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To study the impact of macroeconomics determinants on NSE index

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Abstract
This study investigates the impact of macroeconomic determinants on NSE- index (Nifty 50). The determinants used are Gross Domestic Product, Foreign Direct Investment, Money Supply (M3), Exchange Rate, Trade Balance and Crude Oil Prices. Data's collected was for a duration of 10 years from January 2007 to December 2016.
Using ADF unit root test data series were tested for stationarity and all series were find stationary at level itself. Correlation matrix is used to find the relationship between the macroeconomic determinants and the Nifty 50 as well as among the determinants itself. And a moderate correlation is found between the macroeconomic determinants and the Nifty 50 out of which exchange rate showed a negative relationship whereas other determinants showed a positive relationship.
Multiple regressions analysis is used to find the effect of macroeconomic determinants on the Nifty 50. It is found that Gross Domestic Product, Crude Oil and Exchange Rate show a significant effect on Nifty 50 whereas Foreign Direct Investment, Trade Balance and Money supply (M3) showed a non-significant effect on the Nifty 50. Granger Causality test reveals that there exist neither bidirectional nor uni-directional relationships with the Nifty 50. The use of Johansen Cointegration test indicates that all macroeconomic determinants have a long run relationship with Nifty 50 which implies that the data of determinants and Nifty 50 are co-integrated.

Keywords: GDP, FDI, M3, trade balance, exchange rate, crude oil price, nifty 50, ADF- unit root test, granger causality test and johansen co-integration test

1. Introduction
A Stock market also referred to a share market or an equity market is the platform where number of buyers and sellers of representing ownership claims on business gathers, these may include securities listed on public stock exchange as well as stock that is only traded privately. Most of the trading in the Indian stock market takes place on its two stock exchanges: Bombay Stock Exchange and the National Stock Exchange.
Stock market is an important part of the economy of the country. It plays a crucial role in the growth and development of the country's commerce and industry that eventually will affect the economy of the country to a great extent. It is the connecting point between the individuals and organizations in regard with gathering the savings and converting them to investments. It has become a key driver of modern market based economy and one of the major source of raising resources for Indian corporate, thereby enabling financial development and economic growth. Stock market is important from both the industries point of view as well as the investor's point of view. Its importance has been well seen and encountered in the industries and investors perspectives. It avails long term capital to the listed firms by pooling funds from different investors and allows them to expand in business and also offers investors alternative investment avenues to put their surplus funds in. Investors carefully watch the performance of the stock market by observing the composite market index before investing funds.
An efficient capital market contributes in the economic growth of the country by stabilizing the financial sector. In an efficient capital market, stock market movements takes place according to the new information available that is the stock prices adjust swiftly according to the new information available and also to the expectations of the future performance of corporate houses. These expectations are influenced by the micro and macro fundamentals which may be formed either rationally or adaptively on economic fundamentals, as well as by many subjective factors which are unpredictable and also non quantifiable. And leads to movement of the stock market which puts an impact on the performance of the economy. This movement of fluctuations that occurs in the stock market is a result of both microeconomic factors as well as macroeconomic factors. These factors affect the decisions of the investors whether to invest or withdraw the funds and leads to an impact on the economic growth and hence leads to movement in stock prices thus making the market volatile.
Microeconomic factors are the one which are controllable in nature and the one which is primarily concerned with choices people make, their decision making etc. In short it takes place at ground level which does not have great influence and impact on the economy whereas macroeconomic factors are a vital one which has a broader concept, role and impact on the economic growth and development. It is an analysis of an economy as a whole. These are the indicators which are used at a great extent by the government to set policy goals and create stability in the economy. These factors are uncontrollable in nature but one can reduce or lessen the impact of these factors. These variables can be understood as: variables reflecting general economic conditions, variables related to interest rate and monetary policy, variables concerning price level and variables involving international activities. General

economic condition includes variables like industrial production index or unemployment rate. The variables depicting interest rate and monetary policy include term spread, interest rate, money supply, default spread etc. variables focusing on price level may be general price index or inflation rate-wholesale price index/consumer price index. Variables involving international activities are exchange rate or foreign direct investment or foreign institutional investment. These macroeconomic factors are the key indicators to show the prevailing trend in the economy. And the relationship between stock returns and macroeconomic factors can be viewed in two ways. One view is to see the stock market as the leading indicator of economic activity the macroeconomic factors based on the finding that stock market rationally signals changes the real activity. Another way is that macroeconomic factors influence and predict stock returns.

Both real and financial macroeconomic factors have a considerable influence, positive as well as negative on the performance of all sectors of the economy. And the movement of stock prices, apart from the firm's fundamentals depends upon the level of development achieved in the economy and its integration towards the world economy. Changes in these macroeconomic factors is having a diverse effect across the economic spectrum.

Moreover, the stock markets of emerging economy is likely to be sensitive to factors such as changes in the level of economic activities, changes in political and international economic environment along with the above mentioned macroeconomic factors. It is being seen that the risks and returns in the emerging stock markets are found to be high compared to that of the developed stock markets. Investors evaluate the potential economic fundamentals and other firm's specific factors/characteristics to formulate expectations about the stock market. The traditional financial theory focused upon the fundamental or microeconomics factors more. And the modern financial theory focuses upon systematic factors as sources of risk and contemplates that the long run return on an individual asset reflects the changes in such systematic that is macroeconomic factors.

The objective of this study is to test whether macroeconomic determinants explain the behaviour of the Indian stock market. The study uses quarterly data from January 2008 to December 2017 to investigate the impact of six macroeconomic determinants such as Gross Domestic Product, Foreign Direct Investment, Money supply, Crude oil price, Trade balance and Exchange rate on Nifty 50 indices. Believed that the outputs of this study would help in extending the existing literature reviews by insighting some meaningful aspects to the policy makers and the practitioners in the market.

2. about the Macroeconomic Determinants

Exchange Rate

It refers to the rate at which one currency of a country is exchanged for another, also known as the value of one country's currency in relation to another country's currency. It acts as a medium of financial transaction between countries. The entire import and export process of a country depends upon the exchange rate of its currency. If the country's currency will depreciate, it will immediately increase its import value and decrease its export value or vice versa. The stock market gets benefit when the domestic currency value is appreciating.

Gross Domestic Product

It is a broadest quantitative measure of a nation's total economic activity. It represents the monetary value of all goods and services produced within a country's boundary in a specific time duration. It plays an important role or we can say is one of the key element which affects positively to the stock market. There exist an positive and strong relationship between the stock market and gross domestic product of an economy.

Foreign Direct Investment

A foreign direct investment is an investment in the form of a controlling ownership in a business in one country by an entity based in another country. An increase in the foreign direct investment leads to higher growth rate in financially develop countries compared to rates observed in financial poor countries. Human capital plays a crucial role in achieving growth benefits from foreign direct investment. It is an important factor for the development and growth of the overall economy. There exist a positive relationship between the stock price and the foreign direct investment. Increase in the foreign direct investment leads to an increase in the stock price and vice versa.

Trade Balance

It refers to the difference between the monetary value of imports and exports of a country. It may be favourable or unfavourable for a country. It affects their currency relative value. The larger trade deficits are perceived as problematic for an economy, but not the smaller ones. If it is favourable it will generate a confidence among the investors, they would like to invest or vice versa.

Money Supply

It is the total value of monetary assets available in an economy at a specific time it leads to change in the price level inflation exchange rate and the business cycle it includes entire stock of currency and other liquid instruments circulating in a country's economy as a particular tag it is an important variable to stabilize the economy as it can be used for immediate transactions increase in money supply lowers interest rates increase investment and puts more money in hands by stimulating spending it is positive impact on stock market as increase in money supply you will lead to increase in stock price.

Crude Oil

The domestic need of crude oil in India is mostly fulfilled by importing it from other countries. So any change in the crude oil prices would create an automatic effect on the economy. Therefore, for countries importing crude oil like India, an increase in the crude oil prices will lead to an increase in the production costs, decreases future cash inflows and put a negative impact on the stock market. Therefore, an increase in oil price in the international market means lower real economic activity in all sectors which will cause the stock prices to fall.

3. Literature Review

1) Dr. Venkatraja B. (2014) [1]: "Impact of Macroeconomics Variables on Stock Market Performance in India: An Empirical Analysis"

conducted a study to investigate the relationship between the Indian Stock Market performance BSC and 5 macroeconomics variables namely IIP, Wholesale Price Index, Gold Price, Foreign Institutional Investment and Real Effective Exchange Rate over a period from April 2010 to June 2014 using monthly data. Multiple Regression technique and Durbin Watson Test was used by him to find out the result. He concluded that Wholesale Price Index, IIP, Foreign Direct Investment and real effective Exchange Rate have high degree of positive influence on Sensex and inverse influence by changes in Gold Price.

2) Ita Joseph John and Joe Duke II (2013) [2]: "Macroeconomic factors that influence Stock Market Development in Nigeria" carried out a study to analyze and bring out those macroeconomics factors which is having more influence on stock market development of Nigeria. Engel Granger Co-integration and error correction model was employed to find out the result. They concluded that factors such as National Saving, Inflation Rate, Economic Growth Rate and Financial Intermediary Development influence more to stock market development during period of 1917 to 2011.
3) Owusu Nantwi, Victor and John K.M. Kuwornu (2011) [3]: "Analysing the Effect of Macroeconomics Variables on Stock Market Return: Evidence from Ghana" conducted a study to investigate the relationship between macroeconomic variables and the stock market returns, using monthly data from January 1992 to December 2008 using Consumer Price Index, Crude Oil Price, Exchange Rate and Treasury Bill Rates. Ordinary Least Square Estimation model was used to find out the result. They concluded that there exist a significant relationship between stock market returns and Consumer Price Index whereas not the same with other variables.
4) Rakesh Kumar (2013) [4]: "The Effect of Macroeconomics Factors on Indian Stock Market performance: A Factor Analysis Approach" conducted a study to investigate the essential macroeconomic factors that influence more the stock market using factor analysis technique and average monthly data from January 2001 to May 2013 was taken. Along KMO Test and Bartlett Test of sphericity were applied to find the applicability of factor analysis. He concluded that IIP plays a significant role in influencing the stock market and that of policy Rates is having less impact.
5) Shahid Ahmed (2008) [5]: "Aggregate Economic Variables and Stock Market in India" conducted a study to investigate the nature of casual relationship between stock prices and the key macroeconomics variables namely IIP, Exports, Foreign Direct Investment, Money Supply, Exchange Rate, Interest Rate, NSC and BSC data in India for a period from March 1995 to March 2007 using quarterly data. Johansen's approach of Co-integration and Toda and Yamamoto Granger Causality Test was been applied to explore long run relationship while B-VAR modelling for variance decomposition. He concluded that the Indian Stock Market seems to be driven not only by actual performance but also by expected potential performance of the variables.

4. Research Methodology

Problem Statement

India being a country with more large and active stock trading volume in Asia. Therefore, all the time the performance and condition of Indian Stock Market is important for other nations too. And economic variables being the strongest variables affecting the stock market condition and performance the current study is to analyse the impact of macroeconomic determinants on the Indian Stock Market (NSE indices).

Research Objectives

a. Primary Objective

1. To analyze the impact of macroeconomic determinants on Indian Stock Market-NSE Index.

b. Secondary Objective

1. To study the direction of relationship between selected macroeconomic determinants and Indian Stock Market-NSE Index.
2. To study the degree of relationship between selected macroeconomic determinants and Indian Stock Market-NSE Index.

Research Design

The research design used in the study is causal design and descriptive design.

Causal design is used in order to measure the impact of specific change in the stock price due to the change in macroeconomic determinants.

Descriptive design is used to obtain the information about the current status of the stock market with respect to the selected macroeconomic determinants.

Data Collection Method

For the purpose of conducting the research, secondary data are used.

The data's collected and used are for a time span of 10 years, from January 2008-December 2017 (quarterly basis), in order to reach at an appropriate result.

Variables Used

- **Dependent Variables**
  - Nifty 50
- **Independent Variables**
  - Gross Domestic Product (GDP)
  - Money supply (M3)
  - Foreign Direct Investment (FDI)
  - Exchange Rate
  - Trade Balance
  - Crude oil

Statistical Tools

- Descriptive statistics
- ADF-unit root test
- Correlation
- Regression
- Granger Causality Test
- Johansen Co-integration Test

Statement of Hypothesis

The hypothesis for this study has been stated below:

a) Null Hypothesis

- **H0:** There is no significant relation between GDP and Nifty 50.
- **H0:** There is no significant relation between FDI and Nifty 50.
- **H0:** There is no significant relation between Trade

Balance and Nifty 50.
- **H0:** There is no significant relation between Exchange Rate and Nifty 50.
- **H0:** There is no significant relation between Money Supply and Nifty 50.
- **H0:** There is no significant relation between Crude Oil Price and Nifty 50.

b) Alternative Hypothesis
- **H1:** There is a significant relation between GDP and Nifty 50.
- **H1:** There is a significant relation between FDI and Nifty 50.
- **H1:** There is a significant relation between Trade Balance and Nifty 50.
- **H1:** There is a significant relation between Exchange Rate and Nifty 50.
- **H1:** There is a significant relation between Money Supply and Nifty 50.
- **H1:** There is a significant relation between Crude Oil Price and Nifty 50.

Importance of Study

The importance of this study stems from the vital role of the Indian Stock Market in the economy and in knowing the impact of the macroeconomic determinants on the Indian Stock Market that is represented by the share price response to these determinants (variables) and becoming an indicator for the investors who might be able to reflect these variables on the share prices.

It will be useful for the investors who might be able to identify some basic economic variables that they should focus on while investing in stock market and will have an advantage to make their own suitable investment decision.

Scope of the Study

The current study unravels the linkage between stock market and macroeconomic determinants in the Indian context using techniques like regression, correlation and granger causality test. A time span of 10 years has been chosen for the study from January 2008-December 2017 using secondary data. The study also attempts to analyze the impact of macroeconomic determinants on the stock market.

5. Interpretation and Analysis

Descriptive Statistics

Table 1: Table of descriptive statistics

	GDP	FDI	Trade Balance	Oil	M3	Exchange Rate	Nifty 50
Mean	4.6054	15.0706	11.2865	4.1077	3.2930	1.4599	4.0705
Standard Error	2.7764	9.1479	7.8070	4.3722	0.3298	1.2309	3.5333
Median	0.0519	-1.3751	0.9694	0.2512	3.1920	0.0129	4.7015
Standard Deviation	18.2062	59.9870	51.1941	28.670	2.1629	8.0718	23.169
Sample Variance	331.466	3598.44	2620.837	821.99	4.6779	65.1545	536.83
Kurtosis	6.6472	0.9855	1.9149	3.8579	2.4270	0.9733	3.6767
Skewness	2.0066	1.2191	1.3737	1.2792	-0.311	0.2214	1.2319
Count	43	43	43	43	43	43	43

The above table presents the descriptive statistics value of the variables selected for the findings namely Gross Domestic Product, Foreign Direct Investment, Crude Oil Prices, Money Supply (M3), Exchange Rate against US Dollar and Nifty 50 Index. Mean, Median, Standard deviation, Skewness, Kurtosis, Minimum-Maximum, Sum and Range are some of the important statistics measures reported from it.

It can be interpreted that among all the variables FDI is having the highest standard deviation of 59.987% followed by crude oil price, nifty 50 and GDP having standard deviation of 28.670%, 23.169% and 18.206% respectively in comparison to their mean value i.e. 15.070%, 4.107%, 4.070%, 4.605% respectively. Whereas money supply and exchange rate is having less standard deviation of 2.162% and 8.071% compared to their mean value of 3.292% and 1.459%. The high percent of standard deviation depicts higher degree of volatility which is a bad sign for the market as well as the investors. It indicates that for that particular period it would more risky for the investors to invest and also that the economy may face a downfall. Therefore FDI, crude oil, nifty 50 and GDP are highly volatile, a bad sign whereas money supply and exchange rate are very less volatile thus a good sign.

If we measure the performance of all the variables based on its maximum and minimum value than FDI is performing well compared to all for that specific time period with a maximum of 180.153% and minimum of 56.619% and the least performing variable is money supply with maximum of 8.429% and minimum of -3.876%.

From the skewness measure it can be interpreted that all are positively skewed values lying between 0 and 2 except that of money supply having negative skewness. Same can be interpreted in the kurtosis measure all are positively valued

ADF-Unit Root Test

Before conducting further statistical techniques for reaching our conclusion it is foremost important to check that whether the data which have been taken are in the stationary form or non-stationary form. It is pre-requisite to check this as if the data will stationary than only an accurate and reliable result can be generated or else it might lead to spurious results in the analysis. For checking the stationarity of data simple graph format as well as Augmented Dickey Fuller test (ADF) - Unit Root Test has been used.

ADF test on a 5% significance level is used to verify all the variables are stationary. One can define a variable as stationary if the P-value of it less than the significance level taken. If a variable will be stationary than null hypothesis will be rejected and alternative hypothesis will be accepted.

Table 2: Table of ADF Test

Variables	P-Value	T-Statistic	Null Hypothesis
Nifty 50	0.0000	-10.88895	Rejected
GDP	0.0000	-12.04544	Rejected
FDI	0.0000	-10.13071	Rejected
Trade Balance	0.0000	-9.620856	Rejected
Exchange Rate	0.0000	-10.66525	Rejected
Crude Oil	0.0000	-10.62859	Rejected
Money Supply	0.0000	-8.338120	Rejected

Correlation Matrix

Table 3: Table of correlation matrix

	GDP	FDI	Trade Balance	OIL	M3	Exchange Rate	Nifty 50
GDP	1						
FDI	-0.0954	1					
Trade Balance	0.2611	-0.016	1				
Oil	-0.188	0.2746	0.5238	1			
M3	0.0387	0.1682	0.5124	0.4436	1		
Exchange Rate	-0.053	-0.232	0.0106	-0.323	-0.036	1	
Nifty 50	0.3614	0.2112	0.3614	0.5262	0.2732	-0.5318	1

The above table represents the correlation matrix between all the selected macroeconomic determinants along with the correlation of all these determinants with nifty 50 indices.

It is observed from the above table-5 and say that all the macroeconomic determinants are moderately correlated with nifty 50 indices. Out of the selected determinants Gross Domestic Product, Foreign Direct Investment, Trade Balance, Crude Oil Prices and Money Supply are positively correlated with nifty 50 thus showing a significant relationship. Whereas Exchange Rate is negatively correlated with nifty 50. But there is no any sort of highly strong correlation among the determinants or else between the determinants and nifty 50 indices.

Firstly, let's see the degree of correlation between the determinants and nifty 50 indices. Among all the determinants crude oil prices (0.526) is having the highest degree of correlation with nifty 50 followed by trade balance (0.361), GDP (0.361), money supply (0.273) and FDI (0.211). Whereas exchange rate (-0.531) having negative correlation. It depicts that there exist a relation between these macroeconomic determinants and the nifty 50, but all having a moderate or satisfactory relationship. It means that a change in the macroeconomic determinants will definitely lead to change in the nifty 50 indices but not at the same rate of change or level. Though all determinants except exchange rate will have a positive effect on the nifty 50 indices i.e. an increase in the rate of these variables will lead to an increase in the prices of the stock especially that of nifty 50 but at an moderate rate. Whereas an opposite situation with the exchange rate, an increase in the exchange rate will have a negative impact on the stock price which means that increase in exchange rate will lead to decrease in the stock prices especially of the nifty 50 indices.

Now let's see the correlation existing among the macroeconomic determinants. Among all money supply is having a high correlation with trade balance and crude oil price : 0.521 and 0.443 respectively with indicates that with an increase in the money supply in the economy it will lead to increase in the trade balance as it indicates that the flow of currency will be more due to which there would be increase in imports compared to exports thus increasing the trade balance same would be the situation with the crude oil price whereas less correlation with GDP and FDI: 0.038 and 0.168 respectively having a bad sign for the economy and lastly negative correlation with exchange rate (-0.036).

Now exchange rate have a negative correlation with GDP (-0.053), FDI (-0.232), Crude oil price (-0.323) and money supply (-0.036). It indicates that an increase in the exchange rate will have a negative impact on the overall economy as increase in it would decrease production at domestic level, decrease in the foreign inflows due to unstable economy and increase in the value of home currency to pay the oil prices. Whereas it has a very less positive correlation with trade balance and it is because increase in exchange rate depicts home currency depreciation and depreciation of home currency would lead to increase in exports but at a moderate rate.

Crude oil price having negative correlation with GDP (-0.188) and exchange rate (-0.323) as increase in the crude oil price would lead decrease in the production at domestic level as importing crude oil would be expensive thus having an inverse or negative impact on the economy. Whereas it is having positive correlation with FDI (0.274), trade balance (0.523) and money supply (0.443) as increase in the oil price would lead to increase in trade balance as import cost will increase compared to export and if import will increase than there need to increase in the money supply.

Trade balance is having moderate positive correlation with GDP (0.261), crude oil price (0.523), money supply (0.512) and exchange rate (0.010) as increase in trade balance will somehow lead to increase in the money supply, exchange rate, crude oil price and GDP. Whereas negative correlation with FDI (-0.016) as increase in trade balance would decrease the capital inflow in the economy. GDP having positive correlation with trade balance (0.261) and money supply (0.038) whereas negative correlation with FDI (-0.095), crude oil price (-0.188) and exchange rate (-0.053).

FDI having positive correlation with crude oil price (0.274) and money supply (0.168) whereas negative with GDP (-0.095), trade balance (-0.016) and exchange rate (-0.2328).

Multiple Regressions

Table 4: Table of regression analysis

	Coefficients	Standard Error	T Stat	P-Value
Intercept	0.0284	4.8320	0.0059	0.9953
GDP	0.5633	0.1551	3.6310	0.0009
FDI	0.0133	0.0436	0.3046	0.7624
Trade Balance	-0.0099	0.0696	-0.1424	0.8876
Oil	0.3931	0.1266	3.1051	0.0037
M3	0.3567	1.3604	0.2622	0.7947
Exchange Rate	-0.9794	0.3391	-2.8882	0.0065

The above table represents the multiple regression analysis between the selected macroeconomic determinants namely Gross Domestic Product, Foreign Direct Investment, Money supply, Trade balance, Crude oil price and Exchange rate all considered as independent variables with the Nifty 50 indices considered dependent variable. This technique is applied to check the effect of macroeconomic determinants on the stock prices.

Over here the main concept on which we need to focus is Adjusted R Square and the P-value. The Adjusted R Square value indicates the proportion of variance in the dependent

variable that is explained by the independent variables. Over her the value generated for Adjusted R Square is 0.5402 (54.02%) which depicts that there exist a good dependency of the variables. It means that the sort of variation that occurs in the stock price (nifty 50) due to the selected macroeconomic determinants is good, means a change in the macroeconomic determinants would lead to a corresponding variation in the stock prices (nifty 50).

We will see the P-value in order to check whether the estimated coefficient is wrong or right. These can be analysed using the P-value and the significance level. If the P-value is less than the significance level over here 5%, than the null hypothesis is rejected and alternative hypothesis is accepted.

The P-value of GDP is 0.009 which is less than the significance level 0.05, therefore null hypothesis is rejected-there exist a significant relationship between GDP and nifty 50.

The P-value of FDI is 0.762 which is greater than the significance level 5%, therefore null hypothesis is accepted-there is no significant relationship between FDI and nifty 50.

The P-value of trade balance is 0.887 which is greater than the significance level 5%, therefore null hypothesis is accepted-there is no significant relationship between trade balance and nifty 50.

The P-value of crude oil is 0.003 which is less than the significance level 5%, therefore null hypothesis is rejected-there exist a significant relationship between crude oil and nifty 50.

The P-value of money supply is 0.794 which is greater than the significance level 5%, therefore null hypothesis is accepted-there is no significant relationship between money supply and nifty 50.

The P-value of exchange rate is 0.006 which is less than the significance level 5%, therefore null hypothesis is rejected-there exist a significant relationship between exchange rate and nifty 50.

Granger Causality Test

Granger causality test is considered and used to determine whether one time series is significant in forecasting another or not. Over here this test has been conducted to study the causal relationship between the macroeconomic determinants and the stock market-Nifty 50 indices. The null hypothesis has been tested on the basis of the P-value. If the P-value is less than the significance 5% than the null hypothesis is rejected which means that there exist a significant relationship between the variables.

Table 5: Table of granger casualty test

Pairwise Granger Causality Tests			
Date: 02/10/19 Time: 13:54			
Sample: 1 43			
Lags: 2			
Null Hypothesis:	**OBS**	**F-Statistic**	**Prob.**
Nifty does not Granger Cause Exchange	41	0.99786	0.3786
Exchange does not Granger Cause Nifty		0.18117	0.8351
Nifty does not Granger Cause GDP	41	0.09175	0.9125
GDP does not Granger Cause Nifty		1.41972	0.2550
Nifty does not Granger Cause FDI	41	0.61594	0.5457
FDI does not Granger Cause Nifty		1.09284	0.3461
Nifty does not Granger Cause M3	41	0.71050	0.4982
M3 does not Granger Cause Nifty		0.16780	0.8462
Nifty does not Granger Cause Oil	41	1.27691	0.2912
Oil does not Granger Cause Nifty		2.87469	0.0695
Nifty does not Granger Cause Trade	41	1.64844	0.2065
Trade does not Granger Cause Nifty		0.50635	0.6069

The above table represents the Granger causality test between the macroeconomic determinants and Nifty 50. The output conclude that neither any macroeconomic determinants nor Nifty 50 do have influence on each other as the P-value of all the relation is greater than the significance level 5%. Therefore, the null hypothesis is failed to be rejected.

Johansen Co-Integration Test

Over here Johansen co-integration test is applied in order to check whether there exist any sort of linear co-integration between the selected macroeconomic determinants and the Nifty 50 index. It can be concluded by comparing the P-value with the significance level, if the P-value is lesser than the significance level than it means that the null hypothesis is rejected and alternative hypothesis is accepted. Over here, null hypothesis means that their exist no co-integration and alternative hypothesis means their exist a co-integration.

Table 6: Table of johansen co-integration test

Variables	P-Value	Null Hypothesis
Nifty 50	0.0000	Rejected
GDP	0.0000	Rejected
FDI	0.0000	Rejected
Trade Balance	0.0000	Rejected
Exchange Rate	0.0000	Rejected
Money Supply	0.0004	Rejected
Crude Oil	0.0000	Rejected

The above table shows the analysis of co-integration between the selected macroeconomic determinants and the Nifty 50. And it is found common among all the determinants that the P-value of all is less than the significance level (0.05) which indicates that the null hypothesis is rejected which means that there exists a linear co-integration between all macroeconomic determinants and the Nifty 50. Thus it has a long run relationship in future.

6. Findings

By doing correlation, I found that all the macroeconomic determinants are moderately correlated with NSE indices - Nifty 50. Some having positive and some having negative correlation.

Out of all determinants GDP, FDI, Trade Balance, Crude Oil and Money Supply shows a positive correlation which indicates that a rise or else down fall in the these determinants leads to a direct same impact on the Nifty 50 i.e. same rise or down fall.

Whereas Exchange Rate is having an opposite direction i.e. negative correlation with the Nifty 50, which indicates that a rise in Exchange Rate leads to down fall in Nifty 50 and vice versa.

Even all the macroeconomic determinants are moderately correlated with each other.

By doing the regression analysis, I found that GDP, Crude Oil and Exchange Rate shows a significant relationship with the Nifty 50, which also indicates that for the upcoming years it will have the same effect.

Whereas FDI, Trade Balance and Money Supply shows an insignificant relationship with Nifty 50.

By applying Granger Causality test, I found that there is no causality among any of the macroeconomic determinants with the Nifty 50.

By applying the Johansen Co-integration test, I found that all the macroeconomic determinants are having a linear co-integration with the Nifty 50.

7. Conclusion

This study highlights the impact of macroeconomic determinants both internal and international on the Indian Stock Market. Indian Stock Market has been measured by the national stock exchange- Nifty 50. Determinants taken into consideration are based on quarterly basis for the period of 10 years from January 2008 to December 2017 and they are Gross Domestic Product, Foreign Direct Investment, Trade balance, Money supply, Exchange rate and crude oil. Techniques like descriptive statistics, Augmented Dickey Fuller test- Unit Root test, Correlation matrix, multiple regression and Granger Causality test was employed to examine such relationships.

On the basis of overall analysis it has been established that the macroeconomic determinants do have correlation with the Nifty 50 but an average and moderate relation and that any of the determinants do not have a more significant relation with the Nifty 50 thus having no more influence on the Indian Stock Market. Though there exist a positive correlation between GDP and nifty 50, FDI and nifty 50, trade balance and nifty 50, crude oil and nifty 50, money supply and nifty 50 whereas a negative correlation between exchange rate and nifty 50. The result has been concluded on the basis of ADF test and Granger Causality Test in which it has been founded that all the macroeconomic determinants does not have unidirectional nor bidirectional significant influence on the Indian Stock Market.

Whereas from the results of multiple regression it has been concluded that GDP, crude oil and exchange rate have a significant relationship with nifty 50 whereas FDI, trade balance and money supply have a non-significant relationship with nifty 50. Apart from understanding Indian Stock Market based on the contributions of the significant determinants, there remain other important issues that affect the return generating process. These issues are the cost of equity capital, asset valuation, industry analysis, firm's management and its operational efficiency analysis and so on. Any investors should consider all relevant sources of information when making an investment decision.

By applying the Johansen Co-integration test, I found that all the macroeconomic determinants are having an linear relationship with the Nifty 50.

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