Impact of Fundamental Factors on Share Price Movements - A Study on Select Listed Companies of Indian manufacturing industries in Bombay Stock Exchange

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ABSTRACT Stock market performance is generally considered to be the reflector of financial and economic conditions of a country. There are number of macroeconomic and industry related factors that potentially affect the share price movements of the companies. The primary purpose of this study is to examine the share price variation to specific macroeconomic. The study consists of macroeconomic variables including Market Price of Share (MPS), Purchasing Power Parity (PPP), GDP, Inflation (INFL), Money Supply (M2) and Industrial Production (INP). The study attempts to determine which, if any, of the macroeconomic variables are of use in explaining the variability of share prices of select firms from Indian Industries that are listed in Bombay Stock Exchange. The firms relating to 05 different sectors are selected for this study on the basis of data availability, profitability and performance on the Bombay Stock Exchange. These sectors are Tire, Pesticides, Two wheeler, Tiles and Cotton. The share prices data for the selected firms and economic variables obtained for the maximum period of 5 years.

Introduction

The external factors are external to the company and affect all the listed companies in the market uniquely. It is important for investors to know about external factors affecting share market movements. Indian economy is a emerging. Such market is generally live under inflationary pressure. Such markets see typical trend-reversals in stock market. Even minor changes in interest rate have noticeable effects on share market. Understanding external factors affecting share market acts as a tool that investors must use to time the market. Predicting share price movements is hard even for pro investors. There are complex interrelated external **factors affecting share market price**. Investors must be aware of the external factor that affects share market. These factors interact deeply with the market. As a result, markets tend to under-perform or over-perform. Even small changes in price of crude oil effects common mans pocket. Increase in crude price does not only make us pay more for fuel but it has much wider impact. Almost all types of industry use fuel in some form or the other. Increase in oil prices directly increases the cost of production of its products. This rise in cost of products is what's should worry us. The factor of worry is, the price rise can have two repercussions. The price rise can either be absorbed by the company, or it will be fully/partly passed on to the consumer. In both the case shareholders will be at loss. If company absorbs the rising cost, it leads to less profit. If price is passed on to consumer it will lead to higher inflation. Gold price also has lot of affect on share market prices. Share market and gold price is inversely related (generally). When share market is performing badly gold prices soaring towards sky. Not only on share market, gold effects anything which deals in paper currency. When people are buying gold they forget everything else, even share market. Gold price also directly influence on jewellery market in India and Middle East. Volatility in commodity market affects share market prices. Commodities that use on daily basis (like edible oil, crude oil, metals, grains, basic foods etc) have almost direct relation with share market price reversals. If price of essential commodities increase consistently in decreases investors

sentiments and leads to inflationary pressures. In order to control inflation, governments increase bank interest rates. With increased interest rates (both on deposits and lending rates), borrowing becomes costlier. Industrial sector greatly depend on bank loans to manage their cash flows. With interest rates high, surely their operating margin will fall. It means companies operating performance will go down. Immediately this will affect share price of company.

Review of Literature

Substantial literature now available that examines the relationship between stock returns and different macro economic and industry variables in different stock markets and intervals. The return on stocks is highly sensitive to both fundamentals and expectations. Studies have shown that as a result of financial deregulation, the stock market becomes more receptive to both internal and external conditions. The external factors affecting the stock return would be stock prices in the world economy, interest rate and the exchange rate. There is growing empirical evidence that numerous factors are cross-sectionally correlated with stock returns. Famma (1970) conducted a survey on the behavior of stock return. It is evident from the literature that the relationship between stocks returns and economic variables have received great attention over recent years in particular countries and economic conditions. The level of return realized or expected from an investment is dependent on number of variables. The key factors are internal features of the firm and external factors. The internal factors can be the nature of investment, quality of management, and type of financing required etc., whereas external factors can be price controls, political events, inflation, and interest rate among others. Capital Asset Pricing Model (CAPM) was a basic technique used to determine risk and return related to a particular security. The single factor model was developed by Sharpe (1963). This was the main characteristic as well as the primary shortcoming of this model that it was using only the market return as a single factor to determine security return. This problem had led to alternative model to explain the stock returns variation called the Arbitrage Pricing Theory (APT). The Arbitrage Pricing Theory

was emerged as an alternative to CAPM. APT is based on fewer assumptions about the stock market characteristics as compared to CAPM.

Multi-factor asset pricing models were predominantly based on the assumption that stock returns were affected by different economic factors. Financial information and macroeconomic variables could predict a notable portion of stock returns. Gertler and Grinols (1982) investigated the relationship between unemployment, inflation and common stock returns. The sample period of the study was Jan 1970 to Jan 1980 related to monthly returns of 712 companies listed on the New York Stock Exchange as the dependent variable and the return on the market portfolio, unemployment rate and inflation rate measured by the consumer price index as independent variables. The results revealed that there was a statistical relationship between expected security returns and the macroeconomic factors. The addition of two variables i.e., unemployment and inflation to the standard two factor model of security returns improved the explanatory power of the regression significantly. Bower et al. (1984) used Arbitrage Pricing Theory (APT) to explain variation in utility stock returns, the study presented some further evidence that APT might lead to distinct and improved estimation of expected return than the CAPM.

Similarly Chen et al. (1986) applied an APT model to test the significance of various factors in explaining security returns. They used the monthly data for the period 1953-1983; the results specified that the factors like spread between long and short interest rates, expected and unexpected inflation, industrial production, and the spread between returns on high- and low grade bonds were significant in explaining the variability of a security return. Chen (1991) improved the framework for analyzing stock returns and macroeconomic factors. The study used lagged production growth rate, the default risk premium, the term premium, the short-term interest rates, and the market dividend-price ratio data for the period 1954-1986. Flannery and James (1984) examined the effect of interest rate changes on stock returns for a sample of 67 banks in the United States that were involved in positive maturity transformation. They found empirical support that a significant relationship exists between the sensitivity of the stock returns and interest rate changes and the maturity structure of the banks. Pari and Chen (1984) carried out a study using Arbitrage Pricing Theory Model on 2090 firms for the period 1975 to 1980 and the results of the study suggested that price volatility of energy, interest rate risk and market index had an impact on stock returns.

OBJECTIVES OF THE STUDY
The following objectives are taken for the study:

1. To study the external factors like Change in Market Price of Share (MPS), Purchasing Power Parity (PPP), GDP, Inflation (INFL), Money Supply (M2) and Industrial Production (INP) that affects the select listed companies in Bombay Stock Exchange of Indian manufacturing industries.

2. To Study the impact of external factors on Market Price of Share.

To analyse the relationship between the Market Price of Share and external factors during the period of study hypothesis will be framed as follows

H_1: There is a positive relationship between GDP and MPS
H_2: There is a negative relationship between INFL and MPS
H_3: There is a positive relationship between INP and MPS
H_4: There is a positive relationship between PPP and MPS
H_5: There is a positive relationship between M2 and MPS
Hypotheses will be tested based on Pearson's Correlation analysis and Regression analysis

Tools of Analysis

$$\text{Mean } (\overline{X}) = \frac{\sum x}{N}$$

Standard Deviation:

$$\sigma = \sqrt{\frac{1}{N}\sum_{i=1}^{N}(x_i - \mu)^2}$$

$$\text{Where } \mu = \overline{X}$$

Coefficient of Correlation:

$$r = \frac{n\sum xy - \left(\sum x\right)\left(\sum y\right)}{\sqrt{n\left(\sum x^2\right) - \left(\sum x\right)^2}\sqrt{n\left(\sum y^2\right) - \left(\sum y\right)^2}}$$

ANOVA

$$F = \frac{MST}{MSE}$$

Where,

F = ANOVA Coefficient

MST = Mean sum of squares due to treatment

MSE = Mean sum of squares due to error.

Formula for MST is given below:

$$MST = \frac{SST}{p-1}$$

$$SST = \sum n(x - \bar{x})^2$$

Where,
SST = Sum of squares due to treatment p = Total number of populations n = Total number of samples in a population

Formula for MSE is given below:

$$MSE = \frac{SSE}{N-p}$$

$$SSE = \sum (n-1)S^2$$

Where,

SSE = Sum of squares due to error S = Standard deviation of the samples N = Total number of observations.

Data Analysis

Table No. : 1 External factors during 2008-09 to 2012-13.

External Factors	2008-09	2009-10	2010-11	2011-12	2012-13
GDP	7.40	7.40	10.30	6.60	4.70
INFL	8.30	10.90	11.70	8.90	12.01
INP	4.80	9.30	9.70	4.80	7.30
PPP	0.27	0.28	0.31	0.32	0.29
M2	20.49	17.99	17.80	16.13	14.79

Source: World Development Indicators.

Interpretation:
The above Table No.1 explains about the external factors during the study period 2008-09 to 2012-13. It was observed that the growth rate of GDP was continuously fluctuated throughout the study period. The GDP was high (10.30) in the year 2010-11 and lowest value (4.70) was found in the year 2012-13.The inflation in the country was increased from the year 2008-09 to 2010-11. In the year 2011-12, the Inflation was decreased but in the next year the highest inflation was found. The rate of industrial production was found high (9.70) in the year 2010-11 throughout the study period. Expect in the year 2012-13, the purchasing power parity of the country was continuously increased. The highest growth rate in Money supply (20.49%) was found in the year 2008-09. On the whole it is observed that the Growth rate of GDP was decreased during the study period. The inflation in the country was increased throughout the study period. At the end of the study, the Industrial Production was slightly increased. The growth rate in Money supply was decreased.

Table No 2: Calculation of Descriptive Statistics for External factors during the study period 2008-09 to 2012-13.

External Factors	Minimum	Maximum	Mean	Std. Deviation
GDP	4.70	10.30	7.2800	2.01668
INFL	8.30	12.01	10.3620	1.67219
INP	4.80	9.70	7.1800	2.35521
PPP	0.27	0.32	0.2940	0.02074
M2	14.79	20.49	17.4400	2.14902

Interpretation
Table No. 2 explains the Minimum, Maximum, Mean and Standard Deviation of macro economic factors during the study period 2008-09 to 2012-13. GDP has obtained mean 7.2800 over the study period. This variable has minimum value of 4.70 and maximum value was 10.30 during the study period. However, in terms of standard deviation this factor registered 2.01668 during the study period. On the other hand, INFL has obtained mean 10.3620 over the study period. This variable has minimum value of 8.30 and maximum value was 12.01 during the study period. In terms of standard deviation INFL registered 1.67219 during the study period. Also, the table shows that, INP has obtained mean 7.1800 over the study period. This variable has minimum value of 4.80 and maximum was 9.70 during the study period. In terms of standard deviation INP registered 2.35521 during the study period. The variable PPP has obtained mean 0.2940 over the study period. This variable has minimum value of 0.27 and maximum value was 0.32 during the study period, in terms of standard deviation PPP registered 0.02074 during the study period. Moreover, M2 has obtained mean 17.4400 over the study period. This variable has minimum value of 14.79 and max-

imum value was 20.49 during the study period, in terms of standard deviation this factor registered 2.14902 during the study period.

To analyse the relationship between the Market Price of Share and external factors during the period of study hypothesis will be framed as follows

H_1: There is a positive relationship between GDP and MPS
H_2: There is a negative relationship between INFL and MPS
H_3: There is a positive relationship between INP and MPS
H_4: There is a positive relationship between PPP and MPS
H_5: There is a positive relationship between M2 and MPS
Hypotheses will be tested based on Pearson's Correlation analysis and Regression analysis

Regression Analysis
Regression Model:
$$MPS = a_0 + b_1 GDP + b_2 INFL + b_3 INP + b_4 PPP + b_5 M2 + e$$

Table No 3 explains calculation of ANOVA, Model Summary & Co-efficient of each Variable (GDP, INFL, INP, PPP and M2) with dependant Variable (MPS).

Table No. 3: Regression Co-efficients:

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2438.854	2467.261		2.128	.434
GDP	258.648	239.565	.517	2.2458	.426
INFL	418.232	267.786	-2.774	2.886	.049
INP	-566.294	278.894	2.372	-3.815	.012
PPP	-9.412	6.595	-2.392	-2.625	.316
M2	25.488	35.546	.296	.699	.602
R-Square value	0.698				
F-Value	1.401				
F-Sig	0.003				
a. Dependent Variable: MPS					

Interpretation
Regression was used to find the coefficients and Analysis of variance (ANOVA) was used in testing the hypotheses and to measure the differences and similarities between the sample companies according to their different characteristics. From the above table 3 it is found that the R-Square which is called as coefficient of determination of the variables is 0.698. The R-Square which is also a measure of the overall fitness of the model indicates that the model is capable of explaining about 69.8% of the variability of the share prices of selected companies. This means that the model explains about 69.8% of the systematic variation in the dependent variable. That is, about 30.2% of the variations in MPS of the sampled companies are accounted by other factors not captured by the model.

Similarly, findings from the Fishers ratio (i.e. the F-Statistics which is a proof of the validity of the estimated model) as reflected in Table 3, indicates that, the F is about 1.401

and a p-value that is less than to 0.05 (P-value = 0.003), this invariably suggests clearly that simultaneously the explanatory variables are significantly associated with the dependent variable. That is, they strongly determine the behavior of the market values of share prices.

However, further empirical findings provided in Table No.3 shows that there is a significant negative relationship between INFL and the MPS of the listed selected companies in Bombay Stock Exchange. This is evident in the t-statistics value of 2.886 with a P-Value of .049 which is significant at 5% level of significance. From this it is evident that the INFL have a significant negative impact on the MPS. Hence we accept H2. Like inflation, Industrial Production (INP) is also having significant and showing positive impact on MPS Hence we accept H3. Finally, other variables GDP, PPP and M2 have insignificant impact on MPS. Hence we do not accept H1, H4 and H5.

Conclusion

The stock returns behave differently at the firm and industry level. The impact of changes in economic factors on stock returns is more significant and strong at the industry level than firm level. Therefore, industry stock returns are subject to larger variation against economic variables than firm level stock returns. The stock returns volatility depicts time varying characteristics across the industries. Therefore conditional volatility of stock returns is a function of both the estimates of lagged square residuals and lag variances. Therefore there is some risk premium for the risk associated with the stock returns. Market Return is the most significant and positively related variable to stock returns which suggests that it accounts for most of the variation in stock returns at both the individual firm and industry level. Growth in market return positively influences the stock returns of most of the firms and industries. Inflation is significant and negatively related to stock returns of most of the firms which suggests that rising inflation in the country is adversely affecting the stock returns of the firms. The results also conclude that Industrial Production of select firms are significant and positively related to stock returns of the firms. So the growth in the production of a particular in-

dustry contributes positively to the stock returns both at the firm and industry level. GDP is insignificant but positively related to stock returns of the firms.

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