most as often as possible utilized indicator while giving an account of the condition of the market.

The major role of an index is to catch the change in the price. Along these lines, a stock index will mirror the change in the price of stock, whereas index of bond catches the way in which bond costs go up or down. In the event that the SENSEX rises, it shows the market is doing admirably. Since stocks should reflect what organizations hope to earn later on, a rising index demonstrates that investor expect better profit from organizations. Furthermore, it is additionally a measure of the condition of the Indian economy.

Trends in Indian Stock Market

The stock market of India has an important position in Asia as well as in the world. Across the world the Bombay Stock Exchange (Sensex) is one of the earliest exchanges whereas if we look at National Stock Exchange is considered to be best in terms of advancement & sophistication of technology. After the globalization Indian stock market pace increased too fast and as a result it becomes a centre of attraction for investors over the world. The entire of nineties were utilized to investigation and adjust a productive and successful framework, and from the time of globalization, the stock market began to work proficiently and demonstrated its new statures, at various periods of its advancement. Indian stock market has seen various ups and downs there were times when the Indian stock market accomplishes new statures, breaking its past records and there is time likewise when stock market dives up to its outrageous. As stock market index is an essential piece of the economy, these ups and downs cannot be ignored as an economy is affected by the several policies and other unavoidable situations created in an economy.

Macroeconomic Factors

- Inflation is an ascent in costs or price of a few things over a period of time. It is estimated through different indices and each gives particular data about the costs of things that it shows. The index could be the Consumer Price Index (CPI) or Wholesale Price Index (WPI) for indicated classes of individuals like farming laborers or urban non-manual workers. Every one of the index is made in a particular way with a specific year as the base year and they consider the value change over a year.
- The Unemployment rate is described as the level of unemployed workers in the aggregate work force. Workers are viewed as jobless in the event that they as of now don't work, in spite of the way that they are capable and willing to do as such. The aggregate work force comprises of all employed and jobless individuals inside an economy.
- An exchange rate is the cost of a country's cash as far as money. In this way, a exchange rate has two segments, the country's own money and foreign currency, and can be cited either straightforwardly or in a roundabout way. In an immediate citation, the cost of a unit of remote cash is communicated as far as the country's own money. In a roundabout citation, the cost of a unit of country's own is communicated regarding the foreign currency. The whole procedure of sending out and bringing in procedure of any nation is entirely subject to the exchange rate of money value of the country.
- Gold is a substitute speculation road for Indian financial specialists. The significance of gold has been expanded in the present world because of the monetary emergency in the present financial world. The financial specialists are putting resources into the Gold. Gold is dealt with as an elective speculation road. It is frequently expressed that gold is the best protecting acquiring power over the long haul.
- Foreign Exchange Reserve or Forex Reserves is the reserves of different currencies like Japanese Yen, United States Dollar, pound, Euro etc., control and kept by the financial organization i.e Reserve Bank of India and numerous alternative financial authorities as affirmed by the govt... The reason behind to keep up this sort of reserves is to manage any unexpected financial stuns and crises.

- Gross Domestic Product (GDP) is that the quantitative live of the overall financial movement in an economy. In significantly more particular terms, GDP speaks to the money related estimation of the considerable number of products and services created or produced in an economy inside a timeframe and inside a country's land limit. Gross domestic product is measures that help in estimating the execution of an economy.

Securities and Exchange Board of India

On 12 April, 1988 a board was set up by the Govt. of India named as "Securities and Exchange Board of India" (SEBI), as a between time administrative body to progress, arrange and sound advancement of securities and for saving and protecting the interest of investors and shareholders. Before getting a statutory status through an announcement as on January 30, 1992 the Securities and Exchange Board of India was to work inside the general definitive control of the Ministry of Finance, Government of India.

The declaration was later changed by a law of Parliament known as the Securities and Exchange Board of India Act, 1992. Objectives were in concurrence with the formation of SEBI, which were for the improvement of capital market. The capital market had seen an immense advancement in the midst of 1980's was depicted particularly by the growing help of general society. This regularly assists the investors in the market and market itself. Capitalisation incited different types of acts of neglect concerning associations, experts in the market, shareholders or investors, and others related with the securities displaying. The powerful instances of these acts of neglect in corporate segment by the self – styled exchange lenders, casual private game plans, device of expenses and casual premium on new issues and non-adherence of game plans of the Companies Act and encroachment of rules and controls of stock exchanges and posting essentials delay in movement with the offers et cetera. These demonstrations of disregard and out of the line exchanging hones have divided theorist sureness and copied money related pro grievances.

Role of SEBI

The fundamental reason behind Securities and Exchange Board of India was created is to provide a platform to support better exchange of securities through the securities markets. It similarly means to reinforce competition and bolster headway. This state joins the rules and controls associations, their interrelationships, establishments, practices, instruments and approach framework. This state goes for tending to the fundamental necessity of the three social events which essentially constitutes the market, viz., the patrons of securities (Companies), the monetary pros and the market middle people.

- ✓ To the investors, it provides to give a business focus in which they can irrefutably suspect bringing responsibility & accountability which they require in an effective and efficient and very simple reasonable way.

- ✓ To the various investors it certainly needs to give confirmations for their rights and premiums through adequate, correct and genuine information and revelation of information on a reliable introduce.
- ✓ To the mediators, it should offer a centred, professionalized and developing business division with attractive and beneficial nuts and bolts so they can render better help for the examiners and budgetary patrons.

Literature Review

R. Mookerjee and Q. Yu (1997) used the monthly data of four macroeconomic factors such as Broad money supply, foreign reserve, narrow money supply and exchange rate over the period of Oct 1984 to Apr 1993 to analyse the relationship between macroeconomic factors and Singapore stock returns. Their study showed that foreign reserve, broad and narrow money supply had a long run association with stock market returns though exchange rate didn't show l;ong term relationship.

Sangeeta Chakravarty (2005) conducted a study that aim to know the nexus between macroeconomic factors and Indian stock market prices over the period of 1991-2005. The secondary monthly data was used for the study. She revealed positive impact of inflation, money supply and index of industrial production on Indian stock return by using Granger Causality. Whereas it was found that there was no relationship of exchange rate, gold prices with the Indian stock market.

K. Pal and R. Mittal (2011) have taken quarterly data over the period of Jan 1995 to Dec 2008 to conduct a study on relationship between Indian stock market and macroeconomic factors with the Johansen's co-integration framework. Their study showed that there was a long-run relationship exists between the macroeconomic factors and Indian stock market. The outcomes likewise demonstrated that exchange and inflation rate significantly affect BSE Sensex yet gross domestic saving and interest rate were not significant.

A. Pethe and A. Karnik (2000) have taken monthly data over the period of Apr 1992 to Dec 1997 to conduct a study on relationship between Indian stock market and macroeconomic factors using error correction model and co-integration. Their study showed that the condition of economy and the stock market prices don't show a long run relationship.

Menike (2006) analysed a study on how macroeconomic factors affect stock prices in developing Sri Lankan Stock Market. Secondary data was used from 1991 to 2002. Multivariate regression was used by them on all factors for each stock. The study too discovers that there is a relationship between stock market in the

Colombo Stock Exchange and macroeconomic factors. It is also revealed that there is negative relationship between macroeconomic factors like Inflation rate, exchange rate and stock market in Colombo Stock Exchange.

Zhao (1999) conducted a study that aim to know the connection between Chinese financial market that consists of factors like index of industrial production and inflation. The secondary data was used for the study over the period of 1993 to 1998. The outcomes show that both expected growth in the industrial production and inflation have negative associations with the stock market prices.

Wong et al. (2005) analyzed a study to know whether macroeconomic factors affect the stock prices of Singapore and United States. They analyze the long run equilibrium relationships between the macroeconomics factors and the two countries. The secondary data was used over the period of Jan 1982 to Dec 2002. They found through a co-integration test that United States Stock's prices don't show relationship with the money supply and interest rate whereas there is a long run equilibrium relationship with the Singapore stock's prices of those factors.

Pimenta Junior and Hironobu Higuchi (2008) have taken monthly data over the period of 1994 to 2005 to conduct a study on the relationship between Ibovespa and macroeconomic factors such as inflation rate, interest rate and exchange rate using Granger causality test, Impulse and Response functions analysis, unit root test, and variance decomposition analysis. The study found that the Exchange rate was variable with a more advanced amount of causality in the Ibovespa, in any case, this outcome is factually satisfactory and impressive; along these lines, none of the factors chose introduced causality connection to the index.

Maku and Atanda (2009) conducted a study that aim to analyzed the short-run and long-run impact of macroeconomic on Nigerian capital market. Secondary data was used from 1984 to 2007. The macroeconomic factors (dependent variable) used for the study were real output, exchange rate, inflation rate and money supply. The outcomes of the study, acquired utilizing Error Correction Model and ADF, revealed that the share index is more receptive to chose factors and along these lines have noteworthy effect on share index.

Sezgin Acikalin, Rafet Aktas, and Seyfettin Unal (2008) have been taken quarterly data over the period of 1991 to 2006 to analyse the relationship between the macroeconomic factors and the stock market of Turkey named as Istanbul Stock Exchange. To find the relationship they used the secondary data. They selected four macroeconomic factors i.e. foreign exchange rate, production level, current account deficit, and interest rate of Turkey. They used the vector error correlation model and cointegration test and founded the long run stable relationship. With the help of casualty test, they found unidirectional relationship between Turkey stock market and macroeconomic variables and change in the current account deficit, production level, and foreign exchange rate also affect the Istanbul Stock Exchange.

Joseph Tagne Talla (2013) had taken monthly data over the period of 1993 to 2012 to analyse the impact of macroeconomic factors on the stock market returns, a case of Stockholm Stock Exchange. For the study secondary data was used of four macroeconomic variables i.e. exchange rate, consumer price index, money supply, and interest rate. Multivariate Regression Model, unit root test and Granger causality test were used to find the relationship. The results show that both currency depreciation and inflation have significant negative impact on stock market returns. Whereas interest rate do not have any significant relationship but it affect the stock market returns negatively. Money supply has positive relationship with the stock market returns though not significant. No unidirectional, using Granger Causality, is found between the selected macroeconomic variables and the stock market returns.

Ngoc (2009) has taken monthly data over the period of 2001 to 2008 to analyze the relationship between Vietnamese stock prices and macroeconomic factor i.e. interest rate. In the study he additionally demonstrates the nexus between Vietnamese stock prices and US macroeconomic factors. Statistically, he discovered imperative associations between the money markets, domestic production sector and Vietnamese stock prices and Vietnamese stock price is also significantly affected by the US macroeconomic.

Mgammal (2012) conducted a study that aim to analyze the effect of various macroeconomic variables like inflation rate, exchange rate, and interest rate on the stock price of two gulf countries i.e. Kingdom of Saudi Arabia and United Arab Emirates. The secondary data was used for the study over the period of Jan 2008 to Dec 2009. The study revealed that in the short run the stock prices index 0of the Kingdom of Saudi Arabia is negatively influenced by the exchange rate whereas United Arab Emirates is positively affected by the exchange rate. The outcomes of study in long run showed that stock prices index of United Arab Emirates is negatively affected by the exchange rate.

Research Methodology

Objective

To measure the relationship between the stock market and selected macroeconomic variables.

Variables Selected

- ✓ Dependent Variable
  - ➢ Sensex
- ✓ Independent Variables
  - ➢ Unemployment Rate
  - ➢ Exchange Rate
  - ➢ Average Inflation Rate

- Gold Prices
- Foreign Exchange Rate
- Gross Domestic Product (GDP)

Limitations of the Study

This study is conducted on the Stock market indicator's sensex using the macroeconomic factors. This study covers only six macroeconomic factors to measure the relationship. The study is prepared within a limited time.

Sources of Data

Secondary data is used to analyzed the relation between the sensex and selected macroeconomic factors over the period of Jan 1991 to Dec 2017. Data was collected from Reserve Bank of India, World Bank, Bombay Stock Exchange.

Data Analysis

A stock market is affected by several factors so it is necessary to analyze those factors. In this study it is tried to do analyze how the different macroeconomic factors affect stock market indicator 'Sensex' and how it impact the investors' decision and their investment. To analyse the relationship Sensex as a dependent variables and all macroeconomic factors as a independent variables are selected.

A. Sensex and GDP

Correlations

		Sensex	GDP_Rate
Sensex	Pearson Correlation	1	.408*
	Sig. (2-tailed)		.035
	N	27	27
GDP_Rate	Pearson Correlation	.408*	1
	Sig. (2-tailed)	.035	
	N	27	27

*. Correlation is significant at the 0.05 level (2-tailed).

The above table shows the relationship between the Sensex and GDP. It is founded that there is a positive relationship between the sensex and GDP rate, means increase in the GDP rate will also lead to increase in the sensex or the stock market. The relationship between both is 0.408.

B. Sensex and Average Inflation

Correlations

		Sensex	Avg_Inflation
Sensex	Pearson Correlation	1	-.169
	Sig. (2-tailed)		.399
	N	27	27
Avg_Inflation	Pearson Correlation	-.169	1
	Sig. (2-tailed)	.399	
	N	27	27

The above table shows the relationship between the Sensex and Average Inflation. The result shows that there is negative relationship between the avg. inflation and sensex, means increase in the inflation rate leads to the decrease in the stock market indicator. The relationship between both is -0.169.

C. Sensex and Unemployment

Correlations			
		Sensex	UnEmp_Rate_No
Sensex	Pearson Correlation	1	-.734**
	Sig. (2-tailed)		.000
	N	27	27
UnEmp_Rate_No	Pearson Correlation	-.734**	1
	Sig. (2-tailed)	.000	
	N	27	27
**. Correlation is significant at the 0.01 level (2-tailed).			

The above table represents the relationship between the Sensex and Unemployment rate. The result indicates that there is a negative relationship between the unemployment rate and the sensex as the correlation between factors is -0.734. It means that increase in the unemployment rate leads to the decrease in the stock market indicator i.e sensex.

D. Sensex and Exchange Rate

Correlations			
		Sensex	Exchange_Rate_US_IND
Sensex	Pearson Correlation	1	.794**
	Sig. (2-tailed)		.000
	N	27	26
Exchange_Rate_US_IND	Pearson Correlation	.794**	1
	Sig. (2-tailed)	.000	
	N	26	26
**. Correlation is significant at the 0.01 level (2-tailed).			

The above table represents the relationship between the Sensex and exchange rate. It is founded that there is positive relationship between the exchange rate and sensex as the correlation between factors is 0.794. It shows that the change in the exchange rate will result in change in the stock market price.

C. Sensex and Foreign Reserve

Correlations			
		Sensex	Forex_Reserve_in_Billion
Sensex	Pearson Correlation	1	.959**
	Sig. (2-tailed)		.000
	N	27	27
Forex_Reserve_in_Billion	Pearson Correlation	.959**	1
	Sig. (2-tailed)	.000	
	N	27	27
**. Correlation is significant at the 0.01 level (2-tailed).			

The above table represents the relationship between the Sensex and Foreign Reserve. The result indicates that there is a positive relationship between the foreign reserve and sensex. It can be said that increase in the foreign reserve will lead to increase in the sensex or stock market prices. The relationship between both is 0.959.

C. Sensex and Gold Prices

Correlations			
		Sensex	gold_prices
Sensex	Pearson Correlation	1	.918**
	Sig. (2-tailed)		.000
	N	27	27
gold_prices	Pearson Correlation	.918**	1
	Sig. (2-tailed)	.000	
	N	27	27
**. Correlation is significant at the 0.01 level (2-tailed).			

The above table represents the relationship between the Sensex and gold prices. It is founded that there is positive relationship between the gold prices and sensex as the correlation between factors is 0.918. It can be interpreted that change in the gold prices lead to change in the stock market prices, means increase in the prices of gold leads to increase in the stock market prices and vice-versa.

Findings

- The correlation between Sensex and GDP is positive that means GDP affects the movement in the sensex. Increase in GDP certainly leads to increase in the sensex and vice versa.
- The relationship between the dependent variable i.e sensex and independent variable i.e average inflation is negative. That shows

negative movement in both variables. If there is an increase in independent variable, dependent variable behaves reversely.

- The correlation between Sensex and Unemployment rate is found to be negative as the correlation is -0.734. It means that increase in the unemployment rate leads to the decrease in the stock market prices or in sensex.
- The relationship between exchange rate and sensex is found to be positive as the correlation between factors is 0.794. Increase in the exchange rate may be result in the increase in the sensex as the relationship is positive between variables.
- The correlation coefficient is 0.959 that shows a positive relationship between the two variables i.e. sensex and foreign reserve. Increase in the foreign reserve will lead to increase in the sensex or stock market prices.
- The relationship between Sensex and gold prices is positive as the correlation coefficient is 0.918. So, with the increase in the gold prices, the stock market prices will also increase or there is up movement on the sensex.

Conclusion

To support the macroeconomic variables the govt. and the policy makers need to make strategies and policies that complement with macroeconomic framework and further support the Indian stock market. In the report I study how macroeconomic factors affect the Indian stock market using the six factors i.e. unemployment rate, average inflation rate, gold prices, gross domestic product, exchange rate, and forex reserve.

It can be concluded all the macroeconomic factors has been taken for the study have the relationship with the Indian stock market and all the factors whether in positive and negative way affect the movement in the stock market prices. Both Unemployment rate and average inflation have inverse relationship with the sensex whereas all other factors show positive relationship.

In the report it has also been founded the global recession in the early 2000s and in the 2008 hit the Indian stock market, this is due to the macroeconomic variables as variables like gross domestic product fell down drastically and other variables are also get affected.

Further to have better returns on the stock market and to retain the Indian investors and foreign investors, government and other policy makers are needed to make policies in complement to the macroeconomic variables.

REFERENCES

Higuchi, R. H.; Pimenta Junior, T. relationship between Ibovespa and macroeconomic factors. Revista Eletrônica de Administração, v.14, n. 2.

Joseph Tagne Talla (2013), Impact of Macroeconomic Variables on the Stock

Market Prices of the Stockholm Stock Exchange (OMXS30), Jonkoping International Business School.

Maku, O.E. and Atanda, A.A. (2009), "Does macroeconomic variables exert shock on the Nigerian Stock Exchange", Munich Personal RePEc Archive, Paper No. 17917.

Menike. (2006). The Effect of Macroeconomic Variables on Stock Prices in Emerging Sri Lankan Stock Market. Sabaragamuwa University Journal, 2, 50-67.

Mgammal, M. H. (2012). The Effect of Inflation, Interest Rates and Exchange Rates on Stock Prices Comparative Study Among Two Gulf Countries. International Journal of Finance and Accounting, 1(6), 179 to 189.

Mookerjee, R. and Yu, Q. (1997). Macroeconomic Variables and Stock Prices in small Open Economy: The case of Singapore, Pacific-Basin Finance Journal, 5: 377-788.

Ngoc, K. H. (2009). The impact of macroeconomic indicators on Vietnamese stock prices. The Journal of Risk Finance, 10, 321-332.

Pal, K. and Mittal, R. (2011). Impact of Macroeconomic Indicators on Indian Capital Markets, Journal of Risk Finance, 12 (2): 84-97.

Pethe, A. and Karnik, A. (2000). Do Indian Stock Market Maters? Stock Market Indices and Macroeconomic Variables, Economic and Political Weekly, 35 (5): 349-356.

Sangeeta Chakravarty, "Stock Market and Macro Economic Behavior in India" Institute of Economic Growth, University Enclave, Delhi, 2005.

Sezgin Acikalin, Rafet Aktas, and Seyfettin Unal (2008), "Relationships Between Stock Markets and Macroeconomic Variables: an Empirical Analysis of the Istanbul Stock Exchange", Investment management and Financial Innovations, 5(1).

Wong, W., Khan, H., and Du, J. (2005). "Money, Interest Rate, and Stock Prices: New Evidence from Singapore and the United States". U21 Global Working Paper No. 007/2005.

Zhao, X. Q. (1999). Stock prices, Inflation and Output: Evidence from China. Applied Economic Letters, 6 (8), 509–511.

❑❑❑