A STUDY ON IMPACT OF MACROECONOMIC VARIABLES ON INDIAN STOCK MARKET WITH SPECIFIC REFERENCE TO CNX-NIFTY

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Abstract :

Stock market is influenced by micro and macroeconomic variables. The macroeconomic variables are one of the critical determinants for any variation in economy for a nation. Slightly unexpected modification among these determinants has effect on the economy in several ways. Present study aims to find out the impact of macroeconomic variables on Indian Stock market, with respect to NIFTY Index. The macroeconomic variables considered for the purpose of the study include GDP Growth Rate, Index of Industrial Production, Interest Rates, Inflation Rate, Exchange Rates, Gold Price, and Crude Oil Price are taken for analysis, for the period from 2006 to 2016. Correlation and Regression Analysis were used to demonstrate impact of macroeconomic variables on CNX-NIFTY. It was found that Industrial Production, Exchange Rate, Interest Rate and Gold price have high effect on the CNX-NIFTY during the study period. GDP Growth rate, Inflation Rate and Crude Oil Price have moderate impact on the CNX-NIFTY. There is a significant impact of selected macroeconomic variables on CNX-NIFTY. Hence the present study confirms that macroeconomic variables continue to affect Indian stock market.

Keywords: *Stock Market, NSE, NIFTY, Macroeconomic variables.*

Introduction

Indian economy is presently creating as a worldwide force. India's economy transformed into the world's quickest developing real economy from 2014. Securities exchange is one of the major economic reflectors. The stock price is extremely delicate to the adjustments in basics of the economy and to the adjustment in assumptions about future forecasts. Desires are affected by macro and micro economic variables. It is accepted that residential economy assumes deciding part in the execution of securities exchange. The instability in macroeconomic variables influences the value stock returns lastly influences the equity stock prices. Since economy and market are firmly related, data in regards to macroeconomic conduct might be exceptionally helpful. The economic performance in a nation could be measured by macroeconomics variables. Inflation, loan cost, conversion rate, and so forth are some macroeconomics variable that uncover financial state in India and the economic circumstance will influence the business condition which at last will influence the organization activity, that is the reason it is accepted that macroeconomic variables are elements that can't be controlled by the

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organizations which may influence the unpredictability of the stock price.

Macroeconomic Variables

Macroeconomics is the analysis of the country's economy in general. It examines the patterned developments and patterns exists in economy, for example, Gross Domestic Production, industrial production, Interest rate, Inflation, Money Supply, Gold price, Oil price, Exchange Rate, Budget Deficits, International Trade so on. Macroeconomic variables are the most notable variables and Government can't make their policies, rules and code of conduct without considering them. Thus, Macroeconomic variables are the key pointers to demonstrate the overall patterns in the economy. This has pulled in the consideration of numerous specialists to explore the variables influencing security exchanges. The impact of some macroeconomic variables could change starting with one market then onto the next and starting with one period then onto the next. This encouraged a more top to bottom examination of the way of the association among macroeconomic variables and securities exchanges in various economies, particularly after significant changes. Any progressions that influence the financial conditions in common, for example, evacuating limitations in foreign investment, will bring about changes in the share trading system and its connection to the economic elements. Reinvestigating the way of the association between the share trading system and the macroeconomic elements will be suitable and vital for shareholders on the grounds that the flow of this relationship has changed. The accompanying are the key macroeconomic variables prevailing trends in the economy.

Efficient Market Hypothesis

An investment concept positions that it is difficult to "exhaust the stock market" since share market effectiveness causes present company equity stock prices to continually consolidate and replicate entire related information. As specified by EMH, shares regularly conversed at their reasonable value on share exchanges, constructing it incomprehensible for financial specialists to either acquire underrated shares or put shares at overstated prices. In that case, it ought to be difficult to outflank the stock marketplace through master share determination or stock marketplace timing, and that the main way a shareholder can get forward-thinking returns is by buying riskier stocks.

The efficient market hypothesis (EMH), famously known as the Random Walk Theory, propose that present equity share prices totally imitate open information about the value of the public listed company, and actually there is no way to get the extra surplus benefits, (additional than the market return in general), by exploiting open data of the companies. This theory deals with one of the most exiting issues in the stock market and manages a standout amongst the most major and energizing issues in finance – in the sense of how share prices fluctuates and why changes occurs in the equity share prices. This theory has very important suggestions for speculators, traders, investors etc. According to E.F. Fama, on aggregate, competition among the companies will affect the company related information on the actual share prices. These effects reflect spontaneously on the intrinsic values.

Many analysts challenged to recognize equity share that are misapprehended and are

expected to appreciate in its stocks prices later on. Several investment specialists, counting investment chiefs, hope that they can pick equity shares that will outperform the stock market return. These analysts employ various indicators and valuation methods to determine the share prices to know risk. Clearly, any difference in that analysis for financial specialist may make out significant benefits. EMH declares that not a single set methods are powerful (i.e. the point of employing various indicators and valuation methods to determine the share prices), and in this manner nobody can naturally exploit the marketplace.

The Versions of Efficient Market Hypothesis

The EMH theory foresees that marketplace prices ought to incorporate all handy information every time. There are countless types of data and information that effect share values. Then, economic specialists recognize among three versions of the Efficient Markets Hypothesis.

Weak Form Efficiency:

This form states that the existing stock price wholly joins info/data confined in the earlier history of prices as it were. That is, nobody can distinguish mispriced shares and "beat" the stock market by evaluating former prices. The weak sort of the hypothesis got its name at a reason-security prices are apparently the most exposed to the public and additionally the most easily accessible bits of data/info.

Semi-Strong Form Efficiency:

This form mentions that the existing price entirely fuses all publicly accessible data. Open data integrates not just previous prices, but likewise financial performance conveyed in an organization's finance related accounts (yearly reports, financial statements, etc.), revenue and dividend declarations, the monetary positions of organization's opponents, predisposition towards macroeconomic determinants and so forth. Indeed, the general data and information must not need to be of a purely on financials.

The statement behind semi-solid market is that one should not generate profit utilizing somewhat that "others knows" (the data is freely available to all). In any case, this presumption is far more solid than that of weak form efficiency. Semi-strong efficient market requires the existence of stock market experts who are not just shares related financial experts equipped to realize effects of limitless budgetary data or statistics, furthermore macroeconomics, masters able to grasp forms in marketplace.

Strong Form Efficiency:

The strong type of Efficiency expresses that the existing price completely incorporates all existing information, both public and private (at times called insider data). The principal contrast between the semi form and solid Efficiency is that, no one has to have the capacity to methodically create surplus benefits irrespective of the likelihood that swapping on information not publically available in mean time. Strong Form Efficiency is that the market suspects, in a neutral way, forthcoming advancements and in this way the share price may have fused the development and judged in a more objective and instructive route than the insiders.

Review of Literature

Gurloveleen K and Bhatia BS (2015), studied the impact of macroeconomic variables on the compelling of Indian Stock Market. The month

to month information of ten macroeconomic variables, to be specific Broad Money, Call Money Rate, Oil Price, Exchange Rate (USD), Foreign Exchange Reserve (FER), Gross Fiscal Deficit (GFD), Foreign Institutional Investors (FII), Industrial Production (IIP), Trade Balance and Inflation Rate and BSE500 index utilized. The Multiple-Regression, Granger-Causality Tests and Augmented-Dickey-Fuller (ADF) Test were utilized. It revealed that FII's got to be stationary at level, Call Money Rate, Oil Price, Exchange Rate (USD), Foreign Exchange Reserve (FER), Gross Fiscal Deficit, Inflation Rate and Trade Balance at first distinction and Broad Money and Index of Industrial Production (IIP) at second difference. This stationary figures had been connected to discover the critical macroeconomic variables through multiple regression procedure. The 2 macroeconomic variables Foreign Institutional Investors and Exchange Rate were discovered significant. Granger-causality test was utilized to confirm the causality relationship between these two critical variables and average closing prices of manufacturing firms of BSE 500. It was recognized that these elements have no relationship with closing prices of BSE500 list. This study also revealed that the Indian Stock Market was a frail form efficient because no relationship was found amongst the variables throughout the study period.

Dr. N.S.Pandey and S.Sriram (2015), in their study looked at the effect of chose Macroeconomic variables on BSE Sensex. The aspiration of the study is to assess the impact of chose Macroeconomic variables on BSE-Sensex. The chose Macroeconomic variables are Exchange Rate, Wholesale value index and Industrial production. The Regression investigation infers that most importantly chose Macroeconomic variables impact BSE Sensex list. Johansen co-mix clarifies that there is no long run co-coordination between chose Macroeconomic variables and BSE-Sensex list. Grangercausality test finds that Exchange rate and Index of modern production (IIP) don't have crucial association with BSE-Sensex index and, Inflation rate and BSE Sensex index have causal relationship.

Nabila Nisha (2015) has combined both international and national elements and spread this presumed connection between stock yields and macroeconomic variables to the emerging market of India. Using time-series analysis, this paper employs Vector-Auto regression (VAR) to define the influence of macroeconomic factors on the stock returns of Bombay Stock Exchange (BSE). Results of this paper specify that a significant impression on interest rate, gold price, exchange rate and money supply is detected for the stock returns of BSE. Furthermore, a solid effect of the worldwide macroeconomic factor of the world price index is also observed, which infers a gradual integration of BSE towards the universal financial marketplaces. Lastly, the study highlights the administrative and policy implications, upcoming study ways and restrictions from the viewpoint of India.

Kibria, Mohamood, Kamran, (2014), in their study discovered that the Macroeconomic variables such as inflation rate, exchange rate, money supply (MS), Gross Domestic Product (GDP) per capita and GDP savings found a positive influence on stock market.

Subburayan and Srinivasan (2014), in their study analysed the impact of macroeconomic variables on the CNX-NIFTY Bank list. The objective of the exploration is to look at the

long stretch relations between economic variables and CNX-NIFTY bank returns. The vital economic components to be specific exchange rate (USD), financing costs and inflation rates were considered. Loan rates and exchange rates are essential variables in the banking industry and monetary policy. Month to month time series information were gathered from Reserve Bank of India (RBI) handbook and CNX-Nifty bank, over the study time frame from first Jan 2004 to 31st Dec 2013. The real findings from the analysis are: (i) selected sample macroeconomic variables has got significant on bank stock returns. (ii) Bank stock returns have settled long run association with chose macroeconomic variables. (iii) Exchange rate and Interest rate reflected emphatically on bank stock returns. (iv) there is no causal linkage amongst index and Interest rate, Bankex list and Inflation. (v) Bank stock exist unidirectional causal consequences for the exchange rate. The research secured that chose macroeconomic variables were impact over the long run and have causal association with Bankex index.

Imran, Chani, Shahzad, Farooq and Kamran (2014), had the object of determining the effect of borrowing rate, conversation rate, and GDP and inflation rate on share prices in Pakistan. The monthly data of 11 years' series from 2001 to 2011 was used for this research. Grangercausality and cointegration tests were applied on the data to evaluate the likely influence of macroeconomic variables on share prices. The results of the study bare that there was no association amongst dependent variable and explanatory variables in short run. On the other hand, outcomes demonstrated that there was solid connection over long period of time.

Naik and Padhi (2012), in their study investigates the partners between the BSE-Sensex index and five macroeconomic variables, to be specific inflation (WPI), exchange rates (USD), cash supply (MS), Treasury bills rates, and industrial production (IIP) over the period 1994:04–2011:06. Johansen's co-combination and Vector-Error adjustment model have been utilized. The study tells that macroeconomic variables and the index are co-coordinated and, hereafter, a long-run equilibrium affiliation exists between them. It is recognized that the index decidedly describes to the IIP and cash supply however unfavourably identified with WPI. The short-run loan cost and the trade rate (USD) are uncovered to be unessential in deciding stock prices. In the Granger-causality, macroeconomic variable impacts the index in the long period however not in the brief timeframe. There is bi-directional interconnection exists amongst IIP and index though, unidirectional causality from cash supply (MS), inflation (WPI) and loan costs to index were found.

Samveg Patel (2012),assessed the effect of macroeconomic determinants on the performance of the Indian-Stock-Market utilizing month to month information for the period Jan-1991 to Dec-2011. The eight macroeconomic variables of the study were, Silver Price, Interest Rate, Gold Price, Inflation, Industrial Production (IIP), Exchange Rate, Money Supply and Oil Price, and two securities exchange index specifically Sensex and S&P-Nifty. The study demonstrated long run relationship between macroeconomic elements and securities exchange indices. This study likewise uncovered the causality keep running from exchange rate to securities exchange indices to IIP and Crude Oil Price.

Ray (2011) showed that Multivariate-Granger causality test uncovered that there was no causal relationship between securities exchange price and Industrial Production, securities exchange price and financing rate. The study additionally indicated unidirectional causality exist between offer business sector cost and gross fixed capital formation, GDP, exchange rate, FDI and inflation rate. The multiple regression effects of the study demonstrate that oil cost and gold cost have a huge negative impact on stock cost, while balance of trade, loan rate, foreign exchange reserve, gross household product (GDP), IIP and cash supply emphatically impact Indian stock price. Then again, interest rate, foreign direct investment, conversion rate and wholesale price index(WPI) don't seem to have any huge impact on stock price.

Robert D (2008), the affiliation among share prices and macro-economic variables was well recognized for the United States and other key economies. While no noteworthy association was originated amongst respective conversation rate and oil price on the share market index prices of either BRIC countries, due to the stimulus of other local and universal macroeconomic factors on share market returns. Also, there was no substantial association revealed among current and earlier share market returns, suggesting the markets of BRIC countries exhibited the weak-form of market efficiency.

Need for the Study

Various researches have been directed to decide the relationship between the macroeconomic variable and stock prices before. The findings of these studies demonstrate that there is a relationship between macroeconomic variable and share prices. Based on the review of the literature, it is identified that most of the studies done on the BSE SENSEX. So it found that hardly we find the studies on NSE. In this context NSE-NIFTY index is selected for the study. NSE is one of the top stock exchanges in India by revenue and number of trades (volume), for equities exchanging. The study is to examine the effect of these macroeconomic variables i.e. Gross domestic product Growth, Industrial Production, Oil cost, Exchange rate, Interest rate, Gold value, and Inflation Rate so on stock prices in CNX-NIFTY.

Statement of the Problem

Stock market plays an important role for the development of the country. It is essential for the growth of Indian economy. Its movements show an impact on the performance of the economy. The stock market is a place where investors, whether Indians or foreigners can invest. Their choice to invest or withdraw the funds is determined by the numerous factors. The macroeconomic variables are the one of them. Macroeconomic variables affect the performance of the stock market. Investors consider macroeconomic variables when they value stocks. GDP Growth rate, Industrial Production, Interest rate, Inflation Rate, Exchange rate, Gold price, Crude Oil price etc. are very important among these macroeconomic variables which affect the performance of the stock market. The investor at the time of investment decision should consider all these macroeconomic variables to take suitable investment decision. In this regard, a study is taken up to find the "Impact of macroeconomic variables on Indian stock market with specific reference to CNX-NIFTY".

Scope of the Study: This study considers only 7 macroeconomics variables and its impact only on CNXNIFTY index. Findings are applicable in the situation which prevailed during period 2006 to 2016.

Objectives

1. To determine the co-relationship between the selected Macroeconomic variables and CNX-NIFTY.
2. To find out the impact of selected Macroeconomic variables on CNX-NIFTY.

Hypotheses

H_0: There is no significant impact of selected Macroeconomic variables on CNXNIFTY.

H_1: There is significant impact of selected Macroeconomic variables on CNX-NIFTY.

Research methodology

The study is Quantitative as well as Analytical in nature. It focuses on determining the relationship between macroeconomic variables and stock prices by using statistical tools like regression and correlation. It uses critical thinking to find out impact of selected macroeconomic variables on CNX-NIFTY.

Source of Data

The secondary data is used for the study. The data related to the closing prices of CNX-NIFTY is collected from the website of NSE. The database of RBI was used to collect the yearly data of available macroeconomic variables and other data was collected from ministry of finance, ministry of statistics, economy survey of India, etc.

Data Analysis and Discussion
GDP Growth Rate with CNX-NIFTY

Table 1: Model Summary of GDP Growth with CNX-NIFTY from 2006 to 2016

Regression Statistics	
Multiple R	0.288373
R Square	0.083159
Adjusted R Square	-0.01871
Standard Error	1735.874
Observations	11

Table 2:ANOVA

	Df	SS	MS	F	Significance F
Regression	1	2459769	2459769	0.816315	0.389802038
Residual	9	27119336	3013260		
Total	10	29579105			

The above tables show the Regression test result between GDP Growth Rate with CNX-NIFTY for the period 2006 to 2016. In this model CNX-NIFTY index is taken as a dependent variable and GDP Growth rate is taken as independent variable.

In Model-Summary table (1) calculated Multiple R value shows that there is correlation between GDP Growth and CNX-NIFTY to the extent of 0.2883 means there is a weak relationship between CNX-NIFTY and GDP Growth rate. R-Square value indicates that only 8.31% variation in the CNXNIFTY (dependent variable) is explained by GDP Growth rate (independent variable).

The table (2) shows results of ANOVA test between GDP Growth rate and CNXNIFTY. The F calculated value is 0.816315 and Significance F value is 0.389802038 at 95% of confidence level. F calculated value is more than significance F value means belongs to critical region. It means H_0 is rejected and there is a significant impact of GDP Growth rate on CNX-NIFTY.

GDP Growth rate and CNX-NIFTY both are moving in positive manner. India's GDP growth rate increased at an average of 9% for the period from 2003 to 2007, as a result of foreign investments, stable strategies by the Government and numerous other monetary elements indicated constructive outcomes on Indian economy. Hence CNX-NIFTY Index indicated a growth till 2007. After that it was growing moderately because of the worldwide financial emergency in 2008. CNX-NIFTY index values were also declined in the year 2008-09. Later GDP growth rate and CNX-NIFTY recovered in 2009-10 because of the efforts and strategies of the Indian Government like MGNREGA which helped poor individuals by expanding the limit of their spending's. In years 2011 to 2013 GDP Growth was fluctuating in view of poor strategies by Government, awful worldwide situation, scams, higher inflation etc. As a result CNX-NIFTY Index demonstrated unpredictability. In most recent 3-year there is persistent growth in Indian GDP, in view of new government and their new initiatives like Make in India, drawing investment from FII, increment FDI, lowering CAD, GST and other different starts helped the economy. In this situation CNX-NIFTY Index demonstrated positive growth in recent years.

Index of Industrial Production (IIP) with CNX-NIFTY

Table 3: Model-Summary of IIP with CNX-NIFTY from 2006 to 2016

Regression Statistics	
Multiple R	0.825839
R Square	0.682011
Adjusted R Square	0.646679
Standard Error	1022.298
Observations	11

Table 4: ANOVA					
	df	SS	MS	F	Significance F
Regression	1	20173269	20173269	19.30285	0.001736696
Residual	9	9405836	1045093		
Total	10	29579105			

The above tables show the Regression test result between Index of Industrial Production(IIP) with CNX-NIFTY for the period 2006 to 2016. In this model CNX-NIFTY index is taken as a dependent variable and Index of Industrial Production(IIP) is taken as an independent variable.

In Model-Summary table (3) calculated Multiple R value shows that there is a correlation between IIP and CNX-NIFTY to the extent of 0.825839 means there is a strong relationship between CNX-NIFTY and IIP. R-Square is 0.682011 means 68.20% of variation in CNX-NIFTY is explained by the IIP.

The table (4) shows results of ANOVA test between Index of Industrial Production(IIP) and CNX-NIFTY. The F calculated value is 19.30285 and Significance F value is 0.001736696 at 95% of confidence level. F calculated value is more than Significance F value means belongs to critical region. Hence H_0 is rejected and there is a significant impact of Index of Industrial Production on CNX-NIFTY.

During the period it is reasoned that there is huge effect of Index of Industrial Production(IIP) on CNX-NIFTY. It is genuinely clear that the IIP and CNX-NIFTY closely associated. It demonstrates that IIP is not as unstable as the CNX-NIFTY but rather even significant change in IIP can prompt a considerable measure of vary in CNX-NIFTY. Both industrial production and CNX-NIFTY demonstrated a positive value year on year till the year 2007, due to a steady Indian economy which demonstrated a normal GDP growth of 9% till 2007.The Government encouraged manufacturing industry by policy measures and lower rates which at last expanded a capital goods production in the country. Later there was sudden decline in both industrial production and CNX-NIFTY Index due to the worldwide economic emergency in 2008. Both IIP and CNX-NIFTY recovered in the year 2009-10. During 2011 to 2014 Indian industrial production was stagnant due to low demand and which ended up in expanding the inflation rate. As a result there was instability in CNX-NIFTY Index. Later new Government took appropriate measure and schemes like Make in India which focus on boosting the manufacturing sector in India and resulted in growth of IIP and also CNXNIFTY Index seen growth in most recent 2 years.

Interest Rate with CNX-NIFTY

Table 5: Model Summary of Interest Rate with CNX-NIFTY from 2006 to 2016

Regression Statistics	
Multiple R	0.61934
R Square	0.38358
Adjusted R Square	0.31509
Standard Error	1423.34
Observations	11

Table 6: ANOVA

	df	SS	MS	F	Significance F
Regression	1	11345995	11345995	5.60047	0.04215
Residual	9	18233110	2025901.1		
Total	10	29579105			

The above tables show the Regression test result between Interest Rate with CNX-NIFTY for the period 2006 to 2016. In this model CNX-NIFTY index is taken as a dependent variable and Interest Rate is taken as an independent variable.

In Model-Summary table (5) calculated Multiple R value shows that there is a positive correlation between Interest Rate and CNX-NIFTY to the extent of 0.61934 which indicates moderate relationship between the two. R-Square value indicates that 38.35% variation in CNXNIFTY (dependent variable) is explained by variation in Interest Rate.

The table (6) shows results of ANOVA test between Interest Rate and CNXNIFTY. The F calculated value is 5.60047 and Significance F value is 0.04215 at 95% of confidence level, here F calculated value is more than Significance F value. When F calculated value is more than significance F value, F calculated value belongs to critical region hence H_0 is rejected. It shows that there is a significant impact of Interest Rate on CNX-NIFTY.

Interest rate from 2006 to 2011 remained at 6% except in the year 2008 whereinterest rate was fluctuated on account of the other macroeconomic variables and worldwide financial crisis. From 2011 to 2014 there was increase in the interest rate. Therefore speculators exited from the stock market and put resources into the bank deposits which gave them better returns for their investment. As result CNX-NIFTY Index resulted in moderate growth. Later RBI took a balanced way to deal with change in key rates which in the end gave control over the inflation and economic

variables improved. This caused cut down in the financing costs and pulled back the speculators to the share market. Financing cost declined from 9% to 7.75% in recent 3 years and CNX-NIFTY demonstrated growth in that period.

Inflation Rate with CNX-NIFTY

Table 7: Model Summary of Inflation Rate with CNX-NIFTY from 2006 to 2016

Regression Statistics	
Multiple R	0.330571
R Square	0.109278
Adjusted R Square	0.010308
Standard Error	1710.97
Observations	11

Table 8: ANOVA

	Df	SS	MS	F	SignificanceF
Regression	1	3232331	3232331	1.104157	0.320751
Residual	9	26346774	2927419		
Total	10	29579105			

The above tables show the Regression test result between Inflation Rate with CNX-NIFTY for the period 2006 to 2016. In this model CNXNIFTY index is taken as a dependent variable and Inflation Rate is taken as an independent variable.

In Model-Summary table (7) calculated Multiple R value shows that there is a correlation between Inflation Rate and CNX-NIFTY i.e., 0.330571. The variation in independent variable explained by variation independent variable is 10.92% (R-Square).

The table (8) shows results of ANOVA test between Inflation Rate and CNXNIFTY. The F calculated value is 1.104157 and F Significant value is 0.320751 at 95% of confidence level, here F calculated value is more than Significance F value. F calculated value belongs to critical region hence H_0 is rejected. So alternative Hypothesis(H_1) is accepted i.e., Inflation Rate has significant impact on CNX-NIFTY.

From 2006 to 2007 Indian economy grown at an average rate of 9%, as inflation was under 6%. There was favorable movement in the CNX-NIFTY Index. From 2008 to 2010 there

was increase in inflation rate. In the year 2010 inflation remained at 12% which is considered as a high inflation rate for the economy. The monetary crisis in 2008, drought in 2009 and uneven rail fall in the year 2010 caused increase in prices of food and fuel in two years and it had kept inflation in two digits. As result CNX-NIFTY Index was unpredictable. A Sharpe decrease in inflation was seen in the year 2010-11 due to changes in real estate and service market, yet the impact was held on for a brief time period. Further scams, poor policies, higher CAD, low export, awful worldwide situation, decrease in the GDP, and expansion in interest rate caused increase in inflation rate in years from 2011 to 13 and CNX-NIFTY index was in declining trend.

Exchange Rate (USD) with CNX-NIFTY

Table 9: Model Summary of Exchange Rate with CNX-NIFTY from 2006 to 2016

Regression Statistics	
Multiple R	0.827983
R Square	0.685556
Adjusted R Square	0.650617
Standard Error	1016.584
Observations	11

Table 10: ANOVA

	Df	SS	MS	F	SignificanceF
Regression	1	20278120.45	20278120	19.62191	0.001648
Residual	9	9300984.391	1033443		
Total	10	29579104.84			

The above tables show the Regression test result between Rupee value against US Dollar with CNX-NIFTY for the period 2006 to 2016. In this model, CNX-NIFTY index is taken as a dependent variable and Exchange Rate is taken as an independent variable.

In Model-Summary table (9) calculated Multiple R value shows that there is a high correlation between Exchange Rate and CNX-NIFTY to the extent of 0.827983 which shows strong relationship between the two variables. R-Square indicates that 68.55% variation in CNX NIFTY (dependent variable) is caused by variation in Exchange Rate (independent variable).

The table (10) shows results of ANOVA test between Exchange Rate and CNXNIFTY. The F calculated value is 19.62191and Significance F value is 0.001648 at 95% of confidence level. F calculated value is more than Significance F value. F calculated value belongs to critical region hence H_0 is rejected. It can be concluded that alternative Hypothesis(H_1) is accepted i.e., there is a significant impact of Exchange Rate on CNX-NIFTY.

It can be interpreted that there is noteworthy effect of Exchange rate on CNX-NIFTY. The study demonstrates that conversion rate and CNX-NIFTY have strong relationship. In the period between 2006 and 2007, the Indian rupee value against US Dollar quit devaluing and balanced out at a normal of Rs.45 and likewise achieved top at Rs.39/USD. It was conceivable on the account of steady foreign capital inflows into India to exploit financing cost differential. US Federal Bank did not raise interest rate subsequent to 2005, as result US T-bill exchanged at 0.22% while Indian T-bill exchanged around 7% in that period. This helped CNX-NIFTY index in 2006 and 2007. In any case this impact continued till world hit by worldwide financial crisis in 2008, this changed condition of numerous currencies. The pattern was turned around till 2009, outside financial investors exchanged their capital. On this record CNX-NIFTY drop away during the period from 2008 to 2009. Later it was noticed that appreciation in both CNX-NIFTY and Indian Rupee, as India recovered from global crisis. In the period between 2010 and 2011, the Rupee was less volatile and CNX-NIFTY grew moderately in that period.

Rupee began deteriorating in the late 2011, because of decrease in outside capital inflows. This Lowered the export, broadens gap between imports and exports, and expanded the CAD. Further fuelled by scams, high inflation, high interest rate and record high cost of unrefined petroleum worsened circumstance in the year 2013. In this circumstance, CNX-NIFTY fell forcefully in year 2011-12 and posted moderate growth in the middle of 2013-14. The Rupee depreciation continued in 2014. Then again, RBI was understood about the truths and took measures by altering interest rates. Government introduced new initiatives. All these contributed in stabilising the Rupee in the last two years and on this record CNX-NIFTY aslo shown positive results.

Gold Price with CNX-NIFTY

Table 11: Model Summary of Gold Price with CNX-NIFTY from 2006 to 2016

Regression Statistics	
Multiple R	0.753279
R Square	0.56743
Adjusted R Square	0.519367
Standard Error	1192.338
Observations	11

Table 12: ANOVA					
	df	SS	MS	F	SignificanceF
Regression	1	16784071	16784071	11.80588	0.007438
Residual	9	12795034	1421670		
Total	10	29579105			

The above tables show the Regression test result between Gold Price with CNX-NIFTY for the period 2006 to 2016. In this model CNX-NIFTY index is taken as a dependent variable and Gold Price is taken as an independent variable.

In Model-Summary table (11) calculated Multiple R value shows that there is a positive correlation between Gold Price and CNX-NIFTY i.e., 0.753279 which shows strongassociation between the two variables. R-Square value indicates that 56.74% variation in the CNX-NIFTY is caused by variation in Gold Price.

The table (12) shows results of ANOVA test between Gold Price and CNXNIFTY. The F calculated value is 11.80588 and Significance F value is 0.007438 at 95% of confidence level. Here F calculated value is more than Significance F value hence H_0 is rejected. It means there is significant impact of Gold Price on CNX-NIFTY.

During the study period, it is found that there was significant effect of Gold price on CNX-NIFTY. From 2006 to early 2008 due to favourable conditions in the economy both gold market and securities market were mostly stable. Henceforth both investment avenues gave great return to the investors. This trend continued until worldwide recession in 2008. When CNXNIFTY index collapsed in 2008, then investor withdrawnmoney from the securities markets because of high unpredictability in the economy. Investors moved towards the gold instrument as it was yieldingreasonably good return. This expanded the demand and price of gold in 2008 and 2009. Later in 2010 gold price devalued as Indian economy recovered from the recession.

From 2010 to 2013 gold price aggregately expanding year on year because of the financial circumstances in India. During 2013 to 2015, Government succeed in building confidence in the economy by their new initiatives like Make in India, pulling in investment from FII, increased FDI, Lowering CAD, GST, control over Inflation and numerous other measures worked in favourof the economy as planned. Because of all these CNX-NIFTY Index showed positive trend.

Crude Oil Price with CNX-NIFTY

Table 13: Model Summary of Crude Oil Price with CNX-NIFTY from 2006 to 2016

Regression Statistics	
Multiple R	0.452179
R Square	0.204466
Adjusted R Square	0.116073
Standard Error	1616.966
Observations	11

Table 14: ANOVA

	df	SS	MS	F	Significance F
Regression	1	6047907	6047907	2.313149	0.16260831
Residual	9	23531197	2614577		
Total	10	29579105			

The above tables show the Regression test result between Crude Oil Price with CNX-NIFTY for the period 2006 to 2016. In this model, CNXNIFTY index is taken as a dependent variable and Crude Oil Price is taken as an independent variable.

In Model-Summary table (13) calculated Multiple R value shows that there is a moderate relationship between Crude Oil Price and CNX-NIFTY to the extent of 0.452179. R-Square shows that 20.44% variation in CNX-NIFTY is caused by variation in Crude Oil Price.

The table (14) shows results of ANOVA test between Crude Oil Price and CNXNIFTY. The F calculated value is 2.3131and Significance F value is 0.16260831at 95% of confidence level, here F calculated value is more than Significance F value hence H_0 is rejected. There is significant impact of Crude Oil Price on CNX-NIFTY.

The unrefined petroleum cost consistently expanded till early 2008, later value fell for a short period. Further crude oil cost recovered in the year 2009. While CNX-NIFTY demonstrated positive trend until influenced by worldwide recession in 2008-2009, however India came out of the crisis within short span of time. As result there was upward trend in the CNX-NIFTY in 2009-10. Raw petroleum cost demonstrated instability in the middle of 2009-2012, because of the Mideast and North African regions emergency prompted increase in unrefined petroleum costs, increase in gold price and high inflation in India. From 2013 to 2014, it is seen that sharp rise in unrefined

petroleum cost, because of the shout down of refineries in USA and Mideast provinces.Later years there was sharp fall in raw petroleum value in the light of cut in the demand for the raw petroleum in large markets like China and Europe which prompted higher supply of raw petroleum to other parts of the world including India. Itimpacted securities market positively and demonstrated uptrend in the CNX-NIFTY index in most recent two years.

Summary of Findings

- GDP Growth Rate: The study shows that there is a low correlation between GDP Growth and CNX-NIFTY to the extent of 0.2883 during the period from 2006 to 2016. It is found that there is a significant impact of GDP Growth rate on CNX-NIFTY during the period.
- Index of Industrial Production (IIP): The study shows that there is a high correlation between Index of Industrial Production (IIP) and CNX-NIFTY to the extent of 0.825839 during the period. It is found that there is a significant impact of Index of Industrial Production(IIP) on CNX-NIFTY.
- Interest Rate: The study shows that there is a moderate correlation between Interest Rate and CNX-NIFTY to the extent of 0.61934 during the period from 2006 to 2016. It is found that there is a significant impact of of Interest Rate on CNX-NIFTY.
- Inflation Rate: The study shows that there is a low correlation between Inflation Rate and CNXNIFTY to the extent of 0.330571 during the period from 2006 to 2016. It is found that there is a significant impact of Inflation Rate on CNX-NIFTY.
- Exchange Rate: The study shows that there is a high correlation between Exchange rate (Indian Rupee against dollar) and CNX-NIFTY to the extent of 0.827983 during the period from 2006 to 2016. It is found that there is a significant impact of ExchangeRate(USD) on CNX-NIFTY.
- Gold Price: The study shows that there is a high correlation between Gold-Price and CNXNIFTY to the extent of 0.753279 during the period from 2006 to 2016. It is found that there is a significant impact of Gold Price on CNX-NIFTY.
- Crude Oil Price: The study shows that there is a correlation between Crude-Oil Price and CNXNIFTY to the extent of 0.452179 during the period from 2006 to 2016. It is found that there is a significant impact of Macroeconomic-Variable CrudeOil Price on CNX-NIFTY.

Suggestions

- The study revealed that interest rate is considered as one of the important variable as it affects the cost of finance. So the RBI should try to control interest rate through Repo rate (RR) and Reverse Repo rates. Otherwise, when interest rate increases, people tend to shift their capital from the share market to the bank or any other interest paid financial instrument, which eventually lead to a decline in the share prices.
- Exchange rate is one of the highly significant factors. The rupee value can appreciate against the dollar by decreasing the Current Account Deficit (CAD) and increasing the reserves. Promoting the exports will lead to the decline CAD and also favours the

industrial production in the country. Government can attract FII by reforming the FDI policy. This can create demand for rupee in the global market.

- Index of Industrial Production (IIP) is one of the highly noteworthy factor. Therefore, policy creators would try to support industry growth through appropriate policy. Initiations like "Make in India" by Government boosting the manufacturing sector. Government should develop more SEZs and infrastructure facility; this may lead to increase in industrial production.
- Gold and Crude Oil price are also major determinants which affects CNXNIFTY. Most of the time the prices of these commodities are determined at the global level, but still by appropriate import duty and local taxes affect the prices. So policy makers would attempt to keep viable price levels.
- Furthermore, Individual investor should consider Index of Industrial Production (IIP), Interest Rate, Exchange rate, Gold Price, Crude Oil Prices, Inflation Rate and GDP Growth rate while investing on the stocks which are listed in CNXNIFTY. Because they have a significant impact on CNX-NIFTY. The variation in these macroeconomic variables causes volatility in the stock market.
- Speculator can take advantage of volatility caused by the unexpected change in the macroeconomic indicators.
- The listed firms in the CNX-NIFTY should endeavour to make their stocks attractive to investors who may invest in the security for longer period of time. In this regard, the firms should consider the impact of macroeconomic variables to invest in projects that are long term and viable for long term returns to investors.

Conclusion

Securities exchange plays an imperative part in the advancement of the nation. It is vital for the development of Indian economy. Its developments demonstrate an impact on the performance of the economy. The share trading system is a spot where financial specialists, whether Indians or outsiders can invest. Their decision to invest or pull back the assets be dictated by the various variables. The macroeconomic variables are one of them. All the macroeconomic variables utilized as a part of the study to be specific GDP Growth, Industrial Production (IIP), Interest rate, Inflation Rate, Exchange rate (USD), Gold price and Crude Oil price have been found to significantly affect the CNXNIFTY. This makes it clear that there is, a relationship between securities exchange and these macroeconomic variables and that the macroeconomic components assume an extraordinary part in stock market variations and can be utilized to illustrate them. This will help the financial specialists to anticipate the heading of the market and concentrate just on the noteworthy variables and their effect on various circumstances. Hence financial specialist at the time of investment choice ought to consider all these macroeconomic variables to take appropriate investment choice. Subsequently the present study confirms the conviction that macroeconomic components keep on affecting Indian securities exchange.

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