EFFECT OF FIIS AND FOREIGN EXCHANGE ON INDIAN STOCK MARKET

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ABSTRACT

India attracts a large sum of FIIs (Foreign Institutional Investors) every year. These foreign investments have a remarkable impact on Indian economy. The relationship of foreign exchange and FIIs with stock market is important because international reserves accumulation has been the preferred policy recently adopted by developing economies to achieve financial stability. Indian Stock Market, which is one of the indicators of the economic status, is also being affected by the foreign investments made and which can be made effect with the exchange rate. Present study investigates the impact of Net FII flows and Foreign Exchange Rate on Indian Stock Price Movements (BSE Sensex and CNX Nifty) in India, using monthly data from January 2008 to September 2016. The result shows that there is positive correlation between all the variables under study. The unit root test was applied to determine stationarity of the time series data and then by applying the Granger Causality Test. The result represents that foreign exchange and FIIs of India has positive impact on BSE-Sensex and CNX-Nifty. There is bi-directional Granger Causality between BSE-Sensex, CNX-Nifty and US Dollar. There is no causal relationship between CNX-Nifty and Pound but uni-directional causality between BSE-Sensex and Pound. There is bi-directional Granger Causality between BSE-Sensex and FII flows but uni-directional causality between CNX-Nifty and FII flows.

Keywords: FIIs, foreign exchange, BSE-Sensex, CNX-Nifty

I. INTRODUCTION

With the globalization of capital markets and liberalization the capital account, investors would be expected to diversify their portfolios across currencies and national stock markets. Since exchange rate risk and its association with the local stock market is an important component of the overall portfolio risk, this trend can be expected to link the domestic stock market and the forex market closely associated.

Foreign Institutional Investors (FII) means an institution established or incorporated outside India which proposes to make investment in securities in India. They are registered as FIIs in accordance with Section 2 (f) of the SEBI (FII) Regulations 1995.[1] The international capital flow such as direct and

[1] http://www.sebi.gov.in/acts/act07a.html

portfolio flows has huge contribution to influence the domestic economic behavior as well as domestic saving trends of the countries significantly.

Foreign exchange market in India operates under the Central Government of India and executes wide powers to control transactions in foreign exchange. The foreign exchange management act 1999 or FEMA regulates the whole foreign exchange market in India.

Large number of studies suggests that the macroeconomic factor has a significant effect on the stock market capitalization such as gross domestic product, exchange rates, interest rates, current account and money supply (Kurihara, 2006; Ologunde et al., 2006). Many factors, such as enterprise performance, dividends, stock prices of other countries, gross domestic product, exchange rates, interest rates, current account, money supply, employment, etc. have an impact on daily stock prices (Kurihara, 2006: p.376).

India has emerged as one of the strongest performers in terms of deals related to mergers and acquisitions (M&A). According to data from Thomson-Reuters, total M&A deals involving Indian companies grew by 82 per cent to US$ 27 billion during January to June 2016, which is the highest in the first six months in any year since 2011, led by a four and a half time increase of Indian acquisitions abroad at US$ 4.5 billion.[2]

Exchange rates can affect stock prices not only for multinational and export-oriented firms but also for domestic firms. For a multinational company, changes in exchange rates will result in an immediate change in value of its foreign operations as well as a continuing change in the profitability of its foreign operations reflected in successive income statements. Domestic firms can also be influenced by changes in exchange rates since they may import a part of their inputs and export their outputs. Also, fundamentalist investors have taken into account these relationships to predict the future trends for each other (Phylaktis and Ravazzolo, 2005; Mishra et al., 2007; Nieh and Lee, 2001; Stavarek, 2005).

Economic theory suggests that foreign exchange changes can have an important impact on the stock price by affecting cash flow, investment and profitability of firms, there is no consensus about these relationship and the empirical studies of the relationship are inconclusive (Joseph, 2002; Vygodina, 2006).

The purpose of the present study is to explore the effect of foreign institutional investments and foreign exchange rate on Indian stock market. The main focus of this study is to identify the relationship between all variables and any cause between all variables. The rest of the paper is organized as review of literature, the data and methodology used in analysis, the empirical results and conclusion.

[2] http://www.ibef.org/economy/foreign-institutional-investors.aspx

II. REVIEW OF LITERATURE

The followings are the few studies that undertakes by different researcher in the past to study the existence of a relationship between stock prices, inflow of FIIs and exchange rate has received considerable attention as well as impact of stock price movement, FIIs inflow and exchange rate.

Aswini A. and Mayank Kumar (2014) has identified that there was a high correlation between FII flow and Indian stock market in a longer span but there was a very low correlation between FII flow and Indian Stock market in short term investment. The impact was measured with the help of Chi Square analysis and correlations between FII flow and Indian Stock Market (BSE and NSE).

H. Kulshrestha (2014) has suggested that FIIs has positive impact in short run and real impact in long run on Indian Capital Market. The main purpose of the study was to identify the relationship between inflow of FIIs and the movements of Indian stock market and result were quite closely correlated.

Sarbapriya Ray (2012) has investigated that unidirectional causality between foreign exchange reserve and Indian stock market, foreign exchange reserve cause to stock market capitalization but not vice versa.

T. Sultana and S Pardhasaradhi (2012) has acknowledged that positive impact of flow of FDI and FII in Indian stock market. There is a strong positive correlation between FDI & SENSEX and FDI & NIFTY, and the correlation is significant at 1 percent level of significance.

G. Agrawal et al. (2010) has investigated that there was negative correlation between Nifty returns and Exchange Rates. Further investigation into the causal relationship between the two variables using Granger Causality test highlighted unidirectional relationship between two variables.

H. Goudarzi (2011) has investigated that BSE500 stock index and FII series are cointegrated and causality between them is bilateral. The evidence of causal linkage between two variables implies that since each of this variables are cointegrated the predictability of each can enhanced significantly by utilizing information on other variable.

Jayaraj et al. (2009) they identifies that movement of market and FIIs investment make impact in short horizon and direct towards positivity in the long run. The performance of SENSEX in terms of market capitalization, movement of SENSEX, Returns on SENSEX and Trading Turnover are significantly related to the surge in FIIs inflows. It is clearly understood that the net FII is a potent force, and in fact can forecast market direction using the direction of the flow of funds from FIIs.

Kumar (2002) investigated the effects of FII inflows on the Indian stock market

represented by the Sensex using monthly data from January 1993 to December 1997 and inferred that FII investments are more driven by Fundamentals and do not respond to short-term changes or technical position of the market. Regression with Sensex as dependent variable showed that one month lag of FII is significant, meaning that there is causality from FII to Sensex.

P. G. Apte (2001) has suggested in his study the interrelationship between the stock market and foreign exchange market that there is no such relationship exist or even very small portion of relationship between exchange rate and Indian some of the stock exchange.

III. DATA AND METHODOLOGY

The main aim of study is to identify the impact of Foreign Institutional Investments and Foreign Exchange Rate on Indian Stock Market.

A sample period of study is from January 2008 to September 2016 which includes 105 monthly observations of each five variables. The dataset contains Net inflow of Foreign Institutional Investments (FIIs), average monthly closing price of BSE - SENSEX and NSE – CNX Nifty as well as average exchange rate of US Dollar and Pound Sterling to Indian Rupee. The data for analysis obtained from different reliable sources like, BSE- Sensex from www.bseindia.com, NSE-CNX Nifty from www.nseidndia.com, Net FIIs and US Dollar and Pound Sterling to Indian Rupee from www.rbi.org.

The statistical tools applied for the present study is correlation between all five variables, ordinary least square estimates, unit root test and Granger Causality test.

Table: (1) Correlation Matrix

	DOLLAR	FII	NIFTY	POUND	SENSEX
DOLLAR	1.000				
FII	0.1987	1.000			
NIFTY	0.5521	0.4016	1.000		
POUND	0.7157	0.1161	0.3616	1.000	
SENSEX	0.5059	0.4351	0.9167	0.4430	1.000

The empirical result on basis of correlation matrix suggests that there is positive relationship between the variables. But in case of dollar to FIIs and pound to FIIs has low level of positive correlation.

Stationarity Test

Time series data generally tend to be non-stationary, and thus they suffer from unit roots. Due to the non-stationarity, regressions with time series data are very likely to result in spurious results.

A more formal method of detecting non-stationarity is often described as testing for unit roots, for reasons that need not concern us here. The standard test, pioneered by Dicey and Fuller (1979), is based on the model

$$X_t = \beta_1 + \beta_2 X_{t-1} + \gamma_t + \varepsilon_t$$

Rewritten as: $\Delta X_t = \beta_1 + (\beta_2 - 1)X_{t-1} + \gamma_t + \varepsilon_t$

Where $\Delta X_t = X_t - X_{t-1}$, the series will be non-stationary if either the coefficient of X_{t-1} is zero or the coefficient of t is non zero.

Null Hypothesis: FDOLLAR, FPOUND, FFII, FSENSEX and FNIFTY has a unit root (all series are 1st difference)

Table: (2) ADF test result for 2nd Difference of all variables

	ADF Test Statistic		Critical Value at 5% level	DW Statistics
	t-statistics	Prob.*		
Dollar	-3.5981	0.000	-2.8906	2.01
Pound Sterling	-4.6861	0.000	-2.8906	1.99
FII	-5.7970	0.000	-2.8906	1.99
SENSEX	-3.6875	0.000	-2.8906	1.99
NIFTY	-5.0053	0.000	-2.8906	1.96

*MacKinnon critical values for rejection of hypothesis of a unit root.

Time series US Dollar, Pound Sterling, Net inflow of FII, BSE Sensex and CNX Nifty are stationary at 1st difference with constant variable and 4 leg length. This result also supports the value of DW statistics, which is suggested that value of d_{cal} is near to 2 so it indicates that there is no auto correlation in the series and it means that the effect of disturbance of occurring at any period does not carry over into another period. Now it can be apply for the Granger Causality test.

Granger Causality Tests

The purpose is to know whether changes in a variable will have an impact on changes other variables. The test for Granger causality works by first doing a regression of ΔY (Depended variable) on lagged values of ΔY. Once the set of significant lagged values for ΔY is found (via t-statistics or p-values), the regression is augmented with lagged levels of ΔX. Any particular lagged value of ΔX is retained in the regression.

Then the null hypothesis of no Granger causality is not rejected if and only if no lagged values of ΔX have been retained.

Let y and x be stationary time series. To test the null hypothesis that x does not Granger-cause y, one first finds the proper lagged values of y to include in a univariate auto_regression of y:

$$y_t = a_0 + a_1 y_{t-1} + a_2 y_{t-2} + \ldots + a_m y_{t-m} + residual_t.$$

Here y_{t-j} is retained in the regression if and only if it has a significant t-statistic; m is the greatest lag length for which the lagged dependent variable is significant.

Table: (3) Pairwise Granger Causality Tests between US Dollar, BSE Sensex and CNX Nifty

Null Hypothesis:	Legs	F-Statistic	Probability
FNIFTY does not Granger Cause FDOLLAR	2	0.29342	0.74637
	3	1.51700	0.21519
	4	2.10279	0.08686
	5	2.01706	0.08394
	6	2.30896	0.04102
FDOLLAR does not Granger Cause FNIFTY	2	3.48792	0.03445
	3	2.51939	0.06270
	4	2.54341	0.04488
	5	2.78105	0.02223
	6	2.48368	0.02911
FSENSEX does not Granger Cause FDOLLAR	2	3.83871	0.02486
	3	2.76261	0.04634
	4	5.27226	0.00073
	5	4.64586	0.00083
	6	3.95354	0.00155
FDOLLAR does not Granger Cause FSENSEX	2	0.89260	0.41293
	3	1.08761	0.35830
	4	1.39442	0.42418
	5	2.47455	0.03807
	6	2.89637	0.01284

The above table shows the leg length, F-statistics with p-value which conclude that

- Existence of bi-directional causal relationship between Dollar and CNX Nifty at 6 lags.
- Existence of bi-directional causal relationship between Dollar and BSE Sensex at 5 lags.
- Thus, it can be concluded that there is bi-directional relationship between Dollar, CNX Nifty and BSE Sensex in India.

Table: (4) Pairwise Granger Causality Tests between Pound Sterling rate, BSE Sensex and CNX Nifty

Null Hypothesis:	Legs	F-Statistic	Probability
FNIFTY does not Granger Cause FPOUND	2	0.495067	0.611062
	3	0.311932	0.816709
	4	0.393188	0.813039
	5	0.523986	0.757518
	6	0.555156	0.764679

FPOUND does not Granger Cause FNIFTY	2	0.449822	0.639065
	3	0.76152	0.518453
	4	0.614786	0.653078
	5	0.37079	0.867398
	6	0.226572	0.967056
FSENSEX does not Granger Cause FPOUND	2	3.068101	0.051049
	3	2.122735	0.102534
	4	2.894655	0.026374
	5	2.443051	0.040222
	6	2.558783	0.025105
FPOUND does not Granger Cause FSENSEX	2	1.241869	0.293395
	3	0.663575	0.576495
	4	0.471655	0.756404
	5	0.601244	0.699072
	6	0.764897	0.599532

The above table shows the leg length, F-statistics with p-value which conclude that

- There is no causal relationship between POUND and CNX Nifty.
- Existence of uni-directional causal relationship between BSE Sensex and POUND at 6 lags.
- Thus, it can be concluded that BSE Sensex has effect on POUND value and Pound value has effect on FII inflow in India.

Table: (5) Pairwise Granger Causality Tests between FIIs, BSE Sensex and CNX Nifty

Null Hypothesis:	Legs	F-Statistic	Probability
FNIFTY does not Granger Cause FFII	2	1.268146	0.285975
	3	0.754499	0.522459
	4	0.344687	0.847085
	5	1.397808	0.232928
	6	0.948298	0.465252
FFII does not Granger Cause FNIFTY	2	4.019874	0.021027
	3	3.650666	0.015356
	4	2.787638	0.031022
	5	2.061651	0.077785
	6	1.661997	0.140316
FSENSEX does not Granger Cause FFII	2	2.869324	0.061565
	3	1.742586	0.163611
	4	1.840581	0.127844
	5	1.901636	0.102084
	6	2.140865	0.056855
FFII does not Granger Cause FSENSEX	2	1.027317	0.361827
	3	1.629181	0.187849

	4	2.385388	0.056939
	5	1.929871	0.097328
	6	1.833929	0.102027

The above table shows the leg length, F-statistics with p-value which conclude that

- Existence of uni-directional causal relationship between FII and NIFTY at 2 lags.
- Existence of bi-directional causal relationship between BSE Sensex and FII.
- Thus, it can be concluded that BSE Sensex has effect on FII value and FII has effect on NIFTY.

CONCLUSIONS

India is one of the safest and best investment destinations across the global. Indian Government made several modifications in the liberalization rules for the FII investment. The activities in the financial markets and their relationships with the real sector have assumed significant importance. Capital inflows are necessary for macroeconomic stability as capital inflows affect a wide range of macroeconomic variables such as exchange rates, interest rates, foreign exchange reserves, domestic monetary conditions as well as saving and investments. The main aim of the present study is to measure the impact of Net FII inflow, Rupee Value against US Dollar and pound Sterling on Indian Stock Market (BSE Sensex and CNX Nifty).

There is bi-directional causality BSE Sensex and CNX Nifty with US Dollar,. There is unidirectional causality between BSE Sensex and Pound sterling but there no such causality between CNX Nifty and POUND. Causal relationships with BSE Sensex and FII have either direction affect at different lags but there it unidirectional relationship with FII and CNX Nifty.

It can be suggested from analysis that in movement of exchange rate against Rupee value are influence on Indian stock market movement and Indian stock market fluctuation also influence US Dollar rate against Rupee value. Similarly the movement of Inflow of FIIs in Indian market is influence on Indian stock market movement and vice versa. Thus, it can be interpret that time series are interrelated with their investment characteristics as well as has significant correlation between them.

REFERENCES

Aswini A. and Mayank Kumar (2014). *Impact of FII on Stock Market in India*. Global Journal of Finance and Management, ISSN 0975-6477 Volume 6, Number 8 (2014), pp. 765-770, http://www.ripublication.com

Badani KN (2005). *Dynamic Relationship among stock prices, exchange and net FII flow in India.* http:// www.iiml.ac.in/confrence/abstract/5.pdf

Clark. J, and Berko E., (1997). *Foreign Investment Fluctuations and Emerging Market Stock Returns: The Case of Mexico*. Federal Reserve Bank of New York Working Paper, Issue 24

Agrawal et al. (2010). *A Study of Exchange Rates Movement and Stock Market Volatility.* International Journal of Business and Management Vol. 5, No. 12; Dec. 2010, pg. 62-73.

H. Goudarzi (2011). *Empirical Analysis of the Impact of Foreign Institutional Investment on the Indian Stock Market Volatility during World Financial Crisis 2008-09.* International Journal of Economics and Finance Vol. 3, No.3; August 2011, ISSN 1916-971X, pg. 214-226.

Jayaraj and et al. (2009) *An Emperical Investigation of Impact of Net FII Investment on Performance of Indian Stock Market of BSE.* Journal of Contemporary Research in Management, January - March, 2009, Pg.125-143.

T. Sultana and S Pardhasaradhi (2012). *Impact of Flow of FDI & FII on Indian Stock Market*. Finance Research. Vol. 1 No. 3 July 2012, pg. 4-10.

H. Kulshrestha (2014). *Impact of Foreign Institutional Investors (FIIs) on Indian Capital Marke.* IMPACT: International Journal of Research in Business Management Vol. 2, Issue 3, Mar 2014, 35-52.

Joseph, N. (2002). *Modelling the impacts of interest rate and exchange rate changes on UK Stock Returns*. Derivatives Use, Trading & Regulation, 7(4), 306-323.

Kumar, S.S. (2002). *Indian stock market in international diversification: An FIIs perspective*. Indian Journal of Economics, Vol. l xxxii, No-327, April 2002, pg. 85-102.

Kurihara, Y. (2006). *The Relationship between Exchange Rate and Stock Prices during the Quantitative Easing policy in Japan*. International Journal of Business, 11(4), 375-386.

Mishra, et al. (2007) *Volatility Spillover between tock and Foreign Exchange Markets: Indian Evidence*. International Journal of Business, 12(3), 343-359.

Mukherjee P, Bose S,Coondoo D (2002). *Foreign Institutional Investment in the Indian Equity Market-An analysis of daily flows during January 1999-May 2002*. Money & Finance, ICRA Bulletin, April-Sept 2002.

Nieh, C.-C., & Lee, C.-F. (2001). *Dynamic relationship between stock prices and exchange rates for G-7 countries.* The Quarterly Review of Economics and Finance, 41, 477-490.

Ologunde, A., et al. (2006). *Stock market capitalization and interest rate in Nigeria: A time series analysis*. International Research Journal of Finance and Economics, Issue 4, pp.154-67.

Phylaktis, Kate, & Ravazzolo, F. (2005). *Stock prices and exchange rate dynamics.* Journal of International Money and Finance, 24, 1031-1053.

P. G. Apte (2001). *The Interrelationship between the Stock Markets and the Foreign Exchange Market*.

S. Ray (2012). *Foreign Exchange Reserve and its Impact on Stock Market Capitalization: Evidence from India.* Research on Humanities and Social Sciences, ISSN 2224-5766, Vol.2, No.2, 2012 (www.iiste.org)

Singh S & Paliwal M (2010). *Liberalization of Foreign Institutional Investment (FIIs) in India: Magnitude, Impact assessment, Policy initiatives and issues*. Global Journal of International Business Research Vol.3,No 3,2010

Stavarek, D. (2005). *Stock Prices and Exchange Rates in the EU and the USA: Evidence of their Mutual Interactions*. Finance a úvûr–Czech Journal of Economics and Finance, 55, 141-161.

Vardhan et al. (2014). Influence of Foreign Institutional Investments on the Indian stock market. http://mpra.ub.uni-muenchen.de/id/eprint/53611

Vygodina, A. V. (2006). *Effects of size and international exposure of the US firms on the relationship between stock prices and exchange rates*. Global Finance Journal, 17, 214-223.

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