Recent Financial Crisis And The Role Of Foreign Institutional Investors In India - With Reference To NSE

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INTRODUCTION

One of the outstanding features of globalization in the financial services industry is the increased access provided to non-local investors in several major stock markets of the world. Increasingly, stock markets from emerging markets permit institutional investors to trade in their domestic markets. In India between late 1990 and the middle of 1991, the economy faced severe balance of payment difficulties, coming close to defaulting on its external payment obligations. **In January 1991, the Government negotiated with the International Monetary Fund (IMF) for loans. As a result, India was forced to follow the New Economic Policy. Among various reforms, the capital account liberalization process was started, and as a part of this, the Indian stock market was opened to Foreign Institutional Investors on 14th September 1992, initially with a lot of restrictions. The regulation on them were liberalized and minimized later and this became a turning point for the Indian stock market. The Government of India announced the policy of the government to permit the FII investment in the Indian capital market. In order to make investment in India equity market, they wanted to register with the Security Exchange Board of India (SEBI) as foreign institutional investors (FIIs). It is possible for foreigners to trade in Indian securities market without registering as Foreign Institutional investors, but such cases require approval from Reserve Bank of India or the Foreign Institutional Promotion Board.**

Portfolio flows often referred to as 'hot- money' are notoriously volatile capital flows. They are also responsible for spreading financial crisis causing contagion in the international market, though the FIIs have been playing a key role in the financial markets since their entry into this country. The explosive portfolio flow by FII brings with itself great advantages as they are engine of growth, lowering cost of capital in many emerging market. This opening up of capital markets to FII in emerging market countries has been perceived as beneficial by some researchers, while others are concerned about possible adverse consequences. As benefits, the entry of the foreign institutional investors has led to greater institutionalization of the market and their activities have provided depth to it. They have also contributed towards making Indian markets modern, comparable with the international standards. This has brought transparency in the market operations and simplified the procedures. On the other hand, many researchers and policy makers are more concerned about the attendant risks associated with the trading activities of foreign investors. They are particularly concerned about the herding behavior of foreign institutions and the potential destabilization impact of stock markets. **Some researchers perceived that the FIIs are responsible for spreading financial crisis and causing contagion in the international market. So, this study examines the role of FIIs in the Indian stock market during the recent financial crisis.** The financial crisis began in July 2007, when a loss of confidence by investors in the value of securitized mortgages in the United States resulted in a liquidity crisis. Again in September 2008, the crisis deepened; as a result, stock markets world-wide,including the Indian stock market, crashed and entered a period of high volatility. Particularly, the role of FIIs in NSE with reference to the recent financial crisis that emanated from USA is to be analyzed through the following objectives:

1. To analyze the trend of FIIs investments and S&P CNX Nifty Return,
2. To examine the inter-relationship between FIIs flows and S&P CNX Nifty Return, and
3. To examine whether FIIs are destabilizing the Indian stock market.

LITERATURE REVIEW

❁ **Parthapratim Pal (2006)** examined the impact of foreign portfolio investment on India's economy. The study found

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that the perceived benefits of foreign portfolio investment have not been realized in India and the influx of FIIs has indeed influenced the secondary market segment of the Indian stock market. On the other hand, the surge in foreign portfolio investment in the Indian economy has introduced some serious problems of macroeconomic management for the policy maker.

❁**Keneeth A. Froot and Tarun Ramadorai (2005)** attempted to answer a question that is of great relevance to those studying the behavior of international portfolio flows. Evidence found that the cross-border flows positively forecasted both NAVs and closed-end fund prices in New York. Further, the study was consistent with the information hypothesis, and was inconsistent with the price pressure hypothesis, which predicts that cross-border inflows will increase only underlying NAVs, not the prices of closed-end fund shares.

❁**Keneeth A. Froot and Tarun Ramadorai (2005)** made an attempt to understand the interaction between the currency flows of institutional investors and currency returns. High-frequency daily data set covering 7 years and 18 exchange rates had been used. Their findings show that flows are strongly positively related to the expected-return component in short horizons, but negatively related at longer horizons. Further, they found no co-movement at long horizons between the main driver of intrinsic value-real interest differential and flows.

❁**Suchismita Bose and Dipankor Coondoo (2004)** examined the impact of FII policy reforms on FII portfolio flows to the Indian Stock market. Results of the study strongly suggested that the liberalization policies have the desired expansionary effect and have either increased the mean level of FII inflows and/or the sensitivity of these flows to a change in BSE returns and /or the inertia of these flows. On the other hand, the restrictive measures aimed at achieving greater control over FII flows also do not show any significant negative impact on the net inflows and further, it was found that these policies mostly render FII investment sensitive to the domestic market returns and raise the inertia of the FII flows.

❁**Lakshmi Sharma (2004)** made an analysis of FII investment gab in the companies included in the S&P CNX 500 index of national stock exchanges, by comparing the FIIs investment in each of these as on September 30, 2004 with the FII investment cap. The study found that the FIIs investments are highly concentrated in terms of their market value in very small number of companies, FIIs investment seems to be a clear distinction in the FIIs shareholding in Nifty and non-Nifty companies, and there is a wide gap between the actual investments by FIIs and the investments allowed as per the cap.

❁**Amita Batra (2003)** made an effort to develop an understanding of the investment decision, trading strategies and behavior of the FIIs in the Indian equity market. Analysis found that there is strong evidence of FIIs chasing trends and adopting positive feedback trading strategies at the aggregate level on a daily basis. However, there is no evidence of positive feedback trading on a monthly basis. The results also indicated that the foreign investors have a tendency to herd together in their trading activity in India. The trading behavior and biases of the FIIs do not appear to have a destabilizing impact on the equity market.

DATA AND METHODOLOGY

❁**Data :** This study covers the monthly data such as index of S&P CNX Nifty, and FIIs net flows to equity in India from the period of nine years from January 2000 to January 2009. These secondary data which have been collected mainly from websites- www.bseindia.com, www.nseindia.com, and www.rbi.org. The data for the study have been collected in order to cover crisis and non-crisis period, so that it enables us to identify relative role of FIIs in the Indian stock market. The financial crisis began in July 2007, based on that, the total sample period was divided into two sub samples. Crisis period samples cover from January, 2000 to June, 2007 and non-crisis period sample cover from July, 2007 to January, 2009.

❁**Methodology :** To show the inter-relationship between returns and FII flows, this study uses regression model with return of S&P Nifty, and scaled net FIIs flows. The return for market would be given by;

$$R_t = \text{Log}\ (P_t / P_{t-1})$$

Where, P_t- Log of price at time t, and P_{t-1}- Log of price at time t-1.

❁**Scaled Flow :** This study scales the net flows for the month by monthly average of whole period taken into consideration which is around ₹ 1730 crores. Data scaling is done to smooth data and relative expression of flows by

average would avoid unexpected fluctuation in data series.

Models : To analyze the trend of FIIs investments and S&P CNX Nifty Return, the researchers have used graphs and linear log model. This linear log model helps to study the trend over the different sample periods by considering time factor as function. And to study the inter-relationship between FIIs net flows and S&P CNX Nifty Return, the regression model that the researchers have used is as follows :

$$R_t = \beta_0 + \beta_1 \text{Scaled Flow}_t$$

Where,

R_t = Return from market at time t,

Scaled Flow $_t$ = FII Scaled Net flow at time t,

Ho: β1=0 and Ha: β1>0.

We expect to reject the null hypothesis if FIIs role play vital influence on Stock market.To examine the inter-relationship between returns and flows further, the study considers whether the FIIs follow feedback trading strategy in the Indian stock market. Feedback trading strategy involves investors, who base their portfolio decisions on the expectations, and these expectations are based on past returns. These types of traders are termed as feedback or momentum traders. The positive feedback-trader hypothesis suggests that FIIs move money into the market in response to the increasing returns at the market, that is, the flow must earn returns. On the other hand, negative feedback trading suggests that investors buy when prices are low and sell after prices increase. This study has the following regression equation to test the feedback trader hypothesis.

$$\text{Scaled Flow}_t = \beta_0 + \beta_1 R_t + \beta_2 R_{t-1} + \beta_3 R_{t-2}$$

Where,

Scaled Flow $_t$ = FII Scaled Net flow at time t

R_t, R_{t-1}, and R_{t-3} = Return from market at time *t, t-1 and t-2*

Alternative 1- Ho: β_2 or $\beta_3 = 0$ and Ha: β_2 or $\beta_3 > 0$

Alternative 2- Ho: β_2 or $\beta_3 = 0$ and Ha: β_2 or $\beta_3 < 0$

The alternate hypothesis suggests that feedback trading could be either positive or negative. If the positive feedback trader hypothesis holds the coefficients for net flows, it will be significantly positive as shown in Alternative 1 and in case of negative feedback trading, this study expects to see significant negative coefficients as given by Alternative 2.

EMPIRICAL ANALYSIS

To study the role of FIIs in the Indian stock market during crisis and non-crisis period, we have used graph and regression model to analyze their role.

DESCRIPTIVE STATISTICS

Table 1: Descriptive Statistics for S&P CNX Nifty Returns and Scaled Net Flows

Particulars	S&P CNX Return	Scaled Net Flow
Mean	0.005262	1.000061
Median	0.019577	0.538728
Maximum	0.157831	13.79884
Minimum	-0.270335	-8.871098
Std. Dev.	0.068728	3.048040
Skewness	-0.962528	0.619417
Jarque-Bera	25.57909	97.81297
Probability	0.000003	0.000000
Observations	109	109

From the above table, the mean return of S&P CNX is 0.005262 and standard deviation is 0.068728, which is greater

than the mean return and shows that returns are more volatile. The mean of scaled net flows is 1.000061, this is around ₹1730 crores and standard deviation is 3.048040, which is greater than the mean flows and shows that flows are more volatile in nature.When time series data are used in econometrical analysis, several preliminary statistical steps must be undertaken, which includes unit root testing and etc. Given the nature of time-series data, it is necessary to test the stationarity of each individual series. Unit root tests provide information about stationarity of the data, existence of which makes hypothesis test results non-reliable. The most common way to test for the existence of unit roots is to apply the Augmented Dicky-fuller (ADF) test and Phillips-Perron (PP) test.

Table 2: Unit Root Statistics of S&P CNX Return and Scaled Net Flow

PARTICULARS	S&P CNX RETURN		SCALED NET FLOW	
	STATISTIC	CRITICAL VALUE	STATISTIC	CRITICAL VALUE
ADF Test	-3.478806**	-2.5856	-2.187315*	-1.9431
PP Test	-7.438484**	-2.5848	-8.683544**	-2.5848

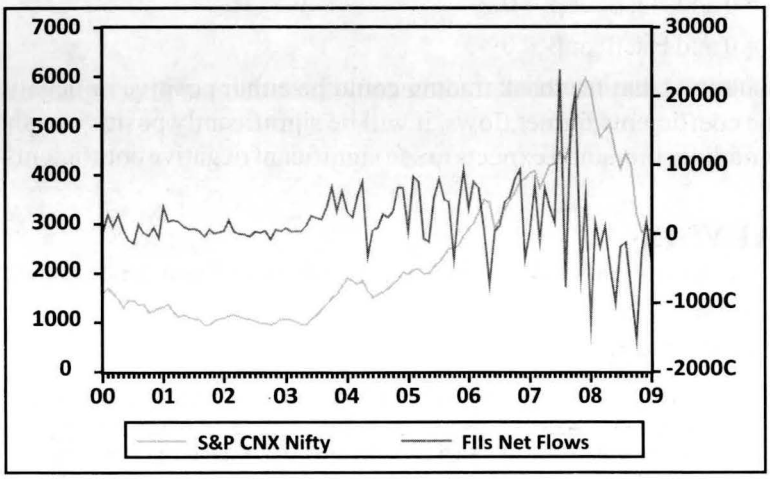
** and * statistically significant at 1% and 5% level respectively.

Table-2 shows results of Augmented Dicky-fuller (ADF) test and Phillips-Perron (PP) test, which have been carried out with none in exogenous variables i.e. without including a constant and a linear time trend in the test equation. In both the tests, S&P CNX Return and Scaled Net Flow show stationary at 1 percent significant level except ADF Test on Scaled Net Flow, this shows stationary at 5 percent significant level.

TREND OF FIIs INVESTMENT AND S&P CNX NIFTY RETURN

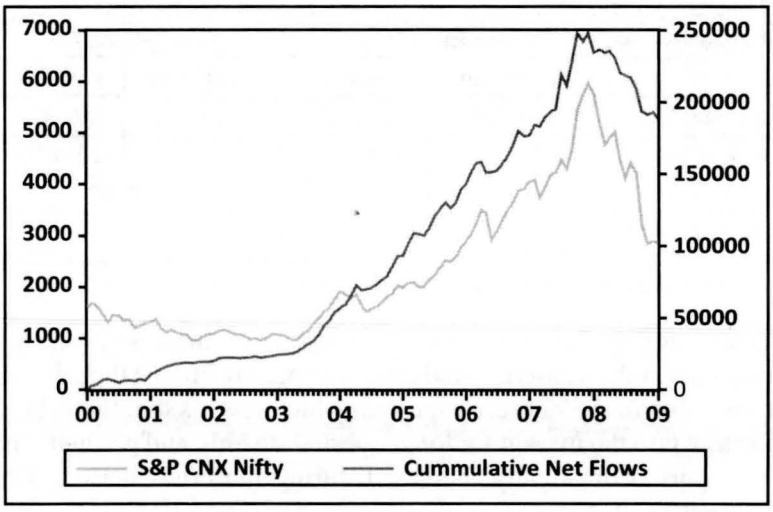
To analyze the trend of FIIs investments and S&P CNX Nifty Return, the researchers have used graphs and linear log model. This linear log model helps to study the trend over the different samples period by considering time factor as function.

Graph 1: Trend of FIIs Net Flows and S&P CNX Nifty Index



From Graph1, it is clear that FIIs flows are more volatile during the crisis period - particularly from July, 2007 to December 2008. The volatility in this period may be due to financial crisis break-through in USA. This volatility in Net flows was expected as many of the FIIs are from USA and European countries. They were forced to withdraw their money from India as they faced liquidity crunch. Graph 2 plots the movement of FIIs Cumulative Net Flows from January 2000 and S&P CNX Nifty Index. Graph evidence shows that there is causality between FIIs Cumulative Net Flows and S&P CNX Nifty Index. Flows and Index are moving as high as 2,50,000 crores and around 6,000 respectively in the middle of 2007, there after, reduction in net flows leads the CNX Nifty Index to as low as 3,000 in the end of 2008. This result shows the possible benefits and destabilization effect of FIIs in India. Table 3, shows the results of trend in FIIs net flows during non-crisis and crisis period. During non-crisis period, on an average, their net flows increased at the rate of 2.4 % of ₹ 1730 crores, which is around ₹ 41.52 crores a month. Whereas, in crisis period on an average, their net flows declines at the rate of 56 % of ₹ 1730 crores, which is around ₹ 968 8 crores a month.

Graph 2: Trend of FIIs Cumulative Net Flows and S&P CNX Nifty Index



This results shows the possible influence of economic crisis on FIIs investments in India.

Table 3: Trend in FIIs Net Flows

Particulars	Pre-Recession		During-Recession	
	Co-efficient	z-statistic	Co-efficient	z-statistic
Constant	0.116728	0.259968	5.440432*	2.114375
@Trend	0.024918**	2.933709	-0.563876*	-2.498641
R-squared	0.152077		0.268604	
Adj. R-squared	0.132358		0.225580	

** and * statistically significant at 1% and 5% level respectively.

Table 4: Trend in S&P CNX Nifty Returns

Particulars	Pre-Recession		During-Recession	
	Co-efficient	z-statistic	Co-efficient	z-statistic
Constant	-0.019375	-1.243338	0.060099	1.426744
@Trend	0.000654*	2.220498	-0.008072*	-2.185012
R-squared	0.110272		0.219262	
Adj. R-squared	0.089580		0.173337	

** and * statistically significant at 1% and 5% level respectively.

Table 4 shows the results of trend in S&P CNX Nifty Returns during non-crisis and crisis period. During non-crisis period, on an average, the return of S&P CNX Nifty increased at the rate of 0.06 % a month. Whereas, during the crisis period on an average, the return of S&P CNX Nifty declined at the rate of 0.8 % a month. This result shows the possible adverse influence of FIIs' investment on the return of S&P CNX Nifty during the economic crisis. It also reveals the destabilizing forces of FIIs' investments in the Indian stock market.

INTER-RELATIONSHIP BETWEEN S&P CNX NIFTY RETURNS AND FIIs FLOWS

Table 5 shows the results of Inter-relationship between S&P CNX Nifty Returns and FIIs Net flows, to know their relative influence on S&P CNX Nifty Returns. In the non-crisis period, coefficient of the net flow (β_1) is 0.014241, which shows positive relationship between flows and returns. On an average, ₹ 1730 crores net inflows cause the increase in return at the rate of 1.4% and vice versa.

Whereas, in the crisis period, coefficient of net flow(β_1) is 0.0127351, which shows positive relationship between

Table 5: Inter-relationship Between S&P CNX Nifty Returns and FIIs Net flows

Particulars	Pre-Recession		During-Recession	
	Co-efficient	z-statistic	Co-efficient	z-statistic
Constant (ß 0)	-0.007191	-0.902458	-0.012275	-0.659195
FIIs Net Flow (ß1)	0.014241**	4.363431	0.012735**	3.708369
R-squared	0.226356		0.491806	
Adj. R-squared	0.208365		0.424047	

** and * statistically significant at 1% and 5% level respectively.

flows and returns, and on an average, ₹ 1730 crores net inflows cause the increase in return at the rate of 1.3% and vice versa. The influence of flows during the non-crisis and crisis periods are almost the same and the speed of outflows in the crisis period is higher than that in the non-crisis period ,which reveals that the FIIs' investment destabilizes the Indian stock market. FIIs inflow into the market for longer period steadily and gradually increased, whereas, outflow from the market for shorter period drastically increased during the crisis period. This might be the cause for destabilization in the Indian stock market.

Table 6: FIIs Feedback Trading Strategy

Particulars	Pre-Recession		During-Recession	
	Co-efficient	z-statistic	Co-efficient	z-statistic
Constant(ß 0)	1.057252**	5.030406	0.199220	0.222122
Nifty R_t (ß 1)	13.22128**	4.407544	50.16207**	5.019042
Nifty R_{t-1} (ß 2)	0.131488	0.044309	-25.06522*	-2.400570
Nifty R_{t-2}(ß 3)	6.060723*	2.053485	17.01216	1.738257
R-squared	0.270473		0.660167	
Adj. R-squared	0.234886		0.581744	

** and * statistically significant at 1% and 5% level respectively.

To examine the inter-relationship between returns and flows further, the study considers whether the FIIs follow feedback trading strategy in the Indian stock market. Table 6, shows the results of feedback trading strategy followed by FIIs both in crisis and non crisis period and reveals that during the non-crisis period, β_2 is insignificant and we consider β_3, which is positive and significant(6.060723), and shows that FIIs are adopting positive feedback trading strategy. During non-crisis period, FIIs positive feedback-trading suggests that FIIs move money into the market in response to the increasing returns at the market, that is, the flow must earn returns. Whereas, during the crisis period β_2 is negative and significant (-25.06522) and shows that FIIs are adopting negative feedback trading strategy. During crisis period, FIIs negative feedback trading suggests that FIIs buy when prices are low and sell after prices increase. This type of trading strategies employed by FIIs shows that FIIs optimally use their portfolio and get huge returns both in crisis and non-crisis period.

CONCLUSION

In India between late 1990 and the middle of 1991, the economy faced severe balance of payment difficulties, coming close to defaulting on its external payment obligations. In January 1991, the Government negotiated with the International Monetary Fund (IMF) for loans. As a result, India was forced to follow the New Economic Policy. Among various reforms, the capital account liberalization process was started, as part of this, the Indian stock market was opened to Foreign Institutional Investors on 14th September 1992. This opening up of capital markets to FIIs in emerging market countries has been perceived as beneficial by some researchers while others are concerned about possible adverse consequences. Some researchers perceived that the FIIs are responsible for spreading financial crisis and causing contagion in the international market. So our study examines the role of FIIs in the Indian stock market on recent financial crisis. The financial crisis began in July 2007, based on that, total sample period of nine years from

January 2000 to January 2009 was divided into two sub samples as crisis and non-crisis period. For this analysis, regression model and graph has been used. During non-crisis period, on an average, their net flows increases at the rate of 2.4 % of ₹ 1730 crores, which is around ₹ 41.52 crores a month. Whereas, in the crisis period, on an average, their net flows decline at the rate of 56 % of ₹ 1730 crores, which is around ₹ 968.8 crores a month. Likewise, during the non-crisis period, on an average, the return of S&P CNX Nifty increased at the rate of 0.06 % a month. Whereas, in the crisis period, on an average, the return of S&P CNX Nifty declined at the rate of 0.8 % a month. This result shows the possible influence of economic crisis on FIIs investments in India, and it reveals the destabilizing force of FIIs investments in the Indian stock market. The influence of FIIs flows during non-crisis and crisis periods are almost same and the speed of outflows in crisis period is higher than in non-crisis period, revealing that the FIIs investment destabilized the Indian stock market. FIIs inflow into the market for longer period steadily and gradually increased, whereas, FIIs outflow from the market (for shorter period) drastically increased during the crisis period. This might be the cause for destabilization of the Indian stock market. Further, during the non-crisis period, FIIs are adopting positive feedback-trader strategy, which suggests that FIIs move money into the market in response to the increasing returns at the market, that is, the flow must earn returns. Whereas, during the crisis period, FIIs adopted negative feedback trading, which suggests that FIIs buy when prices are low and sell after prices increase. FIIs optimally use their portfolio and get huge returns both in crisis and non-crisis period.

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