Project Dissertation

Effect of Investor Confidence and Macroeconomic Policies on Stock Returns

Submitted By

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2K13/MBA/03

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Certificate

This is to certify that the Project Report titled "***Effect of Investor Confidence and Macroeconomic Policies on Stock Returns***" is a bonafide work carried out by Ms. Akansha Sharma of MBA 2013-15 and submitted to Delhi School of Management, Delhi Technological University, Bawana Road, Delhi-42 in partial fulfilment of the requirement for the award of the Degree of Masters of Business Administration.

Signature of Head (DSM)

Prof. P.K. Suri

Place:

Seal of Head

Date:

Declaration

I, Akansha Sharma, student of MBA 2013-15 of Delhi School of Management, Delhi Technological University, Bawana Road, Delhi-42 declare that the dissertation on "***Effect of Investor Confidence and Macroeconomic Policies on Stock Returns***" submitted in partial fulfillment of Degree of Masters of Business Administration is the original work conducted by me.

The information and data given in the report is authentic to the best of my knowledge. This Report is not being submitted to any other University for award of any other Degree, Diploma and Fellowship.

Place: Akansha Sharma

Date:

Acknowledgement

The following Dissertation "Effect of Investor Confidence and Macroeconomic Policies on Stock Returns" is successfully completed under the guidance of Dr. Archana Singh, Assistant Professor, Delhi School of Management, DTU.

I would also like to thank my mentor at Delhi School of Management for providing me with teachings and learning that enabled me to contribute positively.

Gratitude is extended to every unnamed individual who has helped in making this a great learning experience.

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Akansha Sharma

2K13/MBA/03

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EXECUTIVE SUMMARY

Through this study it has been tried to explore that how the stock return get affected by the investor confidence and the various macroeconomic variables.

For this we have tried to establish a relationship to seek how these variables like WPI inflation data, Dollar-rupee exchange rate, 24 carats one ounce gold prices and Brent crude oil prices affect the pillars of market. The data has been collected for the period 2000-2013

For the same BSE-500 index values are taken for stock prices. The values of call and put options are taken for investor confidence.

After collecting the data, an analysis of the same has been done with the help of regression model to find that :

(1) Macro-economic variables influence the stock prices.

(2) Gold Prices have inverse relationship with stock prices.

(3) Crude oil prices have positive relationship with stock prices.

(4) Investor confidence has positive relation with stock prices.

Different hypothesis have been set to validate the above mentioned variables.

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CHAPTER 1

INTRODUCTION

1.1 Introduction of the Project

India is one of the fastest growing economies in the world. It is the third largest in terms of the purchasing power parity and 3rd most preferred nation for FDI after U.S and China. The capital investment is one of the important growth drivers of the economy. The movement of stock prices is highly sensitive to the changes in the global and domestic macro-economic variables. However, due to globalization domestic variables are also subject to change due to the policies and the economic scenario of the foreign countries. The various external factors that influence the stock prices are interest rate, exchange rate, crude oil prices, growth of the economies..etc. The Indian Economic scenario has changed due to the recent recessionary global pressures. These pressures have caused significant movements in the capital markets across the world, which indirectly affects the domestic economy as well. Thus, because of these changes taking place in an economy an investor wants to know when he should invest to gain and also when he should divest so that he doesn't lose money. This empirical research may help in finding out the relationship between the various economic variables and the stock prices. Stock markets also react promptly to any price sensitive news, at times even to rumours. This shows how important is the investor confidence in stock market. Our research may also help find the relationship between investor confidence and stock prices.

1.2 Objectives of the study

The objective of this study is to obtain an insight into the how the stock returns get affected by the investor confidence and the various macroeconomic variables.The data has been collected from the period of 2000-2013. The macroeconomic variables we have taken are WPI inflation data, Dollar-rupee exchange rate, 24 carats one ounce gold prices and Brent crude oil prices. In the study we have used BSE-500 index value for stock prices. For investor confidence the values of call and put options has been taken.

The study is conducted to study the following :

1. Macro-economic variables influence the stock prices.
2. Gold Prices have inverse relationship with stock prices.
3. Crude oil prices have positive relationship with stock prices.
4. Investor confidence has positive relation with stock prices.

CHAPTER 2

LITERATURE REVIEW

The Literature Review throws light on the various works that have been undertaken in the past to show the effect of macroeconomic variables on the stock returns. As far as macro-economic variables are concerned, the previous researches have mainly concentrated on interest rate, exchange rate, inflation and GDP. Though some of the studies have included crude price and gold price, there is not much work in Indian context. In the present context of India, crude oil and gold prices are believed to play an important role in the stock market return. Gold as an asset class has shown bullish trend and might have created arbitrage opportunity vis-a-vis stock market.

Global crude prices have shown a high volatility and have significantly impacted India's fiscal deficit. So, the present research proposes to include these two variables. The study also intends to differentiate between short term and long term impacts of the variables under study on stock return.

Hasan Mohammed El-Nader1 & Ahmad Diab Alraimony1 (2012) studied how the returns of the Amman Stock Exchange(ASE) are affected by macroeconomic variables namely, real money supply , real gross domestic product ,consumer price index , real exchange rate , weighted average interest rates on loans and advances.

The study uses monthly data rather than quarterly data covering the period of 1991-2010, in order to maximize the number of observations, and capture the long-term movements in the ASE returns, by employing ARCH /GARCH model. They had found that money supply, inflation, interest rate and exchange rate have an inverse impact on the ASE return and RGDP has a positive impact.

Robert D. Gay, Jr, (2008) studied the time-series correlation between the BRIC stock market indices and foreign exchange rates and oil prices. The study had examined the monthly averages of respective stock market indices, foreign exchange rates, and oil price between 1999 and 2006. The Box-Jenkins Autoregressive Integrated Moving Average (ARIMA) time-series process was used to determine the relationship between the dependent variable (stock market index) to the independent variables (exchange rate and oil price). The study had found that there exists a positive relationship between exchange rates and stock prices for Brazil, India, and China but not for Russia and significant relationship was found between oil prices and stock market, only in India

Seyed Mehdi Hosseini, Zamri Ahmad, Yew Wah Lai (2011) studied the relationship between stock market indices and four macroeconomics variables, crude oil price, money supply, industrial production and inflation rate in China and India.

The sample period covered in this study was between January 2000 to January 2013. Using the Augmented Dickey-Fuller unit root test, the underlying series were tested as non-stationary at the level but stationary in first difference. They found that in the long run, the impact of increase in crude oil price in China is positive but in India this effect is negative. In terms of money supply, the impact on Indian stock market is negative, but for China, there is positive impact. The effect of industrial production is negative only in China. The effect of increases in inflation on these stock indices is positive in both countries.

Md. Mahmudul Alam, Md. Gazi Salah Uddin (2009) studied the impact of interest rate on stock market. This study was based on the monthly data from January 1988 to March 2003 in fifteen developed and developing countries. They had used market returns test and found that the theoretical argument of negative relationship between stock price and prevailing interest rate is not rejected

Chung s.Kwon, Tai S. Shin, Frank W. Bacon (1997) studied the effect of macroeconomic variables on Korean Stock Market. They used the monthly data from Jan 1980-Dec 1992. They used regression model and found that the trade balance, interest rates and inflation do not have a significant impact on the stock returns

Golaka C. Nath and G. P. Samanta had studied the effect of exchange rate on Indian stock market. They used the data from March 1993 to December 2002. They used Granger causality test and found that these variables are generally not interrelated but there is a mild influence.

J. K. M. Kuwornu (2012) had studied the effect of macroeconomic variables on Ghanaian stock market by studying the data from January1992 to December 2008 by employing the Johansen Multivariate Co-integration Procedure. They had found that in the short run, interest rate and inflation strongly impact stock returns.

Muhammad Mubashir Hussain, Muhammad Aamir, Nosheen Rasool, Maleeha Fayyaz, Maryam Mumtaz (2012) had studied the impact of macroeconomic variables on Karachi stock market. They had studied the data from January 2001 to December 2010.

They used Johansen Co integration technique and Vector Error Correction model to investigate the long-run and short-run relationship. They had found that in the long-run Exchange Rate, IPI and Exports had a negative effect on stock prices while Foregin Exchange Reserve , Interest rate, Imports , Money Supply and WPI had a positive impact on stock prices.

Mansor H Ibrahim and Hassanudden Aziz (2003) had studied the effect of macroeconomic variables on Malaysian stock market using the monthly data from January 1977 to August 1998 using rolling regression analysis. They have found the presence of co-integration between stock prices and macro-economic variables which indicated the long term predictability of the Malaysian equity prices.

L.M.C.S. Menike had studied effects of macroeconomic variables on stock prices in emerging Sri Lankan stock market using monthly data for the period from September 1991 to December 2002. He used multivariate regression model with eight macroeconomic variables for each individual stock. The results indicated that most of the companies report a higher R^2 which justifies higher explanatory power of macroeconomic variables in explaining stock prices

Gagan Deep Sharma and Mandeep Mahendru (2010): They analysed the long term relationship between BSE and certain macroeconomic variables such as gold prices, exchange rate, foreign exchange reserves and inflation. They used regression equation model to investigate the relationship between the variables and the dependent variable i.e, stock prices. They tested the effects of the macroeconomic factors for the period of Jan 2008 to Jan 2009. They found an 88% correlation between exchange rate and stock prices, 90.2% correlation between gold and stock prices.

Aman Srivatsava (2010): Aman studied the pricing process of the Indian stock market and tried to identify the macroeconomic factors affecting that. He considered industrial production, wholesale price index (WPI), interest rate, foreign exchange rate and MSCI world equity index as the variables.

He employed Johnson's co-integration analysis and vector error correlation mechanism to explain the relationships between the independent variable and the dependent variable.

The study used the data from April 1996 to January 2009. The study observes that industrial production, WPI and the interest rates are relatively more significant than the other variables and more likely to influence the long term pricing mechanism of Indian stock market.

Rosy Kalra (2012): She used the macroeconomic variables like Cash Reserve Ratio (CRR), reverse repo rate, gold price, wholesale price index (WPI), oil rate, inflation rate, Gross Domestic Product (GDP) and found out their relationship with the stock prices. She used monthly data of the chosen macroeconomic variables from January 2001 to January 2009 and used correlation analysis to find the strength of the relation between the macroeconomic variables and the Sensex.

Regression analysis was done on the variables that had significant relationship. Based on the results of the regression analysis five models were made from the remaining variables and equations were generated based on R, correlation coefficient, R^2, coefficient of determination and adjusted R^2.

The best model was the one with forex rate, inflation rate and gold price as the variables.

Karam Pal, Ruhee Mittal (2011): They examined the long term relationship between the Indian capital market and the key macroeconomic variables such as interest rates, inflation rate, exchange rates, and Gross Domestic Savings (GDS) of Indian economy. They used the quarterly time series data spanning the period from January 1995 to December 2008.

The unit root test, the co-integration test and error correction mechanism (ECM) have been applied to derive the long run and short-term statistical dynamics. They found that inflation had a significant impact on BSE Sensex and the S&P CNX Nifty. Interest rates on the other hand, have a significant impact on S&P CNX Nifty only.

However, in case of foreign exchange rate, significant impact is seen only on BSE Sensex. The changing GDS is observed as insignificantly associated with both the BSE Sensex and the S&P CNX Nifty.

Muhammad Bilal Khalid, Adil Shakil, and Syed Muhammad Moeez Ali (2010): They studied the impact of financial liberalization on the stock returns. They considered macroeconomic variables like inflation, interest rate, exchange rate, per capita income and political stability as the variables and studied them using monthly data starting from the economic liberalization of Pakistani equity market (February 1991). EGARCH Model was used to estimate the effect of those variables on the stock market returns.

The results showed that increase in the interbank interest rate, currency depreciation /devaluation, and rise in inflation all are negatively affecting the performance of Karachi Stock Exchange in terms of all shares index. It also showed that the increase in the per-capita income of the people increases the stock returns of KSE.

Alkhudairy, Khaild S. (2008): The study conducted by Alkhudairy investigated the long-run and the short-run interactions between stock market prices and the real money supply, bank credit, oil prices and the S&P 500 Index in Saudi Arabia.

He used the technique of co-integration, Granger causality based on the vector-error correction model and the innovation analysis on the monthly data from 1995 to 2004. He found that there exists a positive long-run relation between money supply, bank credit and oil prices and the S&P 500 index.

Michael N. Baur, Socorro Quintero, Eric Stevens (1996) had studied the relationship between the investor sentiment and the stock return and found that there is no relation between the same, their findings and data suggest that changes in market prices are due to the change in the dividend and interest rate expectations. Sample was taken from the year 1986-1988 i.e. the period surrounding the 1987 crash.

Devin Bathia, Don Bredin had studied the effect of investor confidence on G7 stock market returns, using monthly data for the period January 1995 to December 2007. Their results indicated that investor sentiments had significant impact on the stock market returns on the different forecasting periods.

Maik Schmeling (2008) had used the cross sectional perspective and provided evidence that the impact of sentiment on stock returns is higher for those countries which have less market integrity and which are traditionally more prone towards the herd-like behaviour and overreaction.

Malcolm Baker and Jerfrey Wurgler had noticed the rise and fall in the U.S market sentiment from 1961 through the internet bubble. Their study suggests that stocks of newer, high volatile firms, firms in distress or with extreme growth potential, firms without dividends, and alike are expected to be relatively more effected by the investor's sentiment.

Michael Lemmon, Sophie Xiaoyan Ni (2011) had shown that sentiment and lagged market returns as behavioural biases affect the demand for and prices of securities traded actively by individual investors, but had little effect on the prices of securities in which demand was driven by hedging motives from rational investors.

Philipp Schmitz, Markus Glaser, and Martin Weber (2005) had studied the relationship between the individual investor sentiment and the stock return. For this they first derived the investor sentiment from the bank-issued warrants.

They took the data from the German broker and by using vector auto-regressive model and the Granger causality test, they calculated daily investor sentiment. Finally they concluded that both are mutually related to each other.

San-Lin Chung and Chung-Ying Yeh had empirically examined the relationship between return predictability and sentiment while the stock fundamentals performed regime shifts. To study this, they used a simple regression technique and a testing procedure.

Their main empirical findings are: (1) the effects of sentiment on predicting the cross-section of future stock returns are conditional on the state of regime; (2) long- short portfolios formed on size, book-to-market, dividend and earning perform strong conditional predictability patterns after conditioning on sentiment and regimes; (3) size and value premiums are associated with sentiment and the state of regime; (4) the cross-sectional predictability patterns associated with sentiment reflect the mispricing, not the compensation for systematic risk.

Yung-Chou Lei (2005): They studied the relationship between the trading volume, investor confidence and the stock return. To examine investor sentiment they constructed a market-wide sentiment measure based on the trading volume trends of individual stocks. And finally, concluded that market sentiment as proxied by the trading volume trend affects market returns.

Qiang Zhang, Mingmao Deng, Shue Yang (2010): They studied how the investor sentiment and the stock return affect each other using (S) VAR model approach. Their findings have shown that the investor sentiment is affected by the previous and contemporaneous market performance, which confirms that the investor sentiment, mainly due to the existence of cognitive bias in decision-making, is irrational.

On the other hand, investor sentiment level and change have an important positive influence on contemporaneous stock returns. And investor sentiment level is a contrary indicator for future stock returns because of the price pressure effect.

Malcolm Baker and Jeffrey Wurgler (2007) had studied using top down approach to behavioural finance and the stock market and found that stocks that are difficult to arbitrage or to value are most affected by sentiment.

Žana Grigaliūnienė, Diana Cibulskienė had studied the effect of investor confidence on Scandinavian stock market by using regression model and found that portfolio returns and investor confidence had a significant relationship.

Carlstrom, Charles T Fuerst, Timothy S Ioannidou, Vasso P (2002) had studied the relation between GDP and stock prices by taking the sample from 1997-2001 and found that the GDP affected the stock prices and this change in stock prices further affected the GDP.

Muhammad Aamir, Muhammad Nadeem Akram, Muhammad Faisal Shafique, Muhammad Atif (2011) have studied the effect of exchange rate and inflation on Pakistan stock markets. They have studied the sample from 1995 to 2010 yearly average data using co integration test and found that interest rates and exchange rates affect the stock markets inversely and significantly.

The literature study shows that a very few research studies have been done on investor confidence in India. So, this work aims to study the impact on stock return to provide further literature in this field. Also many of the aforesaid empirical researches have been done either in boom period or in recession period but this work proposes to observe the period from 2000 to 2013 to neutralize cyclical impact, as this period contains both global boom and global recessions. The study also proposes to split this period to study the degree of impact of the variables of our construct on stock return across booms and recessions.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Defining the problem

As far as macro-economic variables are concerned, the previous researches have mainly concentrated on interest rate, exchange rate, inflation and GDP. Though some of studies have included crude price and gold price, there is not much work in Indian context. The literature study shows that a very few research studies have been done on investor confidence in India. This work aims to study its impact on stock return to provide further literature in this field.Many of the aforesaid empirical researches have been done either in boom period or in recession period but this work proposes to observe the period from 2000 to 2013 to neutralize cyclical impact, as this period contains both global boom and global recessions. The study also proposes to split this period to study the degree of impact of the variables of our construct on stock return across booms and recessions.

In the present context of India, crude oil and gold prices are believed to play an important role in the stock market return. Gold as an asset class has shown bullish trend and might have created arbitrage opportunity vis-a-vis stock market. Global crude prices have shown a high volatility and have significantly impacted India's fiscal deficit. So, the present research propose to include these two variables. The study also intends to differentiate between short term and long term impacts of the variables on stock return.

3.2 Nature of Research

I have used Anova of multiple regression model to analyze the data.

Variables Description and measurement:

The variables used in my study are:

- Dependent variable is stock returns

- Independent variables are Gold Prices, Crude Oil Prices, Inflation, Exchange Rate and Investor Confidence.

Hypothesis

H1: Macro economic variables influence stock indices in India.

H2: Gold price has an inverse relationship with stock prices in India

H3: Crude oil prices have a positive relationship with stock prices in India

H4: Investor confidence has a positive relationship with stock prices in India.

3.3 Data Collection

The data collection is divided into 2 sub-groups: First data set consists of BSE Sensex stock data and second data set consists of macro-economic factors like gold price, crude oil price, inflation rate and exchange rate. In my study only secondary data is used.

I have collected gold prices from NASDAQ, crude oil prices from index mundi, inflation data from RBI website, exchange rate from RBI and stock prices from BSE and Money control website. For measuring investor sentiment, it is proposed to look at the transactions of the call and put options. The source of data is BSE.

Period of study:

For the macroeconomic variable I have collected monthly data for the period January 1986 to December 2012(excluding 2008 as it is an abnormal year and the study would not be uniform if we consider it, as it will show high fluctuations in the stock return.) because the crude prices are available only on monthly basis hence weekly data cannot be taken, so to increase the sample size we have taken a period of 25 years. For investor confidence, I have taken the daily data pertaining to the volume transactions of the call and put options as the BSE shares as the underlined for the period from Jan 1 2001 to Mar 28 2013. As there is fewer amounts of transactions in call and put options before this period, I have considered the data from 2001.

Time Period (2000-2013)

The data used for the study is secondary data. The following data starts from 2000 to 2013 is collected. Though the number of years is different but still this new period also captures both global boom and global recessions.

Macro-Economic Variables

- The gold prices are taken from World Gold Council website. The data per unit troy ounce for 24 carats gold has been used.

- The Brent crude oil prices from US energy information administration website is collected.

- The exchange rate values from RBI website is collected and,

- WPI inflation data from the website of Ministry of commerce and industry, India.

   To the corresponding dates I had collected BSE Sensex S&P 500 index value from the website of BSE India. Total I had collected 270 data points to show the effect of these variables on stock returns.

Limitation : From November 2009 WPI inflation data is available on monthly basis. So from February 2000 to October 2009 I had collected 2 data points per month and from November 2009 to Dec 2012 I had collected one data point per month.

Investor Confidence

As a proxy for investor confidence, I had taken number of contracts of indexed options- call & put in a date. I had collected 267 data points from 1st January 2001 to 31st December 2012. I had collected the data from BSE India website. For the corresponding dates I had taken the BSE-Sensex S&P 500 index values for stock prices.

Limitation**:** In some years the government had put a ban on trading of the options, so I could not get the data for every year in the period. So there is a discontinuity in the data as every year has different data points.

3.4 Research methods

A multiple regression model is run, which is represented by the following equation:

$Y = a_0 + a_1x_1 + a_2x_2 + a_3x_3 + a_4x_4$

Where, a_1, a_2, a_3, a_4 are regression coefficients

Y is the stock prices

x_1 is the change in crude oil prices

x_2 is the change in gold prices

x_3 is the change in inflation

x_4 is the change in exchange rate

For measuring investor sentiment, I propose to look at the investor holding of the call and put options. Since the value of a call tends to rise if the price of the underlying rises and the value of a put rises if the price of the underlying declines, buying a call is regarded as positive expectation, while buying a put is regarded as negative expectation for the underlying. So by looking at the volume trading of the options with the underlined as shares, investor sentiment can be calculated by taking:

Sentiment = (volume of call options -volume of put options)/volume of all options

The information about the volume trading of the options will be taken from nseindia.com.

$Y= b + b_1x_5$

b, b_1: are the regression coefficients

x_5: change in investor confidence

Y: change in stock returns

3.5 Data Analysis

A multiple regression model is run, to analyze the relationship and different hypothesis that have been already explained above. So, keeping all those conditions we have tried to arrive on a consensus.

CHAPTER 4

DATA ANALYSIS AND FINDINGS

4.1 Data Analysis

Impact of Macro-Economic Variables on Stock Prices.
Here we have made a representation of the tables where in one is used to describe the different variables entered and in the other table we are giving a snapshot of model summary with different values of "R".

Table 1 : Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Crude Oil Prices	.	Forward (Criterion: Probability-of-F-to-enter <= .050)
2	Inflation	.	Forward (Criterion: Probability-of-F-to-enter <= .050)
3	Exchange Rate	.	Forward (Criterion: Probability-of-F-to-enter <= .050)
4	Gold Prices	.	Forward (Criterion: Probability-of-F-to-enter <= .050)

a. Dependent Variable: BSE

Table 2 : Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.954[a]	.894	.891	736.695
2	.919[b]	.901	.901	701.134
3	.900[c]	.940	.941	546.484
4	.900[d]	.941	.941	542.868

a. Predictors: (Constant), Crude Oil Prices

b. Predictors: (Constant), Crude Oil Prices, inflation

c. Predictors: (Constant), Crude Oil Prices, inflation, Exchange Rate

d. Predictors: (Constant), Crude Oil Prices, inflation, Exchange Rate, Gold Prices

Table 3 : ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1193158713.109	1	1193158713.109	2196.89	.000[b]
	Residual	146613.861	269	54317.829		
	Total	1339526.970	271			
2	Regression	12074262.649	2	607631.325	1257.526	.000[c]
	Residual	13278264.321	270	48441.131		
	Total	13398026.970	271			
3	Regression	12594397.794	3	4199799.265	1426.289	.000[d]
	Residual	806129.176	268	297804.960		
	Total	13800526.970	271			
4	Regression	12611616.195	4	3191579.049	1090.563	.000[e]
	Residual	7863410.775	267	29510.153		
	Total	13390526.970	271			

a. Dependent Variable: BSE

b. Predictors: (Constant), Crude Oil Prices

c. Predictors: (Constant), Crude Oil Prices, inflation

d. Predictors: (Constant), Crude Oil Prices, inflation, Exchange Rate

e. Predictors: (Constant), Crude Oil Prices, inflation, Exchange Rate, Gold Prices

Table 4 : Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-980.353	101.419		-9.666	.000
	Crude Oil Prices	86.756	1.851	.944	46.81	.000
2	(Constant)	-2490.469	295.888		-8.47	.000
	Crude Oil Prices	66.432	4.156	.723	15.95	.000
	Inflation	12.884	2.386	.244	5.39	.000
3	(Constant)	4692.148	589.694		7.95	.000
	Crude Oil Prices	26.07	4.450	.283	5.80	.000
	Inflation	39.33	2.731	.746	14.49	.000
	Exchange Rate	-225.55	17.043	-.291	-13.22	.000
4	(Constant)	6128.34	883.177		6.99	.000
	Crude Oil Prices	27.59	4.475	.300	6.19	.000
	Inflation	32.05	4.315	.607	7.40	.000
	Exchange Rate	-236.11	17.66	-.304	-13.404	.000
	Gold Prices	.014	.007	.133	2.174	.031

a. Dependent Variable: BSE

Table 5 : Excluded Variables[a]

		Beta In	T	Sig.	Partial Correlation	Collinearity Statistics Tolerance
1	Gold Prices	.144[b]	4.222	.000	.249	.328
	Exchange Rate	-.059[b]	-2.958	.003	-.177	.997
	Inflation	.244[b]	5.399	.000	.313	.180
2	Gold Prices	-.095[c]	-1.243	.215	-.076	.063
	Exchange Rate	-.291[c]	-13.232	.000	-.629	.462
3	Gold Prices	.133[d]	2.174	.031	.132	.058

a. Dependent Variable: BSE

b. Predictors in the Model: (Constant), Crude Oil Prices

c. Predictors in the Model: (Constant), Crude Oil Prices, inflation

d. Predictors in the Model: (Constant), Crude Oil Prices, inflation, Exchange Rate

From the output table of coefficients we can see that the t-significance value for all the variables is less than 0.05. This indicates that it is statistically significant and thus it shows the relationship between macro-economic variables and stock indices.

Thus, the hypothesis H1: Macro economic variables influences stock indices is validated.

From the output table, coefficients, the unstandardized coefficients of gold prices is 0.014, which indicates that there is a small positive relationship between gold prices and stock prices in India. Thus the hypothesis H2 is rejected.

From the output table, coefficients, the unstandardized coefficients of crude oil prices is 27.559, which indicates that there is a positive relationship between crude oil prices and stock prices in India. Thus the hypothesis H3 is validated.

Thus from the linear regression model, following equation emerges:

$Y = 6128.34 + 27.59X_1 + 0.014X_2 + 32.08X_3 - 236.11X_4$

Y is the stock prices

X_1 is the change in crude oil prices

X_2 is the change in gold prices

X_3 is the change in inflation

X_4 is the change in exchange rate

From the above equation, it can be seen that crude oil prices, gold prices and inflation has a positive relationship with the stock prices, whereas exchange rate has a negative relationship with the stock prices.

Impact of Investor Confidence on Stock Returns:

For measuring investor confidence, I have taken volume of call options and put options traded on that particular day.
If the numbers of call options are more than put options, then it implies positive investor confidence but if the call options are less than the put options, this shows that investors are not having confidence in their stocks.

Constraint:

We have taken the difference of the call options and put options, where a positive number indicates more confidence and a negative number indicates less confidence.
But as negative numbers are not applicable in the SPSS software, I have divided the data into 2 parts:
Positive investor confidence and Negative investor confidence and have taken the absolute values.

For positive investor confidence, we have taken all the negative values as zeros and for negative investor confidence we have taken all the positive values as zeroes and then we have applied linear regression.

Output : Positive Investor Confidence:

Regression

[DataSet1]

Table 6 : Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Positive Investor Confidence	.	Forward (Criterion: Probability-of-F-to-enter <= .050)

a. Dependent Variable: BSE Sensex (S&p 500)

Table 7 : Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.386[a]	.149	.146	2177.291976

a. Predictors: (Constant), Positive Investor Confidence

Table 8 : ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	220202803.322	1	220202803.322	46.450	.000[b]
	Residual	1256259092.765	265	4740600.350		
	Total	1476461896.087	266			

a. Dependent Variable: BSE Sensex (S&p 500)

b. Predictors: (Constant), Positive Investor Confidence

Table 9 : Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	4194.743	142.504		29.436	.000
Positive Investor Confidence	.323	.047	.386	6.815	.000

a. Dependent Variable: BSE Sensex (S&p 500)

Negative Investor Confidence:

Regression

[DataSet1]

Table 10 : Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	Negative Investor Confidence	.	Forward (Criterion: Probability-of-F-to-enter <= .050)

a. Dependent Variable: BSE Sensex (S&p 500)

Table 11 : Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.270^a	.073	.069	2272.818160

a. Predictors: (Constant), Negative Investor Confidence

Table 12 : ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	107550763.365	1	107550763.365	20.820	.000[b]
	Residual	1368911132.722	265	5165702.388		
	Total	1476461896.087	266			

a. Dependent Variable: BSE Sensex (S&p 500)

b. Predictors: (Constant), Negative Investor Confidence

Table 13 : Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4345.159	145.441		29.876	.000
	Negative Investor Confidence	.171	.038	.270	4.563	.000

a. Dependent Variable: BSE Sensex (S&p 500)

From Output we can see that the positive investor confidence and negative investor confidence has a positive relation with the Sensex. This shows that when the investor has more confidence, then Stock prices are raising and when the investor has less confidence, then the stock prices are decreasing. Thus validating the hypothesis H4.

Thus from the linear regression, I got the equation as:

$Y= 4194.73+0.323Z_1$

Where,

Y is the stock prices

Z_1 is Investor Confidence

4.2 Key Finding and Recommendations

This research indicate that there is an influence of various macro-economic variables and investor confidence on stock returns. I have taken that gold prices have a negative relationship with stock prices in India. This is because, Gold accounts for 20-30% of Indian imports and whenever the gold prices will increase, it leads to more outflow than inflow. This increases the trade deficit of the country which in turn leads to raise in CAD (Current Account Deficit). This has negative impact on the economy and thus people will not show interest in investing the stock markets. But this is not true for every CAD value. According to Indian government, CAD below 3% of GDP, is considered as normal. So only when CAD raises to more than 3% of GDP, it has negative impact on the economy.

Coming to the crude oil prices, India is an importer of crude oil prices. Whenever crude oil prices increases, it might leads to increase in inflation. This is because the transport charges for the products will increase and this in-turn increases the prices of the products. Also, Crude oil accounts for 30-40% of Indian imports. So increase in crude oil prices leads to increase in the CAD. Thus generally raise in crude oil prices is negative to the economy and this in-turn decreases the stock prices.

But the result I got in the study is a positive relation between crude oil prices and stock prices. The major reason for this is that, for many years, different governments are telling that petrol and diesel prices will get de-regulated. In India, the petrol and diesel subsidies accounts for major chunk of government's expenditure.

Moving away from subsides will make government to invest in infrastructure, education etc. Now if the crude oil prices increases, this in-turn causes more burden on the government as they cannot pass the entire hike to the end customers. Thus, there is a belief in the Indian economy that, the rise in crude-oil prices will ultimately leads to the de-regulation of the prices. Already, Petrol prices in India were de-regulated. Even the de-regulation of diesel prices is on cards. So the firm belief on the de-regulation of prices is causing the market to take raise in crude oil prices as positive news.

Investor confidence plays a very major role in investing in financial markets. If investors have confidence on the economy, then they will invest in the equity market. The confidence might depend on various parameters like Indian economy performance, Industry growth rate, Company's performance and also on other countries' economies. Our study has proven that investor confidence has a positive relation with the stock prices.

4.3 Limitations of the Study

Although this study gives much light on how stock return vary with different variables but there are several other aspects that could be addressed in further research. The universe being large, the study has some limitations that serve as impediments for 100% accuracy in analysis.

1) The data taken here is only of for a period from 2000-2013, hence a bigger sample could give more stress to our findings.
2) The research is carried out in a view to mainly focus on the above four mentioned parameters only.
3) The area in which research is carried out is also limited, and the results may vary in different cases.
4) The research is carried out in context with Indian markets only and cannot be generalized.

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