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Study on Effect of Macro-Economic Variables on Indian Stock Market

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ABSTRACT

The key objective of the present study was to examine the effect of selected macroeconomic variables on Indian stock market. To estimate the relationship between macroeconomic variables and stock market multiple regression analysis has been used. Seven years' data month wise from 2011 to 2017 was taken for the study. Four macroeconomic variable were considered for the present study: Prices of crude oil, Exchange rate, CPI index and Gold price as independent variables and dependent variables selected were BSE- Sensex and NSE-Nifty. The study found that there is significant effect of CPI Index on BSE-Sensex and NSE-Nifty, whereas Crude oil and Gold prices were found to have a negative effect on BSE-Sensex and NSE-Nifty.

Keywords: Macroeconomic Variables, Indian Stock market, NIFTY, Regression Analysis.

INTRODUCTION

Financial markets play an important role in the substance of a stable and efficient financial system of an economy. Numbers of international and domestic factors directly or indirectly affect the performance of the stock market. The relationship between macroeconomic variables and a developed stock market is well documented in literature. The present study extends the existing literature in the Indian perspective. Indian securities exchange has seen overwhelming change for a couple of decades. Here, the nation arbitrage hypothesis expresses connection between securities authentic exchange and macroeconomic determinants pure force towards the securities exchanges and their pointers as files as well as clear picture of potential, heading, strength etc. factors lead the economy. Hence, there is broad gathering of macroeconomic factors that impacts the stock cost in the offer market if a nation economy is performing admirably and it is anticipated that it would develop at enthusiastic pace.

Moreover, the market is much ahead of the time anticipated and is expected to copy the share trading system for rising financial gateways like India, in turn conveys the tremendous desires of speculators. The industrial production index reveals the growth of industrial sector of the country and gold has always remained as one of lucrative investment opportunity for investors since years. With immense opportunities for development in the countries like India, there is a huge prerequisite energy need leading to investment in crude oil also as an important destination. The literature provides many studies conducted worldwide. Within the national context, it becomes imperative to examine the relationship between stock market and macroeconomic variables. This study takes four macroeconomic variables into consideration – Crude oil price, Exchange rate, CPI index and Gold price, and two widely used composite indices of the Indian stock market: Sensex and S & P CNX Nifty.

Crude Oil

Crude oil is a fundamental contributor to human development. India is generally a merchant of raw petroleum. It is tricky that any key development in oil costs prompts vulnerabilities in the share trading system that would influence finance specialists to suspend or defer their speculations of oil in the global market implies bringing down a genuine financial movement in all segments that will cause stock cost to come up short.

Gold Price

Gold is a strong substitute investment destination for Indian investors and financial analysts. The trend has normally exhibited an inverse relationship between gold prices and Indian stock market.

Exchange Rate

The exchange rate is one of the most important determinants of country's level of trade and is critical to every free market economy. Exchange rates of any economy are therefore, amongst the most watched, analyzed and manipulated by governments across different countries.

Consumer Price Index

The Consumer Price Index (CPI) is a measure to examine the changes in the weighted average of prices of basket of consumer goods and services. The CPI is one of the most frequently used statistics for identifying periods of inflation.

REVIEW OF LITERATURE

Aanchal (2017) explored the full scale financial factors on Indian securities exchange by utilizing information from NSE and economy watch from the period 2004 to 2015. Data was tested for stationarity on unit root. Mahmoud et al (2015) studied the causal relationship between advertise list and buyer value. The study was conducted in Egypt. The additional variables considered in the study were CPI, Exchange rate, Money supply and loan fee. The similar study was made in Tunisia and except for CPI, a causal association was found. Results revealed that the macroeconomic variables studied are co-coordinated with the share trading system in the two nations. This examination demonstrates that there is an association between stock index and consumer price index (CPI) with exchange rate, money supply and financing cost in Egypt and the same is true for Tunisia except CPI which had no causal association with the market. Mishra et al (2014) in his examination exhibited a positive association of sensex with macroeconomic factors. Kumar et al (2014) has analyzed including swapping scale and crude oil expenses to understand its impact on Indian securities trade through Sensex and Nifty. The examination highlights significant positive association of crude oil costs on securities trade. The positive relationship was shockingly captivating in this examination. Ray (2013) in his study disclosed that there exists no important causal association between industrial production and offer cost in India. Sireesha (2013) studied the impact of macroeconomic components upon the advancements of the Indian securities trade, Nifty, gold and silver prices.

The study of these internal factors exhibited the connection between these elements with returns on stock. The returns on gold and silver are generally influenced by GDP with an extension that they are equally influenced by money supply. External variables also showed an impact on these components. Naik et al (2012) found that the stock cost was strongly related to the money supply. The swapping scale and furthermore financing cost were found to be unimportant in choosing stock expenses yet unidirectional causation from money supply to stock cost to development and credit charges to stock expenses is developed. Tripathi N. (2011) studied the association between the stock trade and macroeconomic variables for 2005 to 2011. Dharmendra S. (2010) also studied the causal connection between Macroeconomic factors and stock exchange, the outcome of which were found to be vague.

Tuteja et al (2008) inspected the causal connection between share value price and macroeconomic factors and found a close association. They also mentioned that the money markets in India are industry driven. Husain (2006) has inspected the causal connection between stock cost and macroeconomic factors for Pakistan economy utilizing yearly information from 1959-60 to 2004-05. Erdogan et al (2005) conducted their investigation of impact of macroeconomic factors on stock returns in Turkey. Maghayereh (2003) in his examination found that macroeconomic variables like loan fees, inflation and automation are reflected in stock costs in the Jordanian capital market the investigation reasons that macroeconomic factors have huge impact in anticipating changes in stock prices. Pethe (2000) in his investigation endeavored to discover the manner by which stock value files are influenced and also how other basic macroeconomic factors in India influence the condition of economy and securities exchanges.

OBJECTIVES

- To study the effect of Macroeconomic variables on BSE-SENSEX
- To study the effect of Macroeconomic variables on NSE-NIFTY

HYPOTHESIS

H0 - There is no significant effect of macro-economic variables on BSE Sensex.

H1- There is significant effect of macro-economic variables on BSE Sensex.

H0- There is no significant effect of macroeconomic variables on NSE NIFTY

H1 – There is significant effect of macroeconomic variables on NSE NIFTY

RESEARCH METHODOLOGY

Study: Descriptive

Variables under study:

Bombay Stock Exchange (BSE) Sensex and National Stock Exchange (NSE) Nifty data, Crude oil prices, CPI, Gold price and Exchange Rate.

Data collection

Secondary data of monthly closing of various indices was collected from the websites like Reserve Bank of India, and stock exchanges National Stock Exchange, Bombay Stock Exchange.

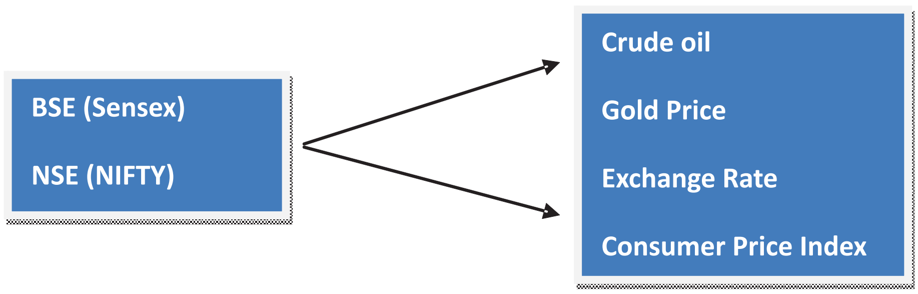
Period of study

The time series of monthly data of total 7 years was collected for the period starting from 1st January 2011 to 31st December 2017.

Research tools

Natural log was used to normalize the data and Multiple regression was used with Dependent variables as NSE and BSE Indices. The independent variables taken were Crude oil prices, Gold prices, Exchange rates and Consumer Price Index.

Independent Variable



RESULTS AND DISCUSSION

Analysis of BSE and Macroeconomic Variables

Table No: 1

Regression Statistics	
Multiple R	0.954719
R Square	0.911489
Adjusted R Square	0.907007
Standard Error	0.029204
Observations	84

Table No: 2

ANOVA					
	Df	SS	MS	F	Significance F
Regression	4	0.693867	0.173467	203.3859	9.43E-41
Residual	79	0.067379	0.000853		
Total	83	0.761246			

Table No. 3

	Coefficients	Standard Error	t Stat	P-value	Lower 95 percent	Upper 95 percent	Lower 95. percent	Upper 95.0 percent
Intercept	-9.81238	0.876097	-11.2001	5.54E-18	-11.5562	-8.06856	-11.5562	-8.06856
Log (Crude)	-0.12074	0.028319	-4.26344	5.53E-05	-0.1771	-0.06437	-0.1771	-0.06437
Log (Exchange Rate)	0.186242	0.135068	1.378872	0.171826	-0.0826	0.455088	-0.0826	0.455088
Log (CPI)	6.885296	0.328591	20.954	5.3E-34	6.231252	7.53934	6.231252	7.53934
Log (Gold Price)	-0.60686	0.087661	-6.92283	1.05E-09	-0.78135	-0.43238	-0.78135	-0.43238

From the above analyses from Table No. 1 to 3 of regression analysis, BSE Sensex and macro-economic variables. The Table 1 shows coefficient of determination is 91.14 percent. This means that close to 91 percent of the variation in the dependent variable is explained by the independent variables. Table 2 model shows that significance value of p is 9.43E-41 which is near to 0 and if significant p value is less than 0.05 than we reject the null hypotheses or accept the alternate hypothesis. The Table 3 on macro-economic variables since the p value of exchange rate is more than 0.05 so exchange rate does not have significant effect on Sensex. The Table 3 shows that CPI has significant effect on BSE Sensex. The p value of crude oil and gold price is also less than 0.05 so we can say that it also significantly affects the BSE Sensex, but the coefficient beta value of crude oil and gold price are -0.12074, -0.60686 respectively so the result conclude that crude oil and gold price will have a negative effect on BSE Sensex.

Analysis of NSE and Macro-economic variables

Table No: 4

Regression Statistics	
Multiple R	0.956225
R Square	0.914365
Adjusted R Square	0.910029
Standard Error	0.029744
Observations	84

Table No: 5

ANOVA					
	Df	SS	MS	F	Significance F
Regression	4	0.746264	0.186566	210.8809	2.57E-41
Residual	79	0.069891	0.000885		
Total	83	0.816156			

Table No: 6

	Coefficients	Standard Error	t Stat	P-value	Lower 95percent	Upper 95percent	Lower 95.0percent	Upper 95.0percent
Intercept	-10.4866	0.892282	-11.7525	5.05E-19	-12.2626	-8.71053	-12.2626	-8.71053
Log (Crude)	-0.14557	0.028842	-5.04731	2.81E-06	-0.20298	-0.08817	-0.20298	-0.08817
Log (Exchange Rate)	0.104716	0.137563	0.761219	0.448793	-0.1691	0.378529	-0.1691	0.378529
Log (CPI)	7.011881	0.334661	20.95216	5.34E-34	6.345754	7.678008	6.345754	7.678008
Log (Gold Price)	-0.57686	0.089281	-6.46122	7.85E-09	-0.75457	-0.39915	-0.75457	-0.39915

Interpretation

Table 4 shows that coefficient of determination is 91.43 percent. This means that close to 91 percent of the variation in the dependent variable is explained by the independent variables. The Table 5 model shows that significance value of p is 2.57E-41 which is near to 0 and if significant p value is less than 0.05 than we reject the null hypotheses or accept the alternate hypothesis. Table 6, since the p value of exchange rate is more than 0.05 so exchange rate does not have a significant effect on Nifty. The Table 6 shows that CPI is significantly effect on NSE Nifty whereas exchange rate doesn't affect the NSE Nifty. The p value of crude oil and gold price is also less than 0.05 so we can say that it also significantly the affect the NSE Nifty, but the coo efficient beta value crude oil and gold price is -0.14557, -0.57686 respectively so the result conclude that crude oil and gold price will negatively significant effect on NSE Nifty.

CONCLUSION

The major finding is that all macroeconomic variables have impact on Indian stock market. The macro variables which have positive impact on stock exchanges are accepted as null hypotheses, and alternate hypothesis is rejected. The study concluded that crude oil and gold price had negative and significant effect on BSE Sensex whereas Exchange rate did not have a significant effect. Also, crude oil and gold price were found to have a negative but significant effect on NSE Nifty whereas Exchange rate did not have a significant effect on NSE NIFTY, during the period of study.

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