



AN EMIRICAL RALATAIONSHIP BETWEEN BSE 30 INDEX AND SELECTED MACROECONOMIC VARIABLES

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Abstract

This paper has an attempted to find out the relationship between macroeconomics indicator and Indian Stock market .The Pearson's correlation was applied to understand the impact of macroeconomics Variables on capital market movements and t statistic was used to measure the significance of relationship between economics variables and Bombay Stock Exchange - 30 index. In the study, Index of Industrial Production and whole Sale Price Index were considered explanatory variables, whereas average monthly BSE 30 index was considered as an explained variable. The data used in the study was in the monthly average and study period was 2010-2011 to 2014-15. The empirical result showed a significant impact of economic variables on Indian stock market. A significant positive association was found with the BSE 30 index and index of industrial production and wholesale price index.

Key Words: *Bombay Stock Exchange, Capital Market. Index of Industrial Production, Wholesale Price Index.*

INTRODUCTION

A well-recognized stock market has considered an essential part of economic development of country. Performance of the stock market depends on the combination of macroeconomic factors. Stock market facilitates, large number of script associated with huge degree of risk, return and liquidity to domestic as well as foreign investors. Investors has wide range of investment option in stock market which leading more saving, increased competitions inducing risk mitigated technique as well as enhance the health of the country's economy. Substantial growth in micro economic factors was found in last one decade which inducing enhanced national income of our country. As a result, individuals more disposable income was turn into saving which is the base of capital formulation. A message was reflected from various data available that the recent growth of stock market provides to a strong fundamental on the country's economic development. Stock market is considered as a parameter of country's economic development. An efficient stock market is needed for country's economic development. The stock market acts as a bridge in channelizing the funds from the investor and the same is used for built a strong foundation of economic development in the county. Securities price are fluctuate on daily basis on account of influence of a comprehensive group of macroeconomic variables. If a country's economic performing well with an expectation to grow at a full of energy, the stock market is continuously anticipate to reflect the same. Indian capital market emerge in the 19th century and after a long journey now Indian Capital Market is organized fairly integrated, mature and more global and carries huge expectation of the investor. The stock trading in India has mainly been taken in Bombay stock Exchange (BSE) and National stock exchange (NSE).BSE is one of the main trading centers in India inception since 1875. Presently BSE has entitled more than 500 companies.

Index of industrial production (IIP) is calculated by the central statistical organization, government of India and is release on monthly basis. This index show a relatives changes over a time in the volume of production in non-agricultural commodities. It has been serve as an effective tool to measure the trend of current industrial activates and growth in the industrial production.

In a dynamic nature of world price is non-stationary. Wholesale price index is an indicator of price changes of commodities. It is an effective tool to measure and monitor the dynamic movement of prices. It is widely used by the government and other institution to formulating economics polices. The index compiling and release by the office of the economic advisor in the department of industrial policy and promotion ministry of commerce industry.

REVIEW OF LITERATURE

Singh (2014) examined the relationship between macroeconomic variables and Indian stock market. The study was exhibit a significant impact of macroeconomic variables on Indian stock market. The study was found to be a causal relationship from FII to stock market.

Luthra and Mahajan (2014), conducted a study on impact of macroeconomic factors on BSE bankex which include major public and private sector banks listed on BSE. The study was found to be high and positive correlation was exist between macro-economic variables and Sensex.

Vashishtha.et al. (2013), examined the impact of economic growth rates on capital market movement. The study revealed that WPI was highly correlated with S&P BSE Sensex, whereas IIP growth moderately related with S&P BSE index.

Dasgupta (2012), studied the long term and short term relationship between BSE- Sensex and macroeconomic variables. The study showed that there was no short-term unilateral or bilateral causal relationship between BSE Sensex and macro-economic variables.

Geetha et.al (2011), examined the relationship between inflation and stock returns. The study revealed that there were no long term relationship between inflation and stock return.

Ahmed (2008), has conducted a study with an objective to explore the nature of causal relationship between stock prices and the economic variables. The empirical result showed that the movement of stock prices not only influence by macro-economic variables but also one of the causes of movement in macro dimension in the economy.

Naik and padhi (2012), examined the association between BSE sensex and various macro-economic variables. The empirical result showed that the macro-economic indicators and the stock market index were co integrated and a long run equilibrium relationship was exists between them.

OBJECTIVE OF THE STUDY

The present study has been conducted to examine the relationship among macro-economic variables and Indian stock market. The study has also analyzed the impact of macroeconomic variable on Indian stock market.

RESEARCH METHODOLOGY

The present study aims to identify a solution for the problem of estimation of stock price movement which contributes to the capital formation in the country's economic. Therefore an applied cum analytical research design has been used this study. Two explanatory variables such as Industrial production index, wholesale price index and BSE 30 index as a explained variable has been purposefully selected for this study.

In this study, secondary data relating to index of industrial production and wholesale price index has been taken in the monthly frequency and the study period has been considered from april 2010 to march 2014. Data relating to explained variables has been taken monthly BSE 30 index of Bombay stock exchange during the aforesaid period. The data have been collected from various source like RBI website, data based Indian economic and RBI report. To achieve the objectives of the study, Karl Pearson correlation coefficient has been used to find out and study the relationship between explanatory variables and explained variable during the study period and its significance has been tested by t -test. Sofa software package has been used for this purpose.

ANALYSIS AND EXPLANATION

Table: 1 Monthly Index of industrial production and average monthly BSE 30 index during the financial year 2010-11

Year 2010-11/ Month	IIP	Average BSE-30 Index
April	157.8	17678.64
may	156.5	16844.53
June	156.6	17299.75
July	161.3	25217.19
August	156.1	18170.04
September	160.3	19352.85
October	166.6	20249.75
November	158	20163.35
December	175.6	19927.59
January	175.9	19288.541
February	168	18036.61
march	193.1	18456.85

Source: <http://www.investopedia.com/terms/w/wpi.asp> and <http://www.bseindia.com>

The empirical result showed the Pearson's simple correlation coefficient between BSE 30 average index and Index of industrial production (IIP) was .0449, which was found to be significant at 1% level and at 5% level. (calculated value of t=

3.18) and table value of t statistic at 1%= 3.169 and at 5%=2.228)).It implies that there was a very significant positive correlation between BSE 30 average index and IIP. It also confirms that the IIP has positive influence on BSE 30 index in the FY 2010-11.It can be concluded that ,the higher the BIIP ,the higher the BSE 30 index.

Table: 2 Monthly Index of industrial production and average monthly BSE 30 index during the financial year 2011-12

Year 2011-12/ month	IIP	BSE 30 Index
April	166.2	19450.19
May	166.2	33625.9
June	171.4	18319.87
July	167.2	18664.02
August	166.4	16935.14
September	164.3	16694.77
October	158.3	16826.84
November	167.5	16664.47
December	180.3	15960.1
January	177.6	16358.38
February	175.2	17836.32
March	187.6	17415.88

Source: <http://www.investopedia.com/terms/w/wpi.asp> and <http://www.bseindia.com>

The correlation results reveal the negative association between BSE 30 average index and IIP in the FY.2011-12was -.2069 and also very significant at 1% and also at 5 % level. (Calculated value of $t= 3.16$) .It indicate there was significant negative association exist between BSE 30 average index and IIP. It also confirms that, the higher IIP, the lower the BSE 30 index.

Table: 3 Monthly Index of industrial production and average monthly BSE 30 index during the financial year 2012-13

Year 2012-13	IIP	BSE 30 Index
April	164.1	17282.96
May	170.3	16936.23
June	168	16750
July	167.1	17210.19
August	164.7	25252.12
September	163.1	18125.3
October	171.6	26378.87
November	165.8	18672.11
December	179.3	19365.18
January	182	19874.65
February	176.2	19463.72
March	194.2	19147.17

Source: <http://www.investopedia.com/terms/w/wpi.asp> and <http://www.bseindia.com>

The empirical data showed a positive relationship between BSE 30 index and IIP in the F.Y. 2012-13.The positive correlation coefficient (.035874) was found to be significant both at 1% and 5%. It confirms that the IIP was not high influence on BSE 30 index. (Calculated value of $t=3.18$).

Table: 4 Monthly Index of industrial production and average monthly BSE 30 index during the financial year 2013-14

Year(2013-2014)	IIP	Average BSE-30 Index
April	166.5	18835.67
May	166	19967.82
June	164.9	19129.28
July	171.4	19708.14
August	165.4	18641.41
September	167.5	19627.23
October	169.6	20477.38
November	163.6	20638.09
December	179.5	20973.6
January	184	20974.342
February	172.7	20521.34
March	193.3	20814.29

Source: <http://www.investopedia.com/terms/w/wpi.asp> and <http://www.bseindia.com>

The correlation coefficient between BSE 30 average index and IIP was .644322, which found to be significant (t vale was 3.16) at1% as well as at 5%.It implies that there was a very significant positive association between BSE30 average index and IIP. It also confirms that the higher the IIP, the higher the BSE 30 index.

Table 5- Monthly Index of industrial production and average monthly BSE 30 index during the financial year 2014-15.

Year(2014-2015)	IIP	Average BSE-30 Index
April	172.7	25949.26
May	175.3	23750.47
June	172	25703
July	173	25737.09
August	166.2	26057.96
September	171.8	26900.51
October	165.1	26636.13
November	172.1	27919.65
December	185.9	27657.74
January	189.2	28222.15
February	181	28925.86
March	198.2	28775.67

Source: <http://www.investopedia.com/terms/w/wpi.asp> and <http://www.bseindia.com>

The correlation coefficient between BSE 30 average index and IIP was 0.59641, which found to be significant (t vale was 3.16) at1% as well as at 5%.It implies that there was a very significant positive association between BSE30 average index and IIP. It also confirms that the higher the IIP, the higher the BSE 30 index.

Table 6- Yearly Index of industrial production (IIP), Wholesale Price Index (WIP) and BSE 30 index during the financial year 2014-15

Financial Year	BSE 30 Index	WIP	IIP
2010-11	19223.81	149.725	165.5
2011-12	18729	161.877	170.3

2012-13	19538.21	172.63	172.2
2013-14	20025.72	179.415	172
2014-15	26852.96	186.69	176.9

Source: <http://www.investopedia.com/terms/w/wpi.asp> and <http://www.bseindia.com>

Descriptive statistic: From sofa_db.BSE_and_WIP_(2011_15 on 26/07/2015 at 03:35 PM

All data in table included - no filtering

Descriptive statistic.

Results of Pearson's Test of Linear Correlation for "Bse_30_Index" vs "Wip"

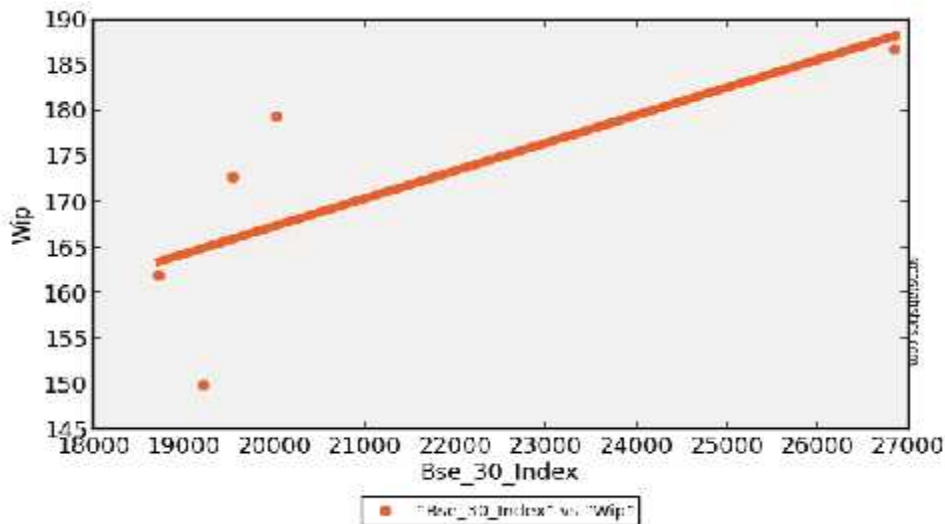
Two-tailed p value: 0.182 ¹

Pearson's R statistic: 0.707

Degrees of Freedom (df): 3

Linear Regression Details: ²

- Slope: 0.003
- Intercept: 106.327



¹ If p is small, e.g. less than 0.01, or 0.001, you can assume the result is statistically significant i.e. there is a relationship.

Note: a statistically significant difference may not necessarily be of any practical significance.

² Always look at the scatter plot when interpreting the linear regression line.

From the above descriptive statistic it has been seen that the correlation coefficient between BSE 30 index and Wholesale price index (wip) was 0.707, which was found to be significant at 1% level. It implies that there was a very significant positive association between BSE 30 index and wholesale price index. It also confirms that, the higher the whole sale price, the higher the BBSE 30 index. The slope indicates if wholesale price index (wip) increased by one unit, BSE 30 indexes will be increased by 0.003 units which were found to be statistically significant at 1% level. It implies that the wholesale price index does not make a notable contribution toward enhance the BSE 30 index.

Descriptive statistic: From sofa_db.BSE_and_IIP_(2011_15) on 26/07/2015 at 03:39 PM

All data in table included - no filtering

Results of Pearson's Test of Linear Correlation for "Bse_30_Index" vs "Iip"

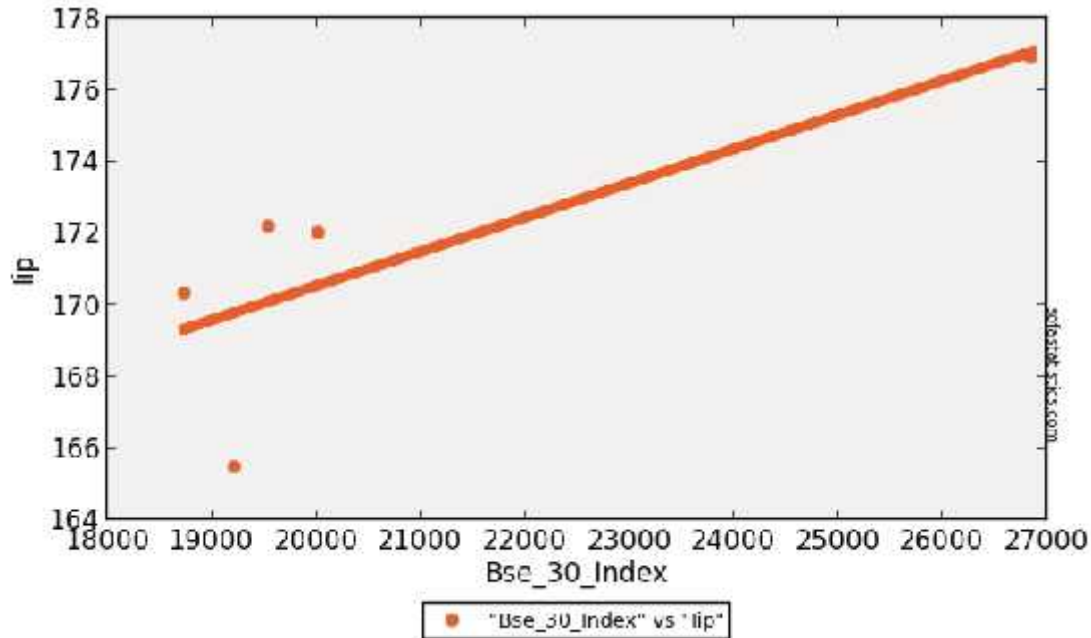
Two-tailed p value: 0.117 ¹

Pearson's R statistic: 0.784

Degrees of Freedom (df): 3

Linear Regression Details: ²

- Slope: 0.001
- Intercept: 151.502



¹ If p is small, e.g. less than 0.01, or 0.001, you can assume the result is statistically significant i.e. there is a relationship. Note: a statistically significant difference may not necessarily be of any practical significance.

² Always look at the scatter plot when interpreting the linear regression line.

The above data showed highly significant positive association exists (0,784) among BSE 30 index and index of industrial production (iip) during the study period, which conforms that BSE 30 index was highly influenced by IIP. But the slope indicate if Index of industrial production increase by one unit, BSE 30 index will be increased by 0.001 unit, which was found to be statistically significant at 1% level. It confirms that index of industrial production have a very little influence on the BSE 30 index.

CONCLUSION

The study concluded that Indian stock market has significant influence of wholesale price index and index of industrial production .A significant positive association was exists among the BSE 30 index and index of industrial production throughout the study period except in the F.Y.2011-12, where a significant negative association was notice between the BSE 30 index and index of industrial production. Whole sale price index was associated positively with the BSE 30 index during study period. The slope of both the regression line indicates that Indian stock market has significant little influence of wholesale price index and index of industrial production.

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