

Testing Semi-Strong Form of Efficient Market Hypothesis in Relation to the Impact of Foreign Institutional Investors' (FII's) Investments on Indian Capital Market

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Abstract—This paper tests the efficiency of the Indian Capital Market in its semi-strong form of Efficient Market Hypothesis (EMH). The efficiency is tested in relation to the impact of Foreign Institutional Investors (FII's) largely on the Indian Capital Market. For the purpose, two major stock indices viz; National Stock Exchange (NSE) and Bombay Stock Exchange (BSE) that represent the Indian Capital Market have been taken. Monthly averages of NSE & BSE and Monthly FII's net investment have taken over the period 1st April 2000 to 30th April 2010 in order to test the efficiency of Indian Capital Market. Karl-Pearsons' Product Moment Correlation Coefficient (Simple Correlation) and linear regression equations have been used to analyze and determine the degree and direction of the relationship between the variables involved. The results suggest that the FII's do have significant impact on Indian Capital Market, which leads to the conclusion that Indian Capital Market is semi-strong form efficient.

Index Terms—Market Efficiency, EMH, NSE, BSE, FII

I. INTRODUCTION

The concept of stock market efficiency came into vogue after the work done by Bachelier in his PhD thesis in 1900; "The Theory of Speculation" became popular. Fama (1965)¹ described efficient market as a fair game model where the value of expected return was zero.

An efficient market can be categorized as the market in which stock prices incorporate and reflect all available information whether it is past or present. This implies that in an efficient market, prices follow a random walk model. As the information is easily accessible to all, there is no scope for anyone to earn abnormal return. The efficiency of a security market is subject to a host of factors. These include the goodwill of the issuer company, the characteristics of the security to be traded, the characteristics of the market where the securities are to be traded, the level of technology to be used by analysts for

scrutinizing the information regarding trading costs etc.²

FII or the Foreign Institutional Investors are basically referred to investors who are organized in the form of an institution or entity and indulge in investing funds in the financial market of a foreign country, i.e. different from where the entity was originally registered or incorporated.³

In India, FII can invest their funds in the country only under the norms prescribed by Security and Exchange Board of India (SEBI). FII's investment includes mutual funds, investment trust, asset management company, nominee company, bank, university funds, endowments, foundations, charitable trusts, charitable societies, overseas pension funds etc.

It was in July 1991 that the New Economic Policy was unveiled that ushered in an era of Liberalization Privatization and Globalization (LPG) for the Indian economy. In September 1992 and 1993, India opened its stock market for foreign investors, which facilitated receipt of funds from foreign institutional investors in the form of equities. The enactment led to sweeping changes where various restrictions imposed on investments by the foreign investors in India were eased. SEBI opened a new path for the foreigners to invest in India by simplifying many terms and conditions due to which a large number of foreign investors flocked towards India.⁴

II. EFFICIENT MARKET HYPOTHESIS (EMH): THE CONCEPT

The Efficient Market Hypothesis is an investment theory, which came into prominence in late 1960's. Prior to that there was a general assumption that the stock market especially that of the United States and United Kingdom were inefficient. This theory implies that it is impossible for anyone to earn the profit above average return by trading in the stock market. This means that as all the new information is already reflected in the current stock prices no investor could be able to outperform the market. Fama (1970) classified EMH in its three forms-

Weak Form of EMH stipulates that current stock

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¹ Fama, Eugene (1965). "The Behavior of Stock Market Prices". *Journal of Business* 38: 34-105

² Mandal. Nivedita and Rao, N. Krishna (2010), "Semi-Strong Form of Indian Stock Market Efficiency: An Empirical Study". Vilakshan, XIMB Journal of Management, Vol. VII, Issue No. 1, March 2010

³ "Foreign Institutional Investor", Retrieved from http://en.wikipedia.org/wiki/Foreign_Institutional_Investor (29 July, 2010)

⁴ Aravind, T. N, et al. (2008) "FII's Influence in Indian Stock Market", Retrieved from <http://www.coolavenues.com/know/fin/subby-stock-1.php> (18 October, 2008)

prices reflect all historical information it is not possible for anyone to utilize past data for predicting future prices and earning abnormal returns.

Semi-Strong Form of EMH stipulates that the current stock price absorbs not only the historical information but also the information that is publicly available. Hence, new information cannot be used by anyone for earning abnormal returns.

Strong form of EMH stipulates that current stock prices reflect all available information whether it is public or private, and no one can earn abnormal return by using private or insider's information.

III. LITERATURE REVIEW

A. Conceptual Review

It is observed by the Researchers that the majority of the tests on semi-strong form of EMH have been conducted on major announcement events like stock split announcement, bonus issue announcement, dividend announcement etc. These are expected to provide positive vibes to the market as they have a predictable impact on stock prices. The second aspect taken up for testing the Semi-Strong form is directed towards testing the performance of mutual funds and brokerage houses. It is presumed that the fund managers and the brokers have access to private information, which gives them the edge to beat the market. However, most of the research papers on mutual funds suggest that the stocks recommended by brokerage houses have actually not performed better than randomly chosen stocks. In fact it is found that randomly chosen stocks have actually performed better than the mutual funds⁵.

B. Subjective Review

Many studies have been made on testing semi-strong form of EMH in relation to event announcement like dividend, bonus, right issue, option listing, stock split, block trading, annual earning etc. Critical reviews of significant studies by the Researchers are as follows-

Leuthold, Raymond M. and Hartmann, Peter A. (1979)⁶, conducted a semi-strong form test of the efficiency of the Live- Hog futures market by employing econometric forecasting model. The study concluded that the live-hog futures market has not performed efficiently consistently. Also the presence of objectionable inaccuracies has been observed, thereby supporting the view that live-hog futures market is inefficient.

Ormos, Mihaley (2002)⁷, empirically tested the efficiency of Hungarian Capital Market in its semi-strong and strong form. The study focused to examine whether the Hungarian Capital Market was efficient in the semi-strong form. The investigation was based on the capital market

data over the period 1991 to 2000, which was analyzed by employing event study. The study concluded that strong form of efficiency of capital market does not completely hold true, thereby supporting that Hungarian Capital Market is semi-strong form efficient.

Vandana, Gupta (2003)⁸, tested the semi-strong efficiency of the Indian Stock market over the period 1995 to 2000 by employing event study. The study involved a sample of 145 bonus issues, in order to examine the announcement effects of bonus issues on equity share prices in India. The study concluded that the Indian Stock market was semi-strong form efficient.

Mishra, A.K (2005)⁹, examined the reaction of the stock price to the information content of bonus issues over the period 1998 to 2004. For the purpose of the study samples of 46 stocks listed on the NSE and BSE of India were analyzed by employing event study using 180-day event window. It was found that stocks show abnormal return before eight or nine days of announcement, thereby supporting the evidence that Indian Stock market is efficient in its semi-strong form.

Hadi (2006)¹⁰, threw light on the types of Efficient Market Hypothesis. He undertook a detailed research that tested weak, semi-strong and strong forms of market efficiency. It is observed that accounting based research generally assumes that market is efficient in semi-strong form. The reason behind is that the financial reports are considered public information once they have been released in the market. He provided empirical evidence from the Jordanian market, which suggested that the security market reacted with mixed signals on releasing profitability, liquidity and solvency information.

Iqbal and Mallikarjunappa, T. (2007)¹¹ tested market reaction to quarterly earnings announcement of 149 companies listed on the Bombay Stock Exchange for September 2001 by employing both parametric and non-parametric tests. It is observed that during event window, runs test are not significant at 5% level, which signifies that abnormal returns occur randomly. On the other hand, t-test rejects the existence of abnormal returns on daily basis, which provides an opportunity to beat the market and earn abnormal returns. The study concludes that Indian stock market is not efficient in semi-strong form.

Yalama, Abdullah and Selik, Sibel (2008)¹² investigated semi-strong form efficiency in Istanbul Stock Exchange Market (ISE-100), Foreign Exchange Market (FEM) and Inter-bank Money Market (IMM) in respect to changes in Currency and Circulation (CIC). The data

⁸ Vandana, Gupta. "Announcement Effects of Bonus Issues on Equity Prices: The Indian Experience". Indian Journal of Finance and Research, Year:2003, Volume:13, Issue:1 and 2.

⁹ Mishra, A.K. "An Empirical Analysis of Market Reaction Around the Bonus Issues in India". Bonus Issue Paper, 2005.

¹⁰ Hadi. "Review of Capital Market Efficiency: Some Evidence from Jordanian Market". International Research Journal of Finance and Economics, Year: 2006, Issue: 3, pp 13-26.

¹¹ Iqbal and Mallikarjunappa, T. "Market Reaction to Earnings Information: An Empirical Study". AIMS INTERNATIONAL, Volume 1, Number 2, May 2007, pp 153-167.

¹² Yalama, Abdullah and Selik, Sibel. "Financial Market Efficiency in Turkey: Empirical Evidence from Toda Yamamoto causality Test". European Journal of Economics, Finance and Administrative Sciences. Year: 2008, Issue: 13.

⁵ FINC 490-04, Seminar in Finance, Fall 2002. Lecture #2, Investments, September 24, "The History of Market Efficiency Concepts".

⁶ Leuthold, Raymond M. and Hartmann, Peter A. "A semi-strong Form Evaluation of the Efficiency of the Hog Futures Market". American Journal of Agricultural Economics, Vol.61, No.3, (Aug 1979), pp 482-489.

⁷ Ormos, Mihaley. "Semi-Strong Form of Market Efficiency in the Hungarian Capital Markets". International Conference "An Enterprise Odyssey: Economics and Business in the New millennium" 2002, graduate School of Economics and Business, University of Zagreb, Croatia, 2002, pp 749-758.

consist of the daily frequency over the period 1990-2008 which was analyzed by employing Toda Yamamoto Causality method. The study concludes that there is the causality relationship running from CIC to FEM and CIC to IMM. However, there is no causality relationship running from CIC to ISE-100. This result implies that in Turkey money market is semi-strong form efficient while capital market is not.

Dhar, Satyajit and Chhaochharia, Sweta (2008)¹³ analyzed the impact of the information relating to the announcement of stock split and bonus issue on stocks listed on National Stock Exchange (NSE) by employing event study. Both the events, that is stock split and bonus issue reflect significantly positive announcement effect. For bonus issues, the abnormal return was about 1.8% and for stock splits it was about 0.8%. Thereby the study supports the view that Indian Stock Market is efficient in semi-strong form.

Pichardo, Christine and Bacon, Frank (2009)¹⁴, examined the effect of Lehman Brother's Bankruptcy on the overall market by taking stock price's risk adjusted rate of return for 15 selected brokerage firms. Statistical tests proved that the bankruptcy had a negative impact on stock price's risk adjusted rate of return for the 15 firms, which supports the semi-strong market efficiency theory. Even after the event, bankruptcy continued to affect the market.

Some of the studies have also been made on the FII's impact on Indian Capital Market separately i.e; not in the context of testing semi-strong form of EMH only analyzing the influence of FII's on Indian Capital Market.

IV. STATEMENT OF PROBLEM

The concept of Efficient Market Hypothesis is a vital aspect of Efficient Market Theory. Since new information is publicly available in an unbiased manner it is not possible to earn excess return on the basis of that information. In this paper the Researchers make an earnest attempt to study the relationship between FII's Investment & Indian Capital Market. For the purpose, two major stock indices viz; NSE and BSE have been selected. There are certain other significant factors also, which influence capital market like inflation, government policies, budgets, economic factors etc. However, in this paper only one independent variable i.e. FII's investment has been taken. According to a report by Emerging Markets Private Equity Association (EMPEA), India alone received one-fifth of the US\$ 22.1 billion private equity (PE) investments out of the total which were received by emerging economies in the financial year 2009¹⁵. This paper analyses the semi-strong form of Efficient Market Hypothesis in the context of FII's impact on Indian Capital Market which in the recent years has

become a key and prominent factor.

V. RESEARCH GAP

Many researches have been made on testing the semi-strong form of EMH of Indian capital market in the context of event announcement like dividend, bonus, right issue, option listing, stock split, block trading, annual earning etc. Studies on the impact of Economic Variables on Stock market have also been made, but very few studies have been made on the FII's impact on Indian Capital Market. Ramachandran (1985)¹⁶, Vandana, Gupta (2003)¹⁷ and Mishra, A.K (2005)¹⁸ directed their study toward the reaction of the market on bonus announcement while Dhar, Satyajit and Chhaochharia, Sweta (2008)¹⁹ studied the aspects related to stock-split and bonus issue. Yalama, Abdullah and Selik, Sibel (2008)²⁰ in his study investigated the issues related to Currency and Circulation (CIC).

None of the study reviewed by the Researchers is in context to testing the semi-strong form efficiency of Indian Capital Market in relation to the impact of FII's investment on Indian Capital Market. Hence, the present study attempts to analyze the FII's influence on Indian Capital Market in the light of testing semi-strong form of Efficient Market Hypothesis.

VI. SCOPE

The present study tests the market efficiency of Indian Capital Market in its semi-strong form of Efficient Market Hypothesis in the context of impact of FII's investment on Indian Capital Market. With India emerging to be one of the leading destinations for Foreign Investments, the role and importance of FII's in the last few years has increased manifold as a result of globalization of the markets. This study covers the period of ten years i.e.; from 1st April 2000 to 31st March 2010. The FII's are emerging to be a key driver in the movement of stock index and it is imperative to study the relation in order to develop an understanding about the efficiency of the market. In the last decade FII had a significant impact on the unprecedented growth in the Sensex and also in its downfall due to the financial recession of 2007. An attempt is made to carve out a clear picture of the impact of FII's investment on Indian bourses and also determine the market trend relating to inflows and outflows of FIIs.

¹⁶ Ramachandran, J."Behavior of Stock Prices:Trading Rules, Information and Market Efficiency". FPM theses, 1985, IIM Ahmedabad.

¹⁷ Vandana, Gupta. "Announcement Effects of Prices:Trading Rules, Information and Market Efficiency". FPM theses, 1985, IIM Ahmedabad. Bonus Issues on Equity Prices: The Indian Experience". Indian Journal of Finance and Research, Year:2003, Volume:13, Issue:1 and 2.

¹⁸ Mishra, A.K. "An Empirical Analysis of Market Reaction Around the Bonus Issues in India". Bonus Issue Paper, 2005.

¹⁹ Dhar, Satyajit and Chhaochharia, Sweta. "Market Reaction Around the Stock Splits and Bonus Issues: Some Indian Evidence". Working Paper Series, January 24, 2008.

²⁰ Yalama, Abdullah and Selik, Sibel. "Financial Market Efficiency in Turkey: Empirical Evidence from Toda Yamamoto causality Test". European Journal of Economics, Finance and Administrative Sciences. Year: 2008, Issue: 13.

¹³ Dhar, Satyajit and Chhaochharia, Sweta. "Market Reaction Around the Stock Splits and Bonus Issues: Some Indian Evidence". Working Paper Series, January 24, 2008.

¹⁴ Pichardo, Christine and Bacon, Frank. "The Lehman Brother's Bankruptcy: A test of Market Efficiency". Academy of Accounting and Financial Studies, Vol.14, No.1, New Orleans 2009.

¹⁵ "Foreign Institutional Investors" Retrieved from <http://www.ibef.org/economy/foreigninvestors.aspx> (July 2010).

VII. OBJECTIVES

1. To assess the growth and development of the Indian Capital Market
2. To test the efficiency of the Indian Capital Market
3. To develop an understanding about the concept and role of Foreign Institutional Investors (FII's) in India..
4. To study the relationship between FII's investment and Indian Capital Market.
5. To test the existence of semi-strong form of Efficient Market Hypothesis in Indian Capital Market in the context of FII's investment in India.

VIII. HYPOTHESES

A. Testing the impact of FII's investment on Indian Capital Market

Null Hypothesis (H_0): FII's investment has significant impact on the Indian Capital Market.

Alternate Hypothesis (H_a): FII's investment has no significant impact on the Indian Capital Market.

B. Testing the relation between BSE Sensex and S&P CNX Nifty with FII's investment

Null Hypothesis (H_0): There is a relation between the movement of BSE Sensex and S&P CNX Nifty with FII's investment.

Alternate Hypothesis (H_a): There is no relation between the movement of BSE Sensex and S&P CNX Nifty with FII's investment.

C. Testing the efficiency of Indian Capital Market in its semi-strong form

Null Hypothesis (H_0): Indian Capital Market in relation to FII's investment is Semi-Strong Form Efficient.

Alternate Hypothesis (H_a): Indian Capital Market in relation to FII's investment is not Semi-Strong Form Efficient.

IX. DATA COLLECTION METHOD

The data analyzed in this paper has been collected from the reliable source i.e; from the Handbook of Statistics and Monthly Bulletin published by the Reserve Bank of India (RBI). The sample consists of monthly averages of two major stock indices of India viz; BSE Sensex and S&P CNX Nifty, and monthly FII's Net investment in India as on 1st April 2000 to 30th April 2010. The data collected is

compiled in the form of tables and graphs and scrutinized through statistical tools and techniques.

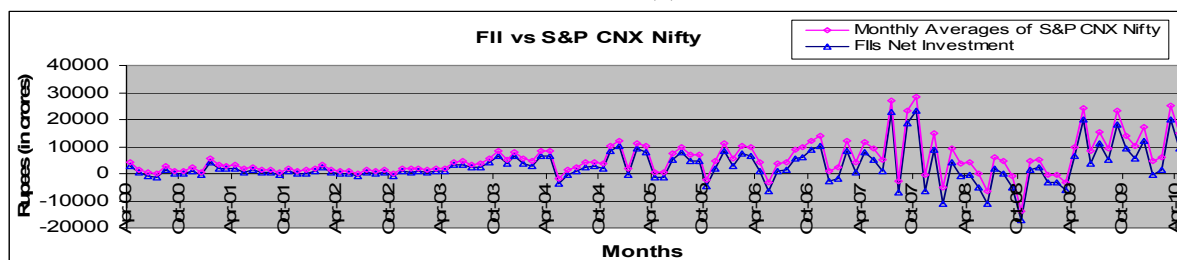
X. GRAPHIC ANALYSIS AND INTERPRETATION

The Charts and Graphical analysis are based on Table-1(refer supplementary information).

Graphs are the best medium through which we can show the trends of the market. Here with the help of the graphs the Researchers have analyzed the comparative trend of FII's investment with the two major stock indices of Indian Capital Market i.e; Sensex and S&P CNX Nifty. These graphs also show the relationship between all the three variables i.e. NSE, BSE and FII. Through this we can analyze the impact of FII's investment on Indian Capital Market.

The figures in Table - 1 have been depicted in the Chart 1(a), Chart 1(b) and Chart 1(c). From the Charts 1(a), 1(b) and 1(c) we can analyze the comparative trend of FII's investment and Indian Capital Market for the period 2000-2010. From the Charts we can see that there is an increase in net investment till 2003-04 due to which Sensex and Nifty also rises, then there was a sharp fall in the beginning of 2004. After that there were many fluctuations in the graph till 2006, but there was a steep increase in net investment in the year 2007-2008. This was the best period in Indian Stock Market where stock prices were at a record high and the market was bullish. The biggest fall in the stock markets occurred in 2007-2008 followed by the global recession that had its roots in USA. The net investment was negative due to which there was a steep fall in Sensex and Nifty. The market was volatile and the reduction in the FII's investment was one of the causes of volatility. In 2008, FIIs had pulled out around Rs 52,987 crore from the Indian stock market and the withdrawal led to a fall in the stock market by approximately 51 percent. After that from the beginning of April 2009 the graph shows an increasing trend with certain fluctuations. According to the data maintained by Securities and Exchange Board of India (SEBI), overseas investors have put in Rs 15, 638.10 crore, that is about one third of last year's outflows so far in 2009. In Chart -1(a) an interesting co-relation can be observed between FII and Sensex as Sensex rises with the increase in FII inflows and falls with the decrease in FII inflows. Also the gap between the FII and Sensex is very low indicating the huge impact and contribution of FII in the movement of the BSE Sensex.

Chart - 1(a)



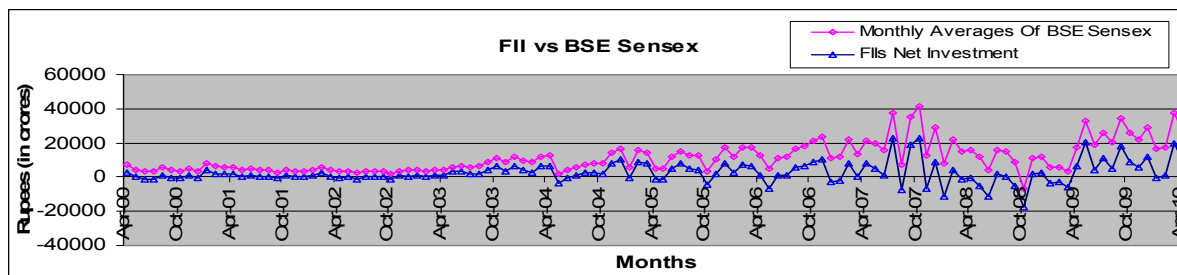
Source: Table - 1.

Chart - 1(b) also shows co-relation between FII's investment and S&P CNX Nifty as the index of Nifty rises with the rise in FII's investment and falls with the fall in

FII's investment. Moreover it is seen that the two lines are almost overlapping each other highlighting the role of FII in the movement of Nifty. This shows that the FII's investment is having a significant effect over the indices of

Bombay Stock Exchange i.e; Sensex.

Chart – 1(b)

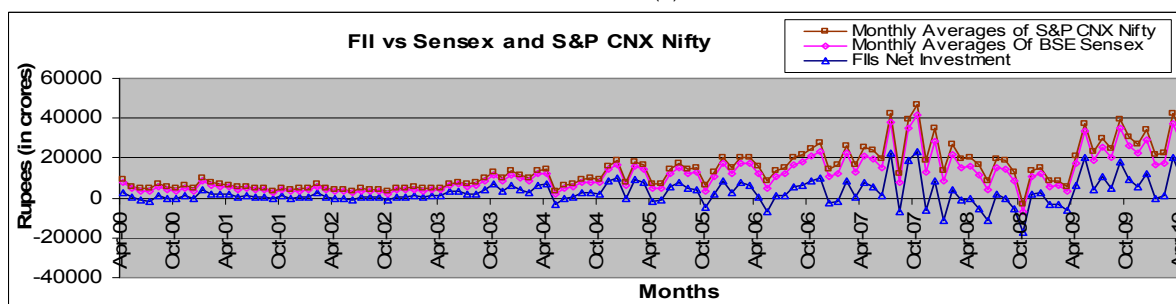


Source: Table – 1

Chart 1(c) shows the relationship of FII’s investment with the BSE Sensex and S&P CNX Nifty. From this it can be seen very clearly that the peaks and the troughs of FII coincide with the peaks and troughs of Sensex and S&P CNX Nifty. From all this it can be analyzed that the FII influence the Indian capital market. The graphical analysis indicates the relation is positively correlated and all three appear to be moving in tandem. The rise and peak of all the three curves appear closely related. While the curves for BSE and Nifty are overlapping each other that of FII

investments seems to be following the same pattern or trend. It highlights the significant role and proportion of FII on the movement of stock market and also raises certain questions on the basis of past performance. The role is so prominent that withdrawal leads to a massive fall and increase in investment leads to a corresponding rise. Hence, our markets seemed to be reliant and dependent on FII’s raising questions about stability and reliability from the point of view of domestic investors.

Chart – 1 (c)



Source: Table – 1

XI. HYPOTHESES TESTING METHODOLOGY

The present paper studies the Impact of FII’s investment on Indian Capital Market. For this purpose the two major stock indices of Indian Capital Market viz; NSE (National Stock Exchange) and BSE (Bombay Stock Exchange) have been taken. There may be other factors also on which capital market may depend like inflation, government policies, budgets, FDI, economic and political conditions etc. But in this study only one variable i.e. FII have been selected in order to study its impact on Indian Capital Market. In this paper the concept of correlation and regression is being. Moreover, z-test is being employed here (as the numbers of observations are more than 30). The sample data consists of the monthly averages of Sensex and S&P CNX Nifty and the net investment of FII’s on monthly basis. The total number of observations of all the three variables are 120 starting from 1st April 2000 to 31st March 2010, in which FII is taken as an independent variable whereas stock indices has been taken as dependent variable. The data has been taken from the Handbook of Statistics on the Indian Securities Market. This is an empirical study in which the influence of FII’s investment has been analyzed through correlation and regression.

XII. ANALYSIS AND FINDINGS ON THE BASIS OF HYPOTHESES FORMULATED

This study employs the technique of correlation and regression between FII & Sensex and FII and S&P CNX Nifty in order to test the semi-strong form of market efficiency in the context of FII’s impact on Indian Capital Market. First of all, the relationship between these three variables viz; NSE, BSE and FII should be analyzed.

A. Scatter Matrix

With the help of the scatter matrix the degree and direction of relationship between the variables can be shown.

Figure 1(refer supplementary information) depicts the Scatter Matrix highlighting the degree of relationship between the three variables taken up for study by the Researchers, viz, FII, BSE Sensex and S&P CNX Nifty. It is observed by the Researchers that the relationship of FII with BSE and NSE is not so linear. It appears to be scattered whereas in case of BSE and NSE a strong linear relationship is evident (i.e. they are highly linearly correlated). It depicts the absence of linear relationship between FII and Indian Capital Market. However, it cannot be interpreted as a case where no relationship exists

between the variable under examination. One of the factors responsible for this may be the sample taken up for the study. In the present study, data has been taken on monthly basis and it may be so that the data on daily basis may provide more positive result.

B. Correlation, Coefficient of Determination and Z-value

Correlation and regression is being calculated in this study in order to analyze the result and z-test is being employed here in order to test the statistical significance of the results calculated which is depicted in Table 3, Table 4 and Table 5.

In Table- 3 Karl-Pearsons' Product Moment Correlation is being calculated which is a simple correlation and shows the relationship between one dependent variable and one independent variable. Here, FII is taken as an independent variable and Sensex and S&P CNX Nifty are being taken as dependent variables, which are taken one by one for the purpose of calculation. It highlights the coefficient of correlation, coefficient of determination and significance level between FII & Sensex, FII and S&P CNX Nifty and Sensex and S&P CNX Nifty.

According to the results depicted in Table 2 during the years from 2000 to 2010 it is found that the correlation between **Sensex and FII** is 0.227 that indicates a low degree of positive correlation. The coefficient of determination is at 0.0516 that signifies that 5.165% of the variance in the variables is explained by this relationship. The value at 5% significance level is calculated as 0.667, which lies within the critical values of z at ± 1.96. Hence the value is neither less nor more than the critical value,

which leads to acceptance of the Null Hypothesis and rejection of the Alternative Hypothesis. Hence there is a relation between FII and BSE Sensex and FII's have a significant impact on the movement of BSE Sensex.

Table 3 further examines the relation between the **S&P CNX Nifty & FII** that gives the coefficient of correlation (r) at 0.225, which is again a low degree of positive correlation. The coefficient of determination (r²) is at 0.0506 which implies that 5.06% of the variance is explained by this relationship. The z-value is computed at -0.011 that is within the critical value limit of ± 1.96. The calculated value being not more or less than the critical value leads to acceptance of Null Hypothesis and rejection of Alternative Hypothesis. Hence there is a relation between the movement of S&P CNX Nifty and FII. FII have a significant impact on S&P CNX Nifty.

It is further observed in Table 3 that the correlation coefficient (r) between **BSE Sensex and NSE Nifty** is found to be 0.999 that is a very high degree of positive correlation. The coefficient of determination (r²) is worked out as 0.998 that indicates the relationship explains 99.8% of changes in the variables examined. The z-value is calculated as 0.673 that is within the critical value limit of ± 1.96. The calculated value is neither less nor more than the critical value which leads to acceptance of the Null Hypothesis and rejection of the Alternate Hypothesis. Hence there is a definite relation between the movement of **BSE Sensex and NSE Nifty**.

TABLE – 3KARL-PEARSONS' PRODUCT MOMENT CORRELATION COEFFICIENT (2000-2010)

	Indices	Coefficient of Correlation (r)	Coefficient of Determination (r ²)	Z Value (Significance at 5% level)
1	Sensex & FII	0.227	0.0516	0.667
2	S&P CNX Nifty & FII	0.225	0.0506	-0.011
3	Sensex and S&P CNX Nifty	0.999	0.998	0.673

Source: Compiled and Calculated from Appendix I.

Table 4 highlights that there is no linear relationship between the variables. It is observed that the value of the slope or the beta coefficient is 0.191 signifying that for every unit change in X that stands for FII there is a 0.191 units change in Y or BSE Sensex. On the other hand the intercept or a is abnormally high at 8102.05. It means that there are a host of other factors, which have a strong role in the movement of BSE Sensex. The impact of FII on the movement of BSE Sensex is very low and it is not much affected by it. The other factors might be the macro or micro factors relating to the listed companies or the domestic and global economy as a whole. The significance value is calculated as 0.013, which is less than the critical value of 0.05. It leads to acceptance of the Null Hypothesis and rejection of the Alternative Hypothesis. Hence there is an impact of the FII on the movement of the BSE Sensex.

Intercept (a)	8102.05	499.606	0.000
Slope (b)	0.1	0.075	0.013
	91		

Source: Compiled and Calculated from Appendix I.

Table 5 highlights that there is no linear relationship between the variables analyzed. It is observed that the value of slope or b is 0.055, which means that for every unit change in FII the value of S&P CNX Nifty is moved by 0.055 that is extremely low. On the other hand the intercept or a, is again very high at 2460.485 indicating the role of other factors in the movement of Nifty. It means that if the value of FII is zero then the value of NSE or Nifty would be affected by 2460.485 units. It signifies the role of underlying macro and micro factors as in the case of BSE Sensex. The significance value is calculated at 0.014, which is less than the critical value of 0.05. Again it leads to the acceptance of Null Hypothesis and rejection of Alternative Hypothesis. Hence there is an impact of the movement of FII on the movement of Nifty Index.

TABLE 4 REGRESSION ANALYSIS OF BSE SENSEX ON FII'S

Linear model	Values		Significance (p-value=0.05)
	Values	Std Error	

TABLE 5 REGRESSION ANALYSIS OF S&P CNX NIFTY ON FII'S

Linear model	Coefficients		Significance (p-value=0.05)
		Std Error	
Intercept (a)	2460.485	144.860	0.000
Slope (b)	0.055	0.022	0.014

Source: Compiled and Calculated from Appendix 1.

It is observed that both the tables i.e. Table 4 and Table 5 support the Null Hypothesis and reject the Alternative Hypothesis. It leads to the conclusion that FII's investment have a significant impact on Indian Capital Market and Indian Capital Market is semi-strong form efficient. Though the quantum of the effect is very low in the cases of both BSE and NSE Sensex, the effect is slightly more pronounced in the case of BSE Sensex.

The above discussion implies that FII's investment have a significant impact on the indices of both the stock exchanges NSE and BSE. This significant relationship between all the three variables (used in this study) is also studied above by depicting graphs. It is hence inferred by the Researchers that with every movement in FII's investment there is an instant reaction in the Indian Capital Market that makes it impossible for any investor to earn abnormal return taking advantage of the activities held in FII's investment. This leads to the acceptance of the third Null Hypothesis that Indian Capital Market is semi-strong form efficient and the Alternate Hypothesis that Indian Capital Market is not semi-strong form efficient is being rejected.

XIII. CONCLUSION

It is observed by the Researchers here, on the basis of the data analyzed, that there is a significant relation between the movement of FII and the two major stock exchanges of India that is the BSE and NSE. However the coefficient of correlation is a low degree of positive correlation indicating that the effect is not very strong. It is also observed on the basis of the Scatter Matrix that the relation between FII and BSE and also FII and NSE is not a linear relation. It does not imply that the FII movement has no effect on BSE and NSE. It simply means that there is high degree of fluctuations in the value of all the three variables that is FII, BSE and NSE. The analysis of the data based on correlation and regression techniques leads to the conclusion that the Null Hypotheses in all the three cases is accepted. Hence there is a relation between the movement of BSE and NSE with FII. Also Capital Market in relation to the FII's investment is not semi-strong form efficient), as with every action held in the FII's investment there is an instant reaction over the BSE and NSE because of which no investor will be able to outperform the market i.e. cannot earn abnormal return. The study concludes that the FII's investment has significant impact on Indian Capital Market and the Indian Capital Market is Semi-strong form efficient in relation to the impact of FII's investment on Indian Capital Market. At the same time it is seen that the value of the intercept is very high where the regression analysis on BSE and NSE is done. It indicates a strong play of other factors in the movement of the stock exchanges. The factors might be micro that is relating to the profitability

and operations of the listed companies or the domestic economies health. The macro factors in the form of global demand and supply and also the parameters relating to the world economy has an effect on the movement of the stock indices. Post liberalization the Indian economy is strongly integrated to the world economy and there is a definite relation between the two. While exploring the impact of FII it should be kept in mind that FII are fair weather friends and the greater impact they have on the movement of our stock exchanges the more exposed we are. It definitely boost the exchange with an inflow of funds during boom time but it might be a major factor causing the stock exchanges to plunge during depression as it was seen in the financial recession of 2007. Hence it is concluded that the role and effect of the FII on the Indian economy should be duly monitored and regulated by government agencies as our economy is still in the developing stage. It is imperative to ensure that the domestic investors are protected from the established foreign players.