The Effect of Microeconomic Determinants on the Indian Stock Market

Dr. K. V. Geetha Devi[1] * Girish Gandikota[2]

[1]Asst.Prof,Department of Management studies,

Madanapalle Institute of Technology & Science, Madanapalle.

[2]MBA Student,

Madanapalle Institute of Technology & Science, Madanapalle.

[1]drgeethadevi@mits.ac.in, [2]girish.gandikota@gmail.com

Abstract

The study investigates the effect of macroeconomic determinants on the performance of the Indian Stock Market using monthly data over the period January 2013 to December 2017 for eight macroeconomic variables, namely, Gross domestic product, Inflation rate, Interest rate, Oil prices, Exchange rates, Money supply, Gold prices, Index of industrial product and one market indices namely NSE Index by applying Coefficient of Correlation.

Keywords: Gross domestic product, money supply exchange rates, oil prices, gold prices, inflation rates, interest rates and coefficient correlation.

Introduction

Financial markets play a crucial role in the foundation of a stable and efficient financial system of an economy. Numerous domestic and international factors directly or indirectly affects the performance of the stock market.There are lots of factors which have direct as well as indirect impact on the economic growth of India. The factors mostly include the macroeconomic indicators like GDP, Inflation, interest rates, exchange rates, money supply, oil prices, IIP etc. The prime objective of this paper is to put light on the important factors which have significant impact on the volatility of Indian Stock Market.

Literature review

Giffi (2013), Examined the contribution of the manufacturing sector to the national economy becomes a critical factor for prosperity. In a developing economy, manufacturing growth plays a significant role in the economic development. There is a strong linkage between the manufacturing GDP and the overall GDP. It is because of this reason. That, manufacturing is often referred to as the growth-engine of the economy and should necessarily find a place in the radar of a growing economy like India.

Agrawal and Srivastava (2011), Provided evidence of a stable long run equilibrium relationship between stock market developments and economic growth in India. Concluded, that in the long term, stock market was more affected by domestic macroeconomic factors like industrial production, wholesale price index and interest rate than global factors.

Mcaleer and Sriboon chitta, (2009), Since gold is also used to hedge the risks investors tend to replace their shares with gold which results in a lower demand for shares and volatility on stock markets. Therefore, getting a better understanding of this linkage will help investors and firms to diversify their portfolios and reduce their risks. Due to unstable world markets, there is an increasing interest in gold.

Ghosh and Hamilton (2010), Found that oil price, gold have a significant impact on stock market returns various explanations are mentioned as the reason of the relationship between oil prices and economic activity. Between these explanations, temporizing GDP growth and inflation due to higher oil prices appears to be most preferred. According to the author, the data real Gross national Product, unemployment, implicit price deflator for non-farm, hourly compensation per worker, import prices, and money supply indicated that economic recession.

Baur and Lucey, (2010), However, the theoretical linkage between gold and stocks is unclear, and there is a lack of theoretical research. An increase in gold prices attracts investors towards the commodity market, might decrease investor preference towards the equity market. This indicates that a negative relationship is expected between gold and silver, and stock market returns.

Ram and Spencer (2010), The argument that the stock market serves as a hedge against inflation is based on the fundamental idea of Irving stock prices or returns should have a positive relation to inflation.

Filis (2010), Mentioned that oil prices affect the overall stock market performance in both direct and indirect ways. The direct negative influence can be justified by the fact that oil price increases create uncertainty in financial markets, which in turns decreases stock prices.

Debasish, Bansal and Pasricha (2009), Concluded that spot price volatility and trading efficiency was reduced due to introduction of future trading. Correlation analysis confirmed no structural change after the introduction of futures trading on Nifty. Besides found volatility is significantly reduced after the permission of foreign investment in the equity sector.

Need for the study

- After the global recession emerging markets like India are trading based on the global market trading patterns. Indian equity market is always dominated by the external forces.
- To study the effect of both domestic and international macroeconomic variables on the performance of the stock market because both investors and policy makers mostly concern with the current market prices

Objectives of the study

- In this study the major objective is to find out the correlation . if any, between the stock market and selected factors like i.e., interest rates, oil prices, exchange rates, inflation rates, industrial production, money supply,GDP,Gold prices..,
- To calculate correlation, between the stock market index nifty50 and economic factors
- To shed light on the nature of causal relationship that exists between the stock market and macro-economic variables.

Scope of the study

- In this study the movements of stock prices are seen to depend on micro economic factors. Such as, domestic economic, social and political events etc..,
- The prices will be fluctuates monthly
- In the trading economies, exchange rate has a great influence on the stock market
- India is dependent on other nations for more than three fourth of their crude oil need. Any movement in the international crude prices considerably affects the national economy and ultimately reflected in the stock market of the country

Data Collection Methods:

- The present study is based on secondary data which is collected from various sources like official websites of stock exchange, previous studies and other websites .
- The aim of this project is to investigate the effects of macroeconomic determinants on the performance of the Indian Stock Market.
- The study uses monthly data over the period January 2013 to December 2017.

Macroeconomic Variables Used in the Analysis

Economic factors	Symbols used	Data sources
Gross domestic product	GDP	www.tradingeconomics.com
Inflation rate	IF	www.tradingeconomics.com
Interest rate	IR	www.allbankingsolutions.com
Oil prices	OP	www.indexmundi.com
Exchange rates	ER	www.tradingeconomics.com
Money supply	MS	www.tradingeconomics.com
Gold prices	GP	www.X-rates.com
Index of industrial product	IIP	www.tradingeconomics.com
Stock indices	NSE indices	www.stockexchange.com

Application of Statistical Tools:

- In this study I have used application of statistical tool i.e.., Coefficient of Correlation by using the **IBM SPSS STATISTICS 20**
- To know the relationship between the NSE INDEX and MICRO ECONOMIC FACTORS.

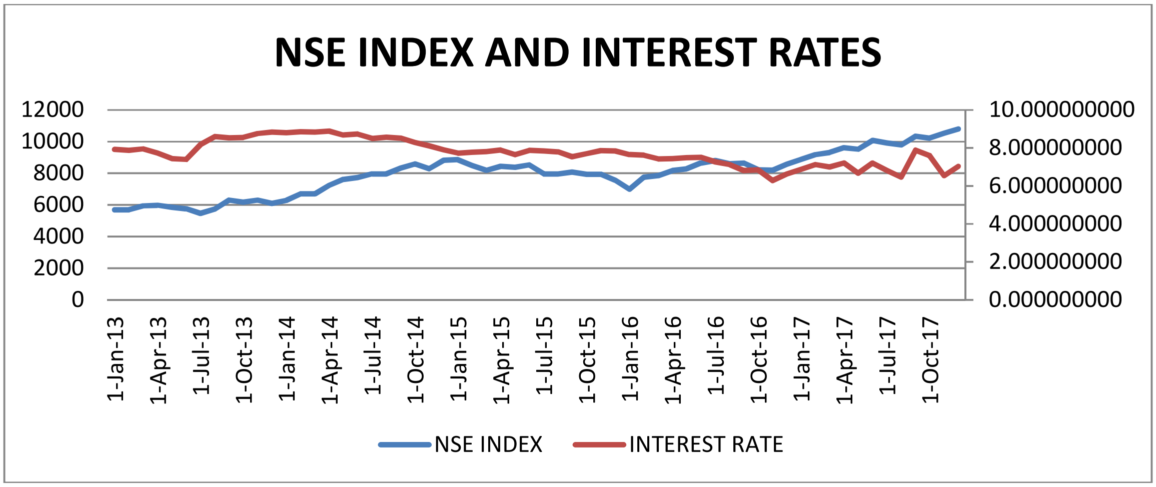
  Hypothesis
- **Null Hypothesis(H_0)**There is no significance relationship between selected variables
- **Alternative Hypothesis(H_1)**There is significance relationship between selected Variables

Data analysis and interpretation

Table 1:Correlation between NSE index and INTEREST RATES.

Index	Correlation	Level of correlation	'P' Value	Hypothesis
NSE INDEX AND INTEREST RATES	-.584	Moderate negative correlation	.0000	H1:ACCEPTED

Graph 1: NSE index and INTEREST RATES



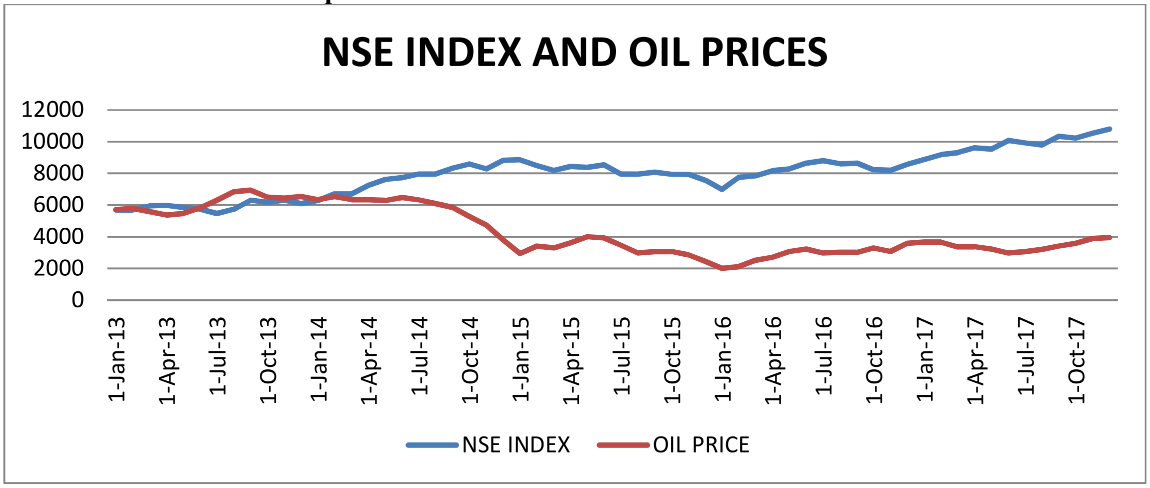
Interpretation

- From the above table we observe that P value is 0.000 which is less than 0.05 at 95% confidence interval. Hence we reject the null hypothesis and accept the alternate hypothesis. Therefore, I conclude that there is a significant relationship between NSE INDEX and Interest rate
- The coefficient of correlation value is **"-.584"**. It means that there is a **Moderate Negative Correlation** between NSE INDEX and Interest rate.

Table 2: Correlation between NSE index and OIL PRICES

Index	**Correlation**	**Level of correlation**	**'P' Value**	**Hypothesis**
NSE INDEX AND OIL PRICES	-.642	Moderate negative correlation	.0000	H1:ACCEPTED

Graph 2: NSE index and OIL PRICES

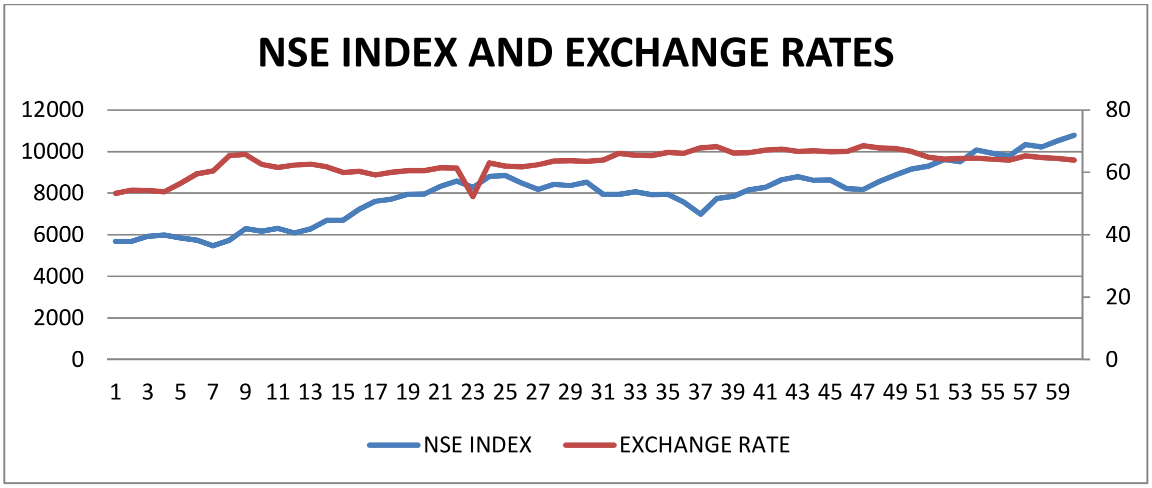


Interpretation:

- From the above table we observe that P value is 0.000 which is less than 0.05 at 95% confidence interval. Hence we reject the null hypothesis and accept the alternate hypothesis. Therefore, I conclude that there is a significant relationship between NSE INDEX and oil prices.
- The coefficient of correlation value is "**-.642**". It means that there is a **Moderate Negative Correlation** between NSE INDEX and oil prices.

Table 3:Correlation between NSE index and EXCHANGE RATES

Index	Correlation	Level of correlation	'P' Value	Hypothesis
NSE INDEX AND EXCHANGE RATES	.485	Moderate positive correlation	.0000	H1:ACCEPTED



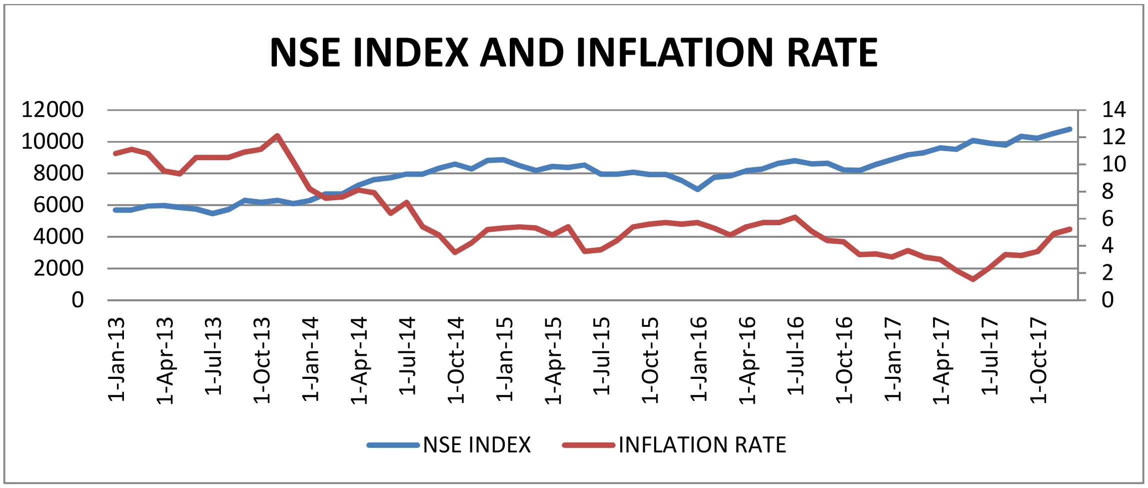
Graph 3: NSE index and EXCHANGE RATES

Interpretation:

- From the above table we observe that P value is 0.000 which is less than 0.05 at 95% confidence interval. Hence we reject the null hypothesis and accept the alternate hypothesis. Therefore, I conclude that there is a significant relationship between NSE INDEX and exchange rates.
- The coefficient of correlation value is **".485".** It means that there is A **Moderate Positive Correlation** between NSE INDEX and exchange rates.

Table 4:Correlation between NSE index and INFLATION RATE

Index	Correlation	Level of correlation	'P' Value	Hypothesis
NSE INDEX AND INFLATION RATE	-.875	Strong negative correlation	.0000	H1:ACCEPTED



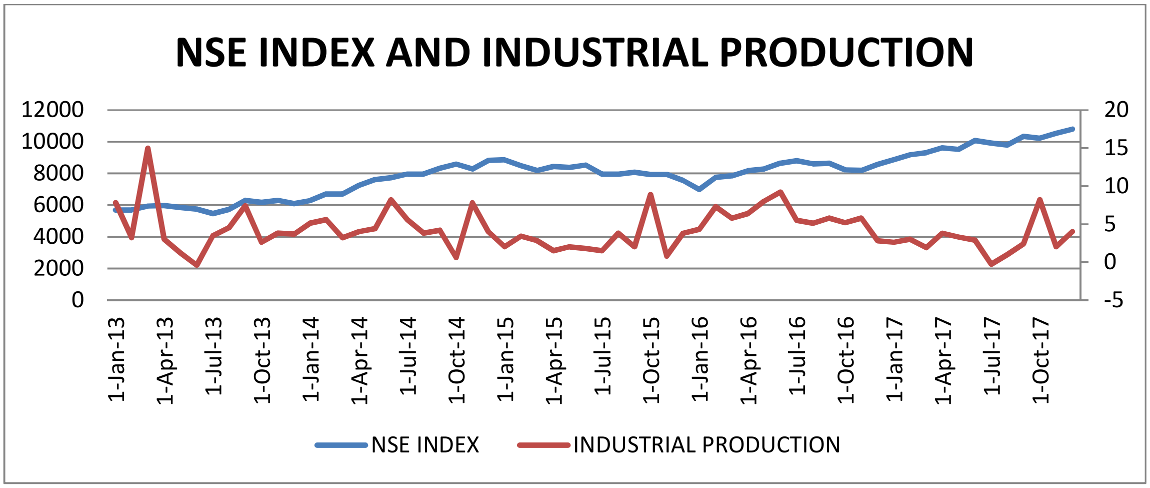
Graph 4 NSE INDEX and inflation rate

Interpretation:

- From the above table we observe that P value is 0.000 which is less than 0.05 at 95% confidence interval. Hence we reject the null hypothesis and accept the alternate hypothesis. Therefore, I conclude that there is a significant relationship between NSE INDEX and inflation rate
- The coefficient of correlation value is **"-.874".** It means that there is a **Strong Negative Correlation** between NSE INDEX and inflation rate.

Table 5:Correlation between NSE index and INDEX OF INDUSTRIAL PRODUCT

Index	**Correlation**	**Level of correlation**	**'P' Value**	**Hypothesis**
NSE INDEX AND IIP	-.181	Weak negative correlation	0.167	H0:ACCEPTED



Graph 5: NSE index and INDEX OF INDUSTRIAL PRODUCT

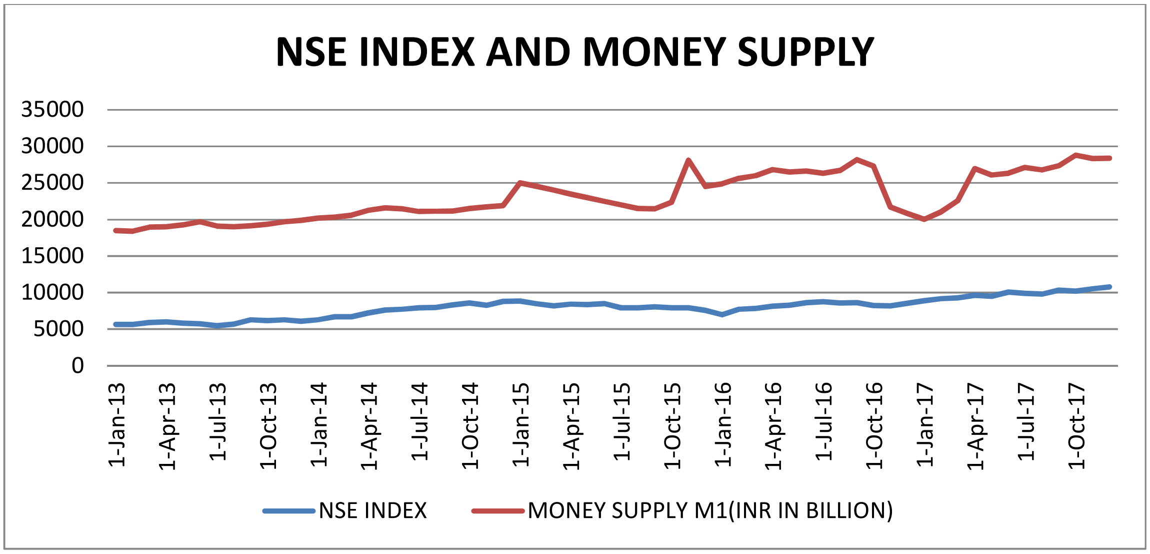
Interpretation:

- In the given table I have observed that the "p" value is .167 which is greater than the 0.05 at 95% confidence level. Hence we accept the null hypothesis and reject the alternate hypothesis. Therefore, I conclude that there is a significant relationship between NSE INDEX and industrial production.
- The coefficient of correlation value is **"-.181"**. It means that there is a **Weak Negative Relationship** between NSE INDEX and industrial production.

Table 6:Correlation between NSE index and MONEY SUPPLY

Index	**Correlation**	**Level of correlation**	**'P' Value**	**Hypothesis**
NSE INDEX AND MONEY SUPPLY	.769	Strong positive correlation	.0000	H1:ACCEPTED

Graph 6: NSE index and MONEY SUPPLY

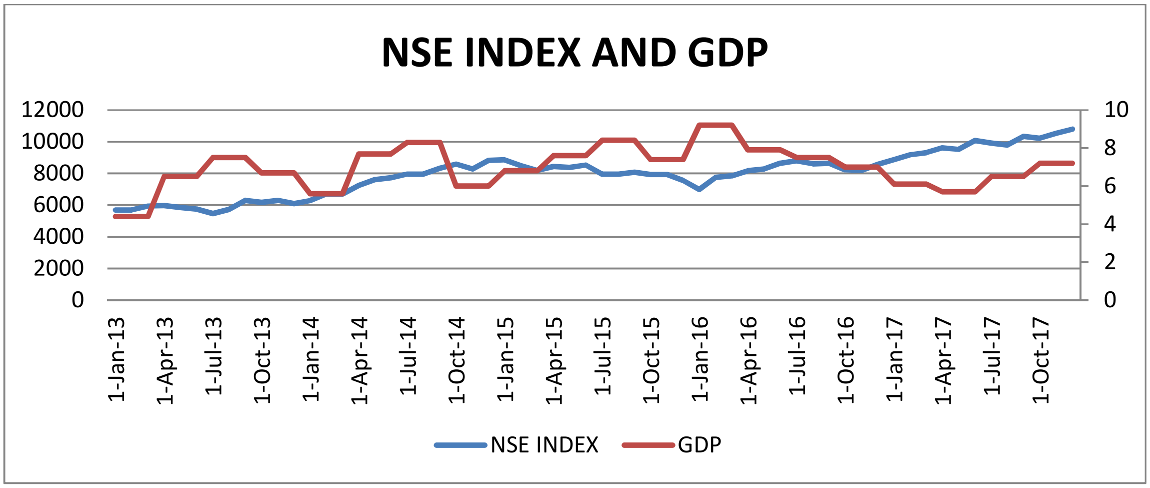


Interpretation:

- From the above table we observe that P value is 0.000 which is less than 0.05 at 95% confidence interval. Hence we reject the null hypothesis and accept the alternate hypothesis. Therefore, I conclude that there is a significant relationship between NSE INDEX and Money supply.
- The coefficient of correlation value is **".769"**. It means that there is a **Strong Positive Correlation** between NSE INDEX and Money supply.

Table7: Correlation between NSE index and GROSS DOMESTIC PRODUCT

Index	**Correlation**	**Level of correlation**	**'P' Value**	**Hypothesis**
NSE INDEX AND GROSS DOMESTIC PRODUCT	.118	Weak positive correlation	0.371	H0:ACCEPTED



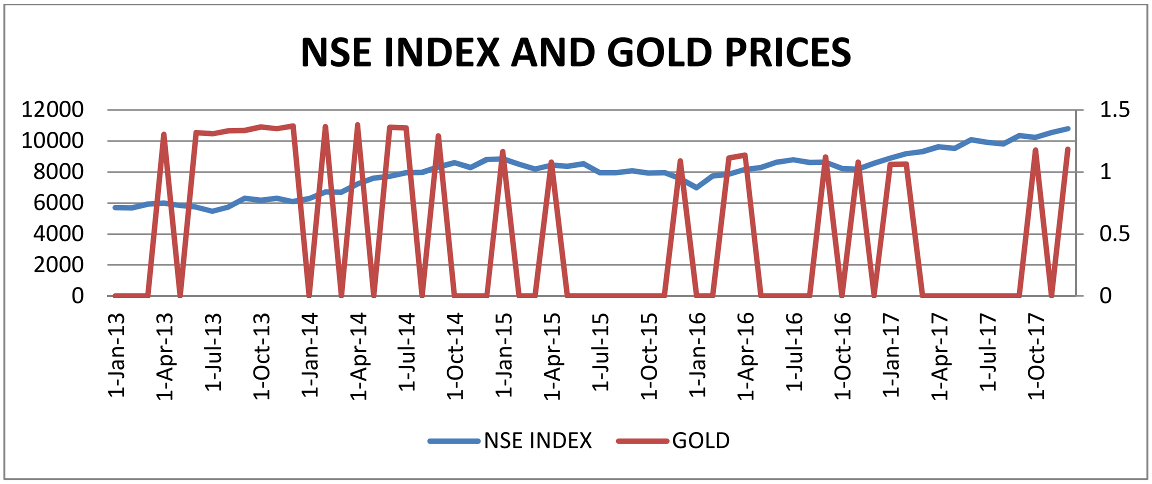
Graph 7: NSE index and GROSS DOMESTIC PRODUCT

Interpretation:

- From the above table we observe that P value is 0.000 which is greater t than 0.05 at 95% confidence interval. Hence we accept the null hypothesis and reject the alternate hypothesis. Therefore, I conclude that there is a significant relationship between NSE INDEX and Gross Domestic product.
- The coefficient of correlation value is **".118"**. It means that there is a **Weak Positive Relationship** between NSE INDEX and Gross Domestic product

Table 8:Correlation between NSE index and GOLD PRICES

Index	**Correlation**	**Level of correlation**	**'P' Value**	**Hypothesis**
NSE INDEX AND GOLD PRICES	-.401	Moderate negative correlation	.002	H0:ACCEPTED



Graph 8: NSE index and GOLD PRICES

Interpretation:

- From the above table we observe that P value is 0.000 which is greater t than 0.05 at 95% confidence interval. Hence we accept the null hypothesis and reject the alternate hypothesis. Therefore, I conclude that there is a significant relationship between NSE INDEX and Gold prices.
- The coefficient of correlation value is **"-.401".** It means that there is a **Moderate Negative Correlation** between NSE INDEX and Gold prices.

Findings

- From the analysis it is found that the correlation between national stock exchange index and money supply is maintaining the strong positive correlation
- NSE index maintained the moderate positive correlation between exchange rates
- Oil prices, interest rates and gold prices maintaining the moderate negative correlation with NSE index
- NSE index maintained the weak positive relationship between Gross Domestic Product
- National stock exchange index maintained the strong negative correlation between inflation rate.
- Index of industrial product is maintaining weak negative relationship with National Stock Exchange Index
- The study first accomplishes the empirical estimation of macroeconomic determinants of the stock market development in India, using data for different time periods.

- As the gold price rises, Indian investors tend to invest less in stocks, causing stock prices to fall. The results for IIP, Inflation and Gold prices are consistent in short-run.
- The empirical study focuses on the relationship between fundamental macroeconomic variables and Index of National stock exchange (NSE), using the monthly time series data from the January 2013 to December 2017
- A unidirectional causality is also running from national stock exchange to gold and inflation.

Suggestions

- First, Exchange rate contains some significant information to forecast stock market performance. Therefore, Reserve Bank of India should try to maintain a healthy exchange rate. policy makers should try to support industry growth through appropriate policy.
- Money supply and Inflation are major factors affecting stock markets, so the regulatory body should try to control them through bank rate, Repo and Reverse Repo rate.
- In the stock market when the stock prices decrease then the gold prices will increases.
- In the stock market when the oil prices increases then the stock price will decreases automatically
- Mostly prices of these commodities are determined at the global level, but still by proper import duty and local taxes, policy makers should try to maintain competitive price levels.
- Finally, autonomous regulatory bodies and visionary system of government can definitely contribute in efficient working and development of the Indian Stock market.

Conclusion:

Thus, it can be concluded that the stock market movements are the effect of changes in the various economic and political conditions of an economy. Furthermore, it is also observed that various domestic and international macroeconomic factors works as the driving forces of the Indian stock market. The results of the influence of gold and oil prices the variables on stock prices are consistent in the short run. The factors mentioned in these papers should be studied collectively as each of the factors in generally either the impact or the reason of the other factors. For e.g. – FIIs inflows are dependent on the current inflation rate as well as the exchange rate of India.

The historical data obtained from stock market was considered for the analysis purpose .But, these reforms are making Indian Stock market more competitive in the global economic scenario. This would have a net effect of the growth and sustainable development of the India economy.

Last two decades has witnessed a dramatic change in the world financial markets particularly in the stock market due to globalization and financial sector reforms across the world market. These changes in the macro environment influence the stock prices of a single country. Indian stock market has developed in terms of the number of stock exchanges, number of listed stocks, market capitalization, trading volume, turnover of the stock exchanges, investor's population and price during these years.

Since 1991, the Indian economy has experienced many major reforms policy initiatives in the financial system. The opening of capital market to foreign institutional investors, allowing Indian companies to issue equity abroad through Global Depository Receipts (GDRs), formation of new stock exchange NSE, liberalization and decontrolling oil price are few initiatives which are expected to have huge impact on the stock market volatility.

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