

Bachelor of technology (mathematics and computing) essay sample

[Economics](#), [Currency](#)



This is to certify that this project report entitled “ STUDY OF MACROECONOMIC FACTORS ON BSE SENSEX” submitted to DEPARTMENT OF APPLIED MATHEMATICS is a bonafide record of the work done by “ GAURAV CHAUDHARY (2K12/MC/022), RAHUL MITTAL (2K12/MC/050) under my supervision from 10 JAN 2015 TO 30 APR 2015

Signature (PROF. R SRIVASTAVA)

DELHI TECHNOLOGICAL UNIVERSITY

DECLARATION

We hereby declare that the work which is being presented in the B. Tech Minor Project Report entitled “ TECHNICAL ANALYSIS OF INDIAN STOCK MARKET”, in partial fulfillment of the requirements for the award of the Bachelor of Technology in Mathematics and Computing and submitted to the Department of Mathematics of Delhi Technological University, Delhi is an authentic record of our own work carried out during a period of 5th semester under the supervision of Professor Mr. R Srivastava , Mathematics Department. The matter presented in this Project Report has not been submitted by us for the award of any other degree elsewhere. Signature of students

This is to certify that the above statement made by the student(s) is correct to the best of my knowledge.

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ABSTRACT.

The Study investigates the relationship between the Indian Stock Market index (BSE Sensex) and Six Macroeconomic Factors, namely , Gold Price, Crude Oil Price, INR/US Exchange Rate, WPI (Whole Sale Price Index), IIP(Index of Industrial Population), Foreign Exchange Reserve over the period Jan 2007 to Feb 2015 on monthly Basis. Stock Market is a important segments of Financial system of any country as it plays an important role in channeling savings from deficit sector to surplus sector. These Stock markets have always been an area of serious Concern for policy makers , economists and researchers. They are always been defined as the Barometer of Economy because they reflect the change and direction of pressure on the economy.

The Movement and Volatility of stock market describe the direction of market. These Study reveals the Impact of Macroeconomic Factors INR/US exchange rate , WPI Index of Inflation, Gold Price, Crude Oil Price, IIP, FXR. The analysis reveals that macroeconomic and stock market index are Cointegrated and Significant relationship exists between them. By applying Augmented Dickey Fuller Test Unit Root Test, Johnson Cointegration test, Granger Causality test and vector Error Correction Model(VECM) and study found that Interest rate is $I(0)$; Sensex , Exchange rate, Gold price, Crude Oil, IIP, FXR , WPI are $I(1)$. It also found the long run relationship between macroeconomic variables and stock market in

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 affect the performance of the stock market. The relationship between macroeconomic variables and a developed stock market is well documented in literature. The present study extends the existing literature in the Indian context. This study takes into consideration Six macroeconomic variables - Inflation, Exchange Rate, Index of Industrial Production, Gold Price, Oil Price, Foreign Exchange Reserve and widely used composite indices of the stock market of India - BSE Sensex.

BSE SENSEX

Established in 1875, BSE is Asia's First & Fastest Stock Exchange with the speed of 200 micro seconds and one of India's Leading Exchange Groups. More than 5500 Companies are listed on BSE making it World no1 Exchange in terms of listed members. BSE Command a Total market capitalization of USD 1. 68 Trillion As of march 2015. BSE Index is calculated by adding the Free Float Market Capitalization of Top 30 Companies listed on BSE and compare it with base year value. The base Year is 1978 and base value is 100. Some of the Major Companies listed in BSE :

Axis Bank-India third largest private bank provide financial Services to its Clients Bajaj Auto-India Major two Wheeler and Three wheeler Producer BHEL- Bhart Heavy Electricals Limited is the Power plant Manufacturer Bharti Airtel-Multinational telecommunications services Company Cipla Limited- Multinational Pharmaceutical and Biotechnology Company

As we can Interpret from the graph due to crises in the Economy in the 2007-2008 Sensex fall below to 9000 points but after that it has Grown Upward

Continuously even through there is some tough as well , reaching an all time high of 30000 mark on March 30 2015 due to steps taken by RBI to Cut down the REPO Rates. Crude Oil (CO)

Crude oil is an indispensable input for production and therefore, the price of oil is included as a proxy for real economic activity. India is largely an importer of crude oil and consequently, oil price takes part an imperative role in Indian economy. It is apparent that any key movement in oil prices leads to uncertainties in the stock market which could persuade investors to suspend or delay their investments. Moreover, increase in oil prices results in higher transportation, production and heating costs which have negative effect on corporate earnings. Rising fuel prices also raise alarm about inflation and diminish consumers' discretionary spending. Therefore, the financial risk of investments increases when there is wide fluctuation in oil prices. Therefore, for oil importing countries like India, an increase in oil price will lead to an increase in production costs and hence to decreased future cash flow, leading to a negative impact on the stock market. Therefore, an increase in the price of oil in the international market means lower real economic activity in all sectors which will cause stock price to fall.

By looking at the history we can interpret that Crude Oil is very Volatile ; due to crises in 2008 its price go down, after that its price go up with a small ups and downs Oil prices have been high — bouncing around \$100 per barrel since 2010 — because of soaring oil consumption in countries like China and conflicts in key oil nations like Iraq. Oil production in conventional fields couldn't keep up with demand, so prices spiked. But over the last year,

demand for oil in places like Europe, Asia, and the US began tapering off. By late 2014, world oil supply was on track to rise much higher than actual demand, but OPEC(Organization of Oil Exporting Countries) Refused to Cut down the production so Oil Price went into free fall Low prices are excellent news for oil consumers in places like Japan or the US, India where gasoline is the cheapest it's been in years. But it's a different story for nations reliant on oil sales. Russia's economy is facing a potential meltdown. Venezuela is facing unrest and may default on its debt. While this is the Good News for country like India Which is the net Importer of Oil, this will decrease the production Cost, Strengthening GDP because Cash Outflow is Low, Decrease Deficit of India. By Looking at both Sensex and Crude Oil graph We can say that they are moving together suggesting a Positive Correlation

US/INR Exchange Rate

The next macroeconomic variable used in this study has been the exchange rate/dollar price, which represents the bilateral nominal rate of exchange of the Indian Rupee (Rs.) against one unit of a foreign currency. US Dollar (\$) has been taken to be the foreign currency against which the Indian Rupee exchange rate is considered. This is because the US Dollar has remained to be the most dominating foreign currency used for trading and investment throughout the period of this study.

Generally, a depreciating currency causes a decline in stock prices because of expectations of inflation. On an average, export-oriented companies are adversely affectedly a stronger domestic currency while import-oriented firms benefit from it. Though these arguments suggest a linkage between

exchange rates and stock prices, the empirical evidence supporting such a linkage was weak at best. Also, at the micro level, exchange rate changes influence the value of a portfolio of domestic and multinational firms and it is predicted that a negative relationship exists between the strength of the home currency and the aggregate stock prices index Gold Price

Gold is always a secondary investment assets for Indian investors and more a safer one . When other assets are getting down Investors tend to move to Safer side and Gold Assets is a Safer because chances o f getting Depreciation is very low.

As we can interpret From the Graph its price Move steadily From 2007 to 2012 ; after that its price Settle down in the range of around 27000-30000 INR per 10gm

By looking both the Graphs we can say that in the crises period When all the Economics are suffered Gold remain the best source of Investment so its has the negative Relationship with Sensex in this period but after the Crises Gold Price and Sensex has Move Steadily in the Upward Direction so in the Long Run We are Expecting a Positive Relation Between Gold Price and BSE Sensex

INDEX OF INDUSTRIAL PRODUCTION

IP- index of industrial production is a measurement which represents the status of production in the industrial sector for a given period of time compared to a reference period of time IIP number is one of the best statistical data, which helps us to measure the level of industrial activity in

Indian economy. It is a short term indicator. It is useful to Gauge the rate of industrial growth until the actual results from the annual survey of industries are published.

IIP data is broadly divided into three segments - manufacturing (79.36%), mining & quarrying (10.47%) and electricity (10.17%) exclude all services firm like banking Sector.

Variable of Interest for our study is the Average Growth Rate per Year

As you can see it has go down Steadily From the Period 2007-2008 Due to Crises after that it take a Upward , again go down due to Coal scam that came From our Government but now it has shown Constant time From Latest Three to Four Months due to growth in manufacturing Sector

This Graph is Very Volatile When we compared with the bse Sensex It show the Weak Negative Correlation becoz it lags the Current Situation in the Bse Sensex For eg: Fall in the growth rate of Industry make the Stock Undervalued which attract the Investors to buy the Stock , they Push the Price Up and Up.

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