EFFECT OF MACROECONOMIC VARIABLES ON STOCK MARKET

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Abstract

The purpose of this paper is an attempt to reach a better stock valuation model of the Fundamental Analysis Approach, by reviewing the theoretical foundations and literature reviews. This paper aims to study on Fundamental analysis of selected listed companies at NSE/BSE. Fundamental analysis is studied in three parts. Economic analysis deals with fundamental factors like GDP, IIP, fiscal deficit, inflation, current account deficit etc. Industry analysis Indian IT sector is analyzed based on entry barriers, type of industry, government interference, Porter's five force model. Finally, Company analysis deals with various ratios such as dividend payout ratio, EPS, P/E ratio, Debt-Equity ratio are used. It also focuses on the calculation of intrinsic value of shares and compared with Market value. If intrinsic value is greater than market value the share is said to be undervalued whereas if market value is greater than intrinsic value, the share is overvalued. Fundamental analysis is one of the most widely used methods for estimating price movements of securities which essentially analyses the impact of micro and macro-economic factors on the business of the corporation in order to predict future economic and financial effects. This research paper also examine various financial statements with the aim to asses a real value of company's stock. This work has the task to systematize knowledge about fundamental analysis, so it can serve as a good base for future research.

Key words

Correlation matrix analysis , inflation , Interest rates , Tax structure ,Savings and investment

Introduction

This research paper explore Equity analysis the process of analyzing sectors and companies, to give advice to professional fund managers and private clients on which shares to buy. Sell-side analysts work for brokers who sell shares to the investors (mainly fund management firms and private clients). Buy-side analysts work for fund management firms.

When studying financial statements, an important concept is the balance sheet identity. It states that assets minus liabilities equals stockholders' equity. Theoretically, stockholders' equity (also known as shareholders' equity, or book value), is the value left over for shareholders if a company (or any entity) would utilize its assets to meet is liability obligations. The rest is equity.

The accounting equation is: Assets - Liabilities = Equity.

This accounting equation has applications beyond companies. One can think of equity as one's degree of ownership in any asset after subtracting all debts associated with that asset. Any loan that requires a down payment, there is an asset, liability, and equity. For example, a car or house with no debt contains a component of owner's equity.

This research paper examin now a days many people are interested to invest in financial markets especially on equities to get high returns, and to save tax in honest way. Equities are playing a major role in contribution of capital to the business from the beginning. Since the introduction of shares concept, large numbers of investors are showing interest to invest in stock market. In an industry plagued with skepticism and a stock market increasingly difficult to predict and contend with, if one looks hard enough there may still be a genuine aid for the Day Trader and Short Term Investor. The price of a security represents a consensus. It is the price at which one person agrees to buy and another agrees to sell. The price at which an investor is willing to buy or sell depends primarily on his expectations. If he expects the security's price to rise, he will buy it; if the investor expects the price to fall, he will sell it. These simple statements are the cause of a major challenge in forecasting security prices, because they refer to human expectations. As we all know firsthand, humans expectations are neither easily quantifiable nor predictable. If prices are based on investor expectations, then knowing what a security should sell for (i.e., fundamental analysis) becomes less important than knowing what other investors expect it to sell for. That's not to say that knowing what security should sell for isn't important--it is. But there is usually a fairly strong consensus of a stock's future earnings that the average investor cannot disprove Fundamental analysis and technical analysis can co-exist in peace and complement each other. Since all the investors in the stock market want to make the maximum profits possible, they just cannot afford to ignore either fundamental or technical analysis.

Literature review

Kumar (2008) established and validate the long-term relationship of stock prices with exchange rate and inflation in Indian context. There were numerous studies on the relationship of stock indices with macroeconomic variables. This gave a strong subjective background to test the existence of any such relationship in India. The research primarily dealt with an empirical method by combining different statistical techniques to check the presence of co-integration between the stock index (Sensex) and other variables. Co-integration is a well accepted indicator of a long term relationship between more than one time series variables. The study took into consideration past ten years experience of Indian economy reflected into the stock index, wholesale price index and exchange rates. A causal relationship could not be established without the existence of co-integration between the selected macroeconomic variable

Dharmendra Singh (2010) tried to explore the relation especially the causal relation between stock market index i.e. BSE Sensex and three key macro economic variables by using correlation, unit root stationarity tests and Granger causality test. Monthly data has been used for all the variables and results showed that the stock market index, IIP, WPI, and exchange rate contained a unit root and were integrated of order one. They found that results show bilateral granger causality between IIP and Sensex while WPI is having strong correlation and unilateral causality with Sensex which means Indian stock market is approaching towards informational efficiency at least with respect to two macroeconomic variables, viz. exchange rate and inflation

Tripathy (2011) studied investigated the market efficiency and causal relationship between selected Macroeconomic variables and the Indian stock market by using Ljung-Box Q test, Breusch-Godfrey LM test, Unit Root test, Granger Causality test. The study confirms the presence of autocorrelation in the Indian stock market and macro economic variables which implies that the market fell into form of Efficient Market Hypothesis. Then the Granger-causality test shows the bidirectional relationship between stock market and interest rate and exchange rate, international stock market and BSE volume, exchange rate and BSE volume. The study also reported unidirectional causality running from international stock market to domestic stock market, interest rate, exchange rate and inflation rate indicating sizeable influence in the stock market movement.

Dasgupta (2012) has attempted to explore the long-run and short-run relationships between BSE Sensex and four key macroeconomic variables of Indian economy by using descriptive statistics, ADF tests, Johansen and Juselius' s cointegration test and Granger causality test. Monthly data has been used for all the variables, i.e., BSE Sensex, WPI,, IIP, EX and call money rate. Results showed that all the variables has contained a unit root and are integrated of order one. Johansen and Juselius' s cointegration test pointed out at least one cointegration vector and long-run relationships between BSE Sensex with index of industrial production and call money rate. Granger causality test was then employed. The Granger causality test has found no short-run unilateral or bilateral causal relationships between BSE Sensex with the macroeconomic variables. Therefore, it is concluded that, Indian stock markets had no informational efficiency

Objective of the study

* To analyze the share price behavior of the selected industries.
* To predict the day to day Fluctuations in the stock market using Technical Analysis
* To study the price movements in the stock exchange
* To study the current trend and strength of the trend of selected industry
* To recapitulate the key findings and offer suggestions to investors.

RESERARCH METHODOLOGY

Inferential statistics technique

Inferential statistics is defined as the branch of statistics that is used to make inferences/ valid judgments about the characteristics of a populations based on sample data. These statistics are ways of analyzing data that allow the researcher to make conclusions about whether a hypothesis was supported by the results.A *hypothesis* is an educated guess about a trend, group difference or association believed to exist. A null hypothesis states that the results will be due to chance whereas an alternate hypothesis tells that the results are due to the manipulation of the independent variable. Here in our study, *null hypothesis (H0)* is there is no relationship between Bombay stock exchange indices and selected macroeconomics variables while *alternate hypothesis (Ha)* is that there is relationship between Bombay stock exchange indices and selected macroeconomics variables. There are different ways to inference the results. Here, we used correlation matrix analysis and linear regression analysis (t-ratio, f-sign, p- value, r-square) which allows us to make a conclusion related to our hypothesis. We have used 5% of level of significance and two tailed

test so as to accept or reject our null hypothesis according. Regression analyses are typically done using statistics software and here we used SPSS.

Correlation matrix analysis

Correlation is a term that refers to the strength of a relationship between two variables. A strong, or high, correlation means that two or more variables have a strong relationship with each other while a weak, or low, correlation means that the variables are hardly related. Correlation coefficients can range from -1.00 to +1.00. The value of -1.00 represents a perfect negative correlation while a value of +1.00 represents a perfect positive correlation. A value of zero means that there is no relationship between two variables.

Here, the study used Karl Pearson r, type of correlation coefficient, which is also referred to as linear or product-moment correlation. This analysis assumes that the two variables being analyzed are measured on at least interval scales. The coefficient is calculated by taking the covariance of the two variables and dividing it by the product of their standard deviations. It is used to show the strength and the relationship between Bombay stock exchange indices and macroeconomic variables.

Econometric Regression Model

The term *regression* was introduced by Francis Galton. Linear regression analysis is an inferential statistical technique that is used to learn more about the relationship between a independent variable (referred to as X) and dependent variable (referred to as Y) When there is only one independent variable, the prediction method is called simple regression. So, the regression equation $Yi = \beta0 + \beta1\ Xi + ui$ where Yi is the dependent variable, Xi is the independent variable, $\beta0$ is the constant (or intercept), $\beta1$ is the slope of the regression line which represent the strength and direction of the relationship between the independent and dependent variables and ui is random error term. Here, in our study we carried out this method to see and interpret the effect of macroeconomic variables on stock exchange indices (share price)

Statistic test

R-square: also known as the coefficient of determination is commonly used to evaluate the model fit of a regression equation. That is, how good are all of your independent variables at predicting your dependent variable? The value of R-square ranges from 0.0 to 1.0 and can be multiplied by 100 to obtain a percentage of variance explained.

Sign-F: whether the model as a whole is significant. It tests whether R- square is significantly different from zero.

T-ratios: the reliability of our estimate of the individual beta. For that we can look at p- values.

DATA ANALYSIS AND INTERPRETATION RELIABILITY TEST

First of all the reliability test is applied on the collected data to check whether the collected data is fit for the further analysis or not the following tables gives the descriptive information about reliability of the data.

Case Processing Summary			
		N	%
Cases	Valid	100	84.0
	Excludedᵃ	19	16.0
	Total	119	100.0
a. Listwise deletion based on all variables in the procedure.			

Reliability Statistics	
Cronbach's Alpha	N of Items
.980	18

The reliability statistic table shows the Alpha value of .980 which is more than .6 that means the collected data is fit for the further testing and analysis.

Scale Statistics			
Mean	Variance	Std. Deviation	N of Items
42.28	304.264	17.443	18

Scale statistics table gives the descriptive statistics about all the selected data from different respondents.

Regression

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.978[a]	.956	.955	.20177
a. Predictors: (Constant), factor affecting stock market				

Model summary table describe how perfectly the modal fits for the analysis. R shows the degree correlation between the factor influence the effect of macroeconomic factor on stock market . The value of R is .978 which shows that there is high degree of relationship between the sales and the factors taken into consideration.

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	85.868	1	85.868	2109.115	.000[b]
	Residual	3.990	98	.041		
	Total	89.858	99			
a. Dependent Variable: factor effecting stock market						
b. Predictors: (Constant), macroeconmic factor on stock market						

INTERPRETATION

Anova table analyze the difference in the value of mean of dependent variable and independent variable. The calculated value of F 2109.115 is more tabulated value.

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	T	Sig.
1	(Constant)	.088	.052		1.673	.097
	FACTORINFLUENCESALESPROMOTION	.906	.020	.978	45.925	.000
a. Dependent Variable: Factor affecting stock market						

INTERPRETATION

Coeffiecient table describes the direction of the relationship between dependent variable and independent variable. And from table we easily conclude that there is high degree of positive correlation between the variables.

Findings:
 On the basis of review and analysis following are the findings:
1. Inflation, Market price, Industrial Production Price Index, Consumption Price Index, Money Supply, Treasury Bill, GDP and GDP savings have positive relationship with stock prices.
 2. Inflation, Industrial Production Price Index, Consumption Price Index, Money Supply and GDP have high effect on the stock prices.
3. National Income has negative relationship with stock prices.
4. Consumption, oil prices, Exchange Rate and Interest rates have no significant impact on share price. So these factors do not have high effect on the stock prices.

Limitations of study

Reliability : This study is based on the analysis of the secondary data that has been collected. Secondary data is the data that is already available & has been used for analysis & thus might not be reliable.
Accuracy : The result & conclusion of this study might not be accurate due to reliability of the secondary data.
Time period :A time span of only few months has been considered for examining the relation between macroeconomic variables and Indian stock market.

CONCLUSION

In this paper, the study performed necessary analyses to answer the research question of whether some of the identified macroeconomic factors can influence the Indian stock market. The macroeconomic variables are represented by the industrial production index, consumer price index, interest rate (call rate), exchange rate, gold

price, oil price, foreign institutional investment . Indian stock market is represented by BSE SENSEX. A large number of previous studies indicated that there is a relationship between macroeconomic variables and stock market returns. Many macroeconomics variables were taken to analysis the effect and relationship between stock prices and macroeconomics i.e Inflation, Market price, Industrial Production Price Index, Consumption Price Index, Money Supply, Treasury Bill, GDP, GDP savings, National Income, Consumption, oil prices, Exchange Rate and Interest rates. Out of these only Inflation, Market price, Industrial Production Price Index, Change in risk, Yield Curve, Consumption Price Index, Money Supply, Treasury Bill, GDP and GDP savings have positive relationship with stock prices. And out of these Inflation, Industrial Production Price Index, Consumption Price Index, Money Supply and GDP have high effect on the stock prices. National Income has negative relationship with stock prices. Consumption, oil prices, Exchange Rate and Interest rates have no significant impact on share price. So these factors do not have high effect on the stock prices.

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