Impact of Investments by FIIs and DIIs on Liquidity and Volatility in Indian Stock Market: An Empirical Investigation

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Abstract

The objective of the paper is to investigate into the impact of investments by foreign institutional investors (FIIs) and domestic institutional investors (DIIs) on liquidity and volatility in the Indian stock market. The period of study is from April 2007 through March 2018. The study has taken BSE Sensex as proxy for stock market behavior. Monthly time series data on purchases and sales by FIIs and DIIs respectively have been considered. The study has used descriptive statistics, correlation matrix, regression and line graph with least square equations, t-test, F-test, etc. Findings are i) Investments by FIIs and DIIs are on increasing trend over time. ii) FIIs provide more liquidity into the stock market than DIIs; iii) DIIs are more investment oriented than FIIs. iv) FIIs are more trading oriented than DIIs. v) Investments by FIIs have contributed to stock market volatility. vi) DIIs buy when FIIs sale and the increasing investments by DIIs have stabilizing effect on the BSE Sensex and the market. This empirical study is significant for regulators of stock markets, policy makers, academicians, etc.. The findings of the paper help regulators, policy makers and other stakeholders in controlling volatility and in stabilizing the market and protecting investors' interest. To stabilise the market during crisis, necessary measures may be taken to empower DIIs to purchase more when FIIs continuously sale.

Keywords: *BSE Sensex, DIIs, FIIs, Investments, Liquidity, Stability, Volatility.*

1. Introduction

Macro-economic crisis during 1990-91 compelled India to go for liberalization, privatization and globalization of economy to resolve the crisis of large and growing fiscal deficit, foreign exchange crisis, balance of payment crisis, balance of trade crisis, sky-rocketing inflation rate and interest rate, etc. It was necessary to encourage foreign institutional investors (FIIs) to invest in India. The Securities and Exchange Board of India (SEBI) Act, 1992 dated September 14, 1992 permitted foreign institutional investors (FIIs) to invest in Indian securities subject to fulfilling SEBI guidelines. According to SEBI Act 1992, foreign institutional investors (FIIs) are incorporated outside India and registered as FIIs in accordance with Section 2 (f) of the SEBI (FIIs) Regulations 1992 to invest and trade in new securities or trade in already issued securities in India. Investments by FIIs in India are regulated by the SEBI while the ceilings on such investments are monitored by the Reserve Bank of

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India (RBI). The investing institutions incorporated within India are known as domestic institutional investors (DIIs). Liquidity is defined as a feature of a market whereby any individual or legal entity can purchase or sell an asset immediately without much change in asset price. Volatility (symbol σ) is defined as the degree of variation of a trading price or return of any asset over time. Higher the volatility, higher is the risk associated with the security and the vice versa is true. Stock market is a place where shares of public listed companies are bought and sold. Stock market plays vital role for economic development of any country. Bombay Stock Exchange (BSE) is the oldest stock exchange in India. The BSE SENSEX is a free-float market-weighted and leading stock market index of 30 best and financially sound companies listed on BSE.

Fair and efficient allocation of scarce resources is necessary for sustainable development. Savings needs to be efficiently allocated to most productive sector which is beneficial to all stakeholders and vice versa is true. Economic efficiency implies that resources are properly allocated to optimize cost, revenue, return, and risk. Optimal investment in any economy leads to sustainable development in terms of healthy and vibrant market, more investment, better research and development, innovations, business opportunities, employment generation, wealth creation, etc. And vice versa is true. Emerging economies like India face deficit of savings and developed economies like USA, Japan, have surplus of savings. Capital flows from savings surplus unit to savings deficit unit to fill up the gap. Investments by FIIs lead to increasing foreign exchange reserve, developing financial market, encouraging financial innovations, improving market efficiency and fairness, better corporate governance, attracting technological advancements and automation, more wealth creation, etc.

According to India Brand Equity Foundation (IBEF)[a], FIIs have contributed significantly to tide over the macro-economic imbalances like foreign exchange reserve, balance of payment, etc. FIIs have invested large amount of capital i.e. around Rs 12.51 trillion in India between FY 2002-2018. According to the Reserve Bank of India (RBI)[b] weekly statistical supplement, the overall foreign exchange reserves reached US$421.87 billion as on May 31, 2019. The Indian financial markets have become more attractive for more investments by FIIs. According to Business Standard[c], the total market capitalization of BSE-listed companies touched a new high of Rs 156.89 trillion on August 21, 2018. India is now fastest growing economy in the world. However, it is found that large investments by FIIs increase the liquidity and volatility in Indian stock markets. The author has attempted to examine the research question, “what is the impact of investments by FIIs and DIIs on liquidity and volatility in Indian stock market”.

2. Literature Review

According to De Mello (1970) and Narayan (2007), foreign capital flow is an important promoter of growth. Arora and Baluja (2013) revealed that in comparison to foreign direct investments (FDIs); FIIs are short term in nature and can be withdrawn at any time. Jain, M., et al (2012) observed, “the Sensex has moved upwards when there are positive inflows of FIIs and moved downwards when there were negative FIIs inflows”. Pal (2005) found that FIIs trading activities in Indian stock market has increased significantly and high turnover is mainly attributed to FIIs trading. Sultana and Pardhasaradhi (2012) found that there is high degree of statistically significant positive correlation between foreign capital flows and Indian stock market. Jain, M., et al (2012) observed that there is highly positive correlation between FIIs investment and Sensex. Anubha (2013) observed that FIIs investment have significant positive impact on stock market and on major stock indices. Agarwal (1997), Nair and Trivedi (2003) found that FIIs investment and equity returns have strong significant

positive correlation. Natchimuthu, et al (2018) found that FII responds positively to an impulse from Nifty returns and DII responds negatively to an impulse from Nifty returns. Nifty returns are the cause for FII and DII, but not the effect. Behera (2010) found that FIIs investments have a positive impact on both liquidity and returns. And FIIs investments increase volatility in Indian stock market. Krishna (2009) reveals in his study that the liquidity as well as volatility was highly influenced by the FIIs investment. According to Batra (2003), Karmakar (2006), and other researchers, the investment by FIIs gave rise to volatility in the stock market. Mohan (2006) and others state that their arrival do have destabilizing impact on prices of various stocks. Bohn and Tesar (1996) and Berko and Clark (1997) reveals that FIIs buy when the market rises and sell when the market falls, such a behavior push the stock prices away from fundamentals. Gupta (2011) showed that FIIs investment flows are unpredictable and increased volatility associated with FIIs investments results in severe price fluctuations in Indian stock market. Gordon and Gupta (2003) observed that given the huge volume of investments, the FIIs play role of market makers and book their profits i.e. they buy financial assets when the prices are declining and sell when prices are increasing. Kumar et al (2002) concluded that FIIs and Indian mutual funds are the powerful force in shaping the market. According to Loomba (2012), increased volatility associated with FIIs investments result in severe price fluctuations and FIIs were the net sellers in all the leading market crashes. Joo and Mir (1914) observed that volatility in Indian stock market has increased over the period of study by the FIIs. The volatility was maximum during financial down turn and then normalized in due course to moderate levels.

3. Research Methodology:

3.1 Objectives of the Study:

1) To evaluate the trend of investment (purchase and sell) by FIIs and DIIs during the period from April 2007 through March 2018 in Indian stock market.
2) To examine the contribution of FIIs and DIIs to liquidity in the stock market.
3) To investigate into the impact of investments by FIIs and DIIs on volatility in stock market.

3.2 Testable Statistical Hypotheses:

i) H_1: Investments by FIIs and DIIs are increasing over time.
ii) H_2:There is significant difference between average purchases and sales by FIIs.
iii) H_3:There is significant difference between average purchases and sales by DIIs.
iv) H_4: There is significant difference between the variance of FII NET and variance of DII NET.
v) H_5: Investments by FIIs have contributed more to stock market volatility than DIIs.
vi) H_6: There is significant difference between variance of FII NET and BSE SENSEX.
vii) H_7: There is significant difference between variance of FII NET and BSE SENSEX.

3.3 Methodology:

The period of study ranges from 1st April 2007 (FY 2007) through 31st March 2018 (FY 2018). The study has taken BSE Sensex as the proxy for stock market behavior in India and monthly BSE Sensex data (closing price of the last day trading data of respective months) has been collected from the Bombay Stock Exchange website. Monthly data on gross purchase and gross sale by FIIs and

DIIs have been collected from www.moneycontrol.com, the website of the leading business channel (CNBC TV18) in India. The study analyses the trend of purchase and sale by FIIs and DIIs by using descriptive statistics, correlation matrix, regression and line graph with least square equations, t-test, F-test, etc.. Purchase and sale by FIIs and DIIs are compared using t-test and F-test for a period of 11 years starting from 1st April 2007 to 31st March 2018. The monthly time series data have been used to highlight the performance of investments by FIIs and DIIs in stock market. The important variables used in the study are gross purchase (GP), gross sale (GS), net purchase (NP), net sale (NS) by FIIs in rupees crores; gross purchase (GP), gross sale (GS), net purchase (NP), net sale (NS) by DIIs in rupees crores and BSE Sensex.

4. Analysis and Findings

4.1 Descriptive Statistics: Table-1 displays descriptive statistics on FIIs gross purchase (GP), FIIs gross sale (GS), FIIs net purchase/ sale (FII NET), DIIs gross purchase (GP), DIIs gross sale (GS), and DIIs net purchase/ sale (DII NET). The study started from the month of April 2007 with monthly opening gross purchase, gross sale, net purchase or sale by FIIs of Rs 43647.59 crores, Rs 41913.05 crores, Rs 1734.54 crores and ended with gross purchase, gross sale, net purchase or sale by FIIs of Rs 118876.79 crores, Rs 118876.79 crores, Rs 7904.85 crores respectively. Also, DIIs started with monthly gross purchase, gross sale, net purchase or sale of DIIs were of Rs 10137crores, Rs 9280.07 crores, Rs 857.66 crores respectively and ended with monthly gross purchase, gross sale, net purchase or sale of Rs 79303.18 crores, Rs 72609.27 crores, and Rs 6693.91 crores respectively. Similarly, the study started with BSE Sensex of 13872.37 and ended with 34184.04.

Table-1 Descriptive Statistics

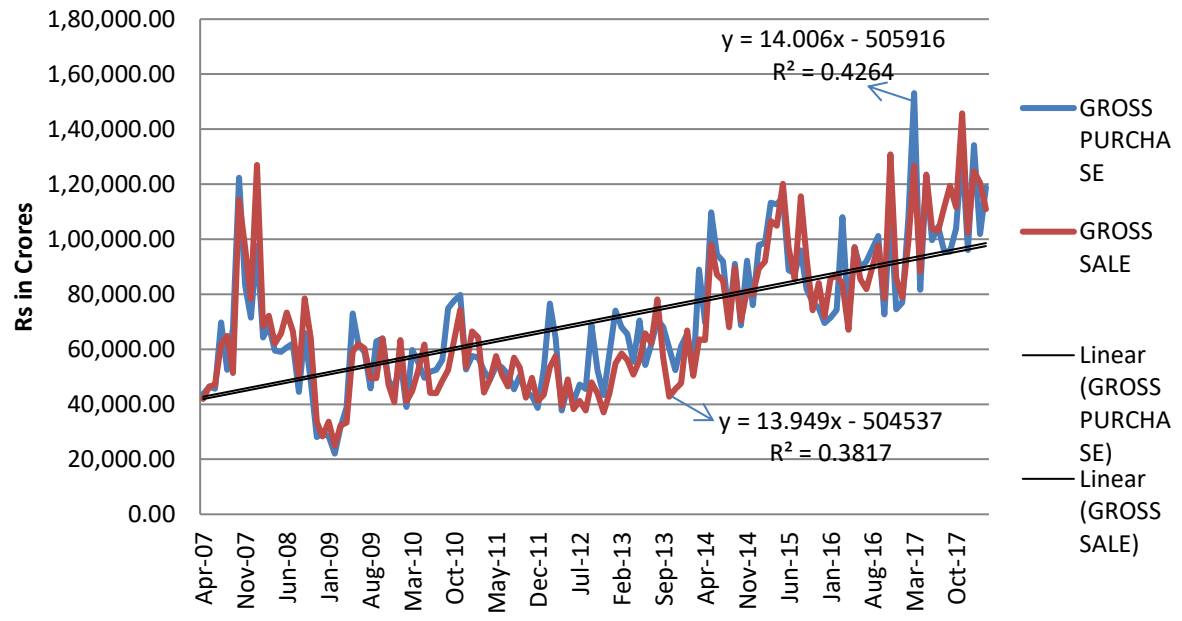
Statistical Measures	FIIs Gross Purchase (GP)	FIIs Gross Sale (GS)	FIIs Net Purchase/ Sale (FII NET)	DIIs Gross Purchase (GP)	DIIs Gross Sale (GS)	DIIs Net Purchase / Sale (DII NET)
Mean (Rs Crore)	69024.89	67779.71	1245.18	30806.17	29606.97	1199.20
Standard Error	2094.82	2177.53	903.87	1217.94	1055.19	639.94
Median	65566.26	63318.58	1419.90	26496.41	27274.32	1102.75
Standard Devn.	23607.42	24539.49	10186.05	13725.52	11891.43	7211.81
Kurtosis	0.37	-0.30	0.36	2.29	1.60	0.09
Skewness	0.69	0.67	-0.02	1.54	1.22	0.01
Range (Rs Cr.)	131035.00	105945.90	55920.68	69022.77	60650.95	37917.43
Minimum (Rs Crore)	22066.26	24899.69	-29447.50	10137.73	9280.07	-16891.90
Maximum (Rs Crore)	153101.20	130845.60	26473.17	79160.50	69931.02	21025.53
Sum (Rs Crore)	8766161.0	8608023.0	158137.40	3912384.0	3760085.0	152298.5
Count	131	131	131	131	131	131

Source- Computed by the author. NB: Rs 1 Crore = Rs 10 Million)

4.1.1 Mean gross purchase and sale as a measure of liquidity: From Table- 1, it is found that mean gross purchase and gross sale by FIIs are Rs 69024.89 crores, and Rs 67779.71 crores respectively are more than double of mean gross purchase of 30806.17 and gross sale of 29606.97 by DIIs respectively. It may be interpreted that FIIs provide more liquidity into the stock market than that of DIIs. FIIs provide more liquidity into the stock market than DIIs.

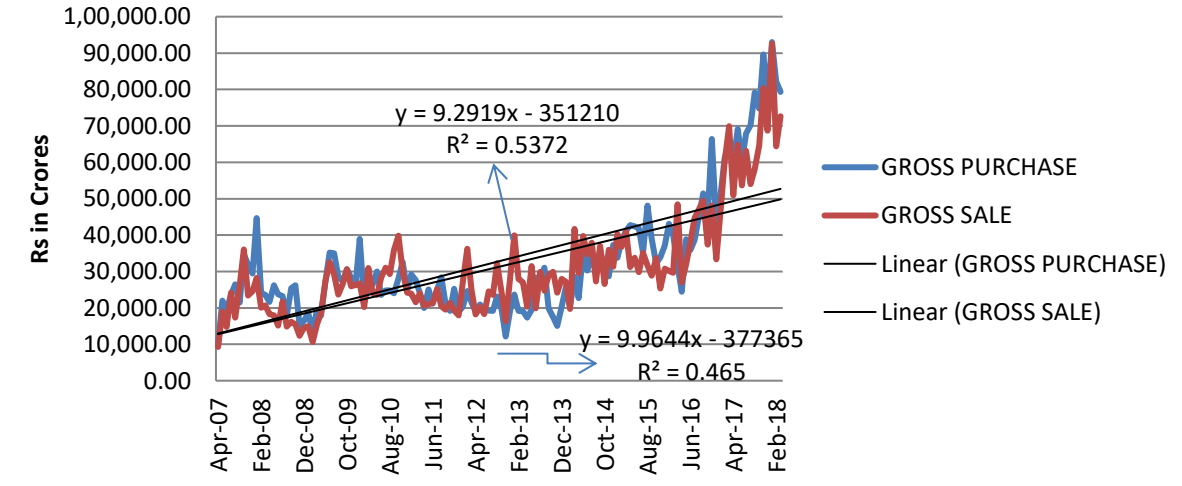
4.1.2 Sum of gross purchase, gross sale, and net purchase\ sale as measure of investment: The FIIs mean net purchase of Rs 1245.18 crores is 1.8 percent of average FIIs gross sale of Rs 69024.89 crores. Whereas mean net purchase by DIIs is Rs 1199.2 which is 3.89 percent of mean gross purchase of Rs. 30806.17 crores. Again, sum of net purchase by FIIs during period 2007-2018 is Rs 158137.40 crores out of sum of gross purchase and gross sale of Rs 8766161.00 crores and Rs 8608023 crores respectively. Sum of net purchase by DIIs during the same period is Rs 152298.50 crores out of sum of DIIs gross purchase of Rs 3912384 crores. Sum of DIIs gross purchase of Rs 3912384 crores is only 44.63 percent of sum of FIIs gross purchase. But, sum of DIIs net purchase of Rs 152298.50 crores is 96.31 percent of sum of FIIs net purchase of Rs 158137.40 crores. It may be interpreted that DIIs are more investment oriented than FIIs. Also, FIIs are more trading oriented with short- term motive of profit booking. Thus, DIIs are more investment oriented than FIIs and ii) FIIs are more trading oriented with short term motive of profit booking are accepted.

Fig.-1 Trend of Purchase and Sale by FIIs



Source: Drawn by the author using Excel Data analysis.

Fig.2 Trend of Purchase and Sale by DII



Source: Drawn by the author using Excel Data analysis

Fig. I shows the trend of GP and GS by FIIs during the period of the study. There is increasing trend over the period, but monthly fluctuations take place. The least square equation of GP indicates that the co-efficient is 14.006. Since, it is positive over the period, it has increasing trend. Similarly, gross sale has also increasing trend as the co-efficient of least square equation is 13.949. It is observed that gross purchase and sale by FIIs increases from January 2009 to March 2018. As a result, amount of investment, indices, market capitalization have upward movement with normal corrections till date which is a healthy development.

Fig. 2 shows the trend of GP and GS by DIIs. Both are on increasing trend during the period of study as the co-efficient of least square equations of GP and GS are 9.9644 and 9.2919 respectively. The coefficient of GP is slightly higher than that of GS, which indicates that DIIs is more investment oriented in comparison to FIIs.

4.1.3 Standard deviation as a measure of volatility and risk: The standard deviation of gross sale by FIIs is more than the standard deviation of gross sale by FIIs. The standard deviation of gross sale by DIIs is lesser than the standard deviation of gross purchase by FIIs.

Also the standard deviation of GS by FIIs is 2.06 times more than the standard deviation of GS by DIIs. The standard deviation of GP by FIIs is 1.72 times more than the standard deviation of GP by DIIs. It may be interpreted that risk associated with investment activity by FIIs is more than that of DIIs. And risk associated with purchase activity by FIIs is 1.72 times more than that of DIIs. Thus, the hypothesis that investment activity by FIIs has made the stock market volatile is accepted.

4.2 Correlation between FII and DII

Table-2 Correlation Matrix

	FIIs Gross Purchase	FIIs Gross Sale	FIIs Net Purchase / Sale	DIIs Gross Purchase	DIIs Gross Sale	DIIs Net Purchas/ Sale
FIIs Gross Purchase	1.00					
FIIs Gross Sale	0.91	1.00				
FIIs Net Purchase/ Sale	0.11	-0.31	1.00			
DIIs Gross Purchase	0.75	0.85	-0.31	1.00		
DIIs Gross Sale	0.83	0.71	0.19	0.85	1.00	
DIIs Net Purchase./ Sale	0.08	0.45	-0.90	0.51	-0.02	1.00

Source: Computed by the author using Excel data analysis.

The correlation matrix covering the variables is given in Table-2. The correlation between FIIs gross purchase and DIIs gross purchase is 0.75 which indicates right position correlation between them. In other words, both FIIs purchase and DIIs purchase are in same direction. When stock market is bullish, both FIIs and DIIs purchase increases and vice versa. The findings are in conversant with stock market theory. Similar result is obtained between FIIs gross sale and DIIs gross sale as the correlation coefficient is 0.71.The correlation coefficient between FIIs net purchase/ sale and DIIs net

purchase/ sale is (-0.90). It implies that when net FIIs purchase (or sale) increases; net DIIs purchase (or sale) decreases. And vice versa is true. The correlation coefficient between gross purchase and gross sell by FIIs is 0.91 which indicates that gross purchase and sale by FIIs are high leading to highly bullish and bearish trends. But, the correlation coefficient of 0.85 obtained between gross purchase and sale by DIIs is lesser than that of FIIs.

Table-3 t-Test--Two-Sample Assuming Unequal Variances (FIIs Purchase and Sale)

	FIIs Purchase (Rs Crores)	FIIs Sale(Rs Crores)
Mean	68698.14	67512.75
Variance	548101075.70	597880355.94
Observations	131	131
Hypothesized Mean Difference	0.00	
Df	250.00	
t Stat	0.39	
P(T<=t) one-tail	0.35	
t Critical one-tail	1.65	
P(T<=t) two-tail	0.69	
t Critical two-tail	1.97	

Computed by the author using Excel data analysis.

Table-3 shows the result of t-test between average purchase and sale by FIIs. The difference is not significant as the P-value is 0.69. It implies that the difference between average purchase by FIIs and average sale is not statistically significant. It implies that FIIs do not hold/ invest for a long time. Hence, the hypothesis H_2 is rejected.

Table 4 t-Test- Two-Sample Assuming Unequal Variances (DIIs Purchase and Sale)

	DII Purchase	DII Sale
Mean	30692.14	29448.45
Variance	188232443.34	139320465.07
Observations	131	131
Hypothesized Mean Difference	0.00	
Df	245.00	
t Stat	0.77	
P(T<=t) one-tail	0.22	
t Critical one-tail	1.65	
P(T<=t) two-tail	0.44	
t Critical two-tail	1.97	

Computed by the author using Excel data analysis.

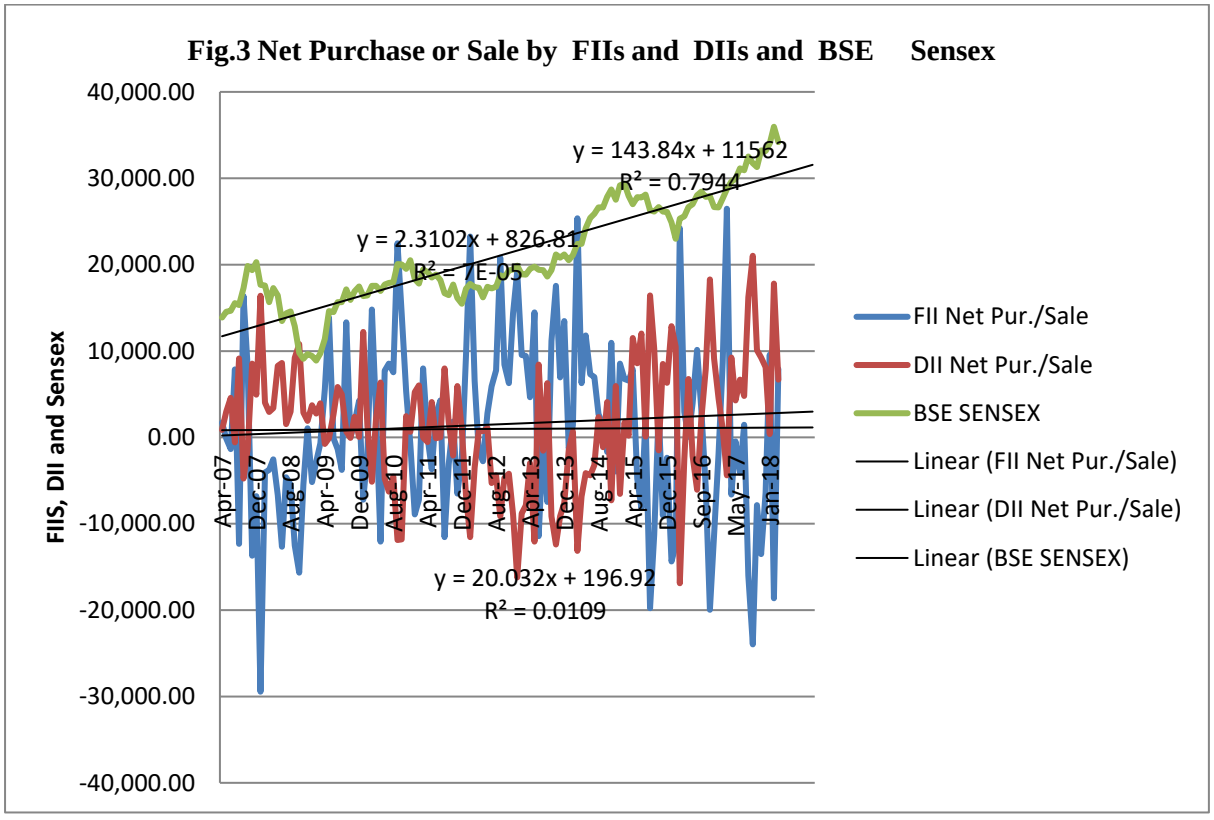
Table-4 shows the result of t-test between average DIIs purchase and average DIIs sale. Since the p-value is 0.44, the difference between average DIIs purchase and sale is not statistically significant. It indicates that there is no significant difference between purchase and sale by DIIs. Hence, the hypothesis H_3 is accepted.

Table 5 F-Test Two-Sample for Variances

	Net FIIs Purchase/ Sale	Net DIIs Purchase/ Sale
Mean	1185.39	1243.69
Variance	104128024.90	52172845.08
Observations	131	131
Df	125.00	125.00
F	2.00	
P(F<=f) one-tail	0.00	
F Critical one-tail	1.34	

Computed by the author using Excel data analysis

Table-5 provides very interesting result of F-test between net purchase and sale by FIIs and DIIs. F-test compares the variance between net purchase and sale by FIIs and DIIs. Since P-value is 0.00 (zero), it implies that there is significant difference between variance of net purchase and sale by FIIs and DIIs. Hence, the hypothesis H_4 is accepted.



Source: Computed by the author using Excel Data analysis

Fig. - 3 display the impact of Net Purchase or Sale by FIIs and Net Purchase or Sale by DIIs on BSE Sensex movement during the period of study. Continuous net sales by FIIs during the period from November 2007 to March 2009 were Rs 131,001.45 crores. Whereas, DIIs went on continuous monthly net purchase of Rs 96,916.56 crores during the same period. As a result, Sensex that reached record high of 19837.99 on October 2007 scaled new high of 20286.99 on 31/12/2007 due to net purchase by DIIs. Then Sensex plummeted to a low of 8891.61 on 288th Feb. 2009 due to continuous sale by FIIs. Net purchase by DIIs enabled the market to recover and Sensex recovered to 17558.71.

Table 6 Regression results (BSE Sensex as Dependent Variable, Net FIIs and Net DIIs as independent Variable

Multiple R	0.37					
R Square	0.14					
Adjusted R Square	0.12					
Standard Error	5735.40					
Observations	131.00					
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95.0%*
Intercept	19593.69	602.52	32.52	0.00	18401.51	20785.87
FII NET	0.42	0.11	3.81	0.00	0.20	0.63
DII NET	0.69	0.15	4.48	0.00	0.39	1.00

Source: Computed by author using Excel Data analysis

The regression equation is as follows:

$Y=19593.69 + 0.42X_1 + 0.69X_2$

(Where Y= BSE Sensex

X_1 = Net FIIs Purchase and Sale

X_2 = Net DIIs Purchase and Sale)

Both Net FIIs and DIIs purchase and sale have positive impact on BSE Sensex. The DIIs purchase sale has relatively higher impact on BSE Sensex as the co-efficient is 0.69. Both the co-efficient are significant as P-value is 0.

Table 7 t-Test: Two-Sample Assuming Unequal Variances

	FII NET	BSE SENSEX
Mean	979.29	21056.06
Variance	106091432.80	37532616.34
Observations	131.00	131.00
Hypothesized Mean Difference	0.00	
df	212.00	
t Stat	-19.17	
P(T<=t) one-tail	0.00	
t Critical one-tail	1.65	
P(T<=t) two-tail	0.00	
t Critical two-tail	1.97	

Source: Computed by the author using Excel Data analysis

Table 7 shows t- test results between net investment by FIIs and BSE Sensex. The P-value at 5 percent level of significance is found to be zero at two-tail test. Hence, there is significant difference between average FIIs and BSE Sensex. The t-statistics is found to be -19.27. The hypothesis H_6 is accepted. Hence there is no close association between variance of FII and BSE SENSEX.

Table 8 t-Test: Two-Sample Assuming Unequal Variances

	DII NET	BSE SENSEX
Mean	1519.06	21056.06
Variance	53294035.60	37532616.34
Observations	131.00	131.00
Hypothesized Mean Difference	0.00	
df	252.00	
t Stat	-23.46	
P(T<=t) one-tail	0.00	
t Critical one-tail	1.65	
P(T<=t) two-tail	0.00	
t Critical two-tail	1.97	

Source: Computed by the author using Excel Data analysis

Table 8 shows t- test results between net investment by DIIs and BSE Sensex. The P-value at 5 percent level of significance is found to be zero at two-tail test. Hence, there is significant difference between average FIIs and BSE Sensex. The t-statistics is found to be -23.46. The hypothesis H_7 is accepted.

Table-9 Descriptive Statistics of FII, DII and BSE Sensex

Statistical Measure	FII NET	DII NET	BSE SENSEX
Mean	979.29	1519.06	21056.06
Standard Error	899.92	637.83	535.26
Median	1034.81	1527.19	19379.77
Standard Deviation	10300.07	7300.28	6126.39
Sample Variance	106091432.80	53294035.60	37532616.34
Kurtosis	0.25	0.07	-0.60
Skewness	-0.02	-0.01	0.34
Range	55920.68	37917.43	27073.41
Minimum	-29447.51	-16891.90	8891.61
Maximum	26473.17	21025.53	35965.02
Sum	128286.43	198996.53	2758344.04
Count	131.00	131.00	131.00

Source: Computed by the author using Excel Data Analysis

The descriptive statistics in table-9 shows that the standard deviation of BSE Sensex is the d lowest compared to DII NET and FII NET. While the coefficients of skewness are both negative but it is positive for BSE Sensex. The volatility refers to variation of data over a period of time. In statistics, volatility can be studied by analyzing standard deviation, or variance or coefficient of variation. Hence, CV is calculated for FII NET, DII NET and BSE Sensex.

Table-10 Coefficient of Variation (CV) of FII, DII and BSE Sensex

FII NET	DII NET	BSE SENSEX
1051.78	480.58	29.09

From the values of Coefficient of Variation (CV), it is observed that FII Net Investment (1051.78) is most volatile than DII NET Investment (480.58) which contributes to volatility of BSE Sensex (29.09). than DII NET (480.58). FIIs have contributed most to stock market volatility than DIIs. Thus, the hypothesis H_5: Investments by FIIs have contributed more to stock market volatility than that of DIIs is accepted.

The activity of FIIs added to volatility in the stock market which is similar to the findings of Bohn and Tesar (1996) and Berko and Clark (1997). This live case is the evidence that DIIs buy when FIIs sale. DIIs acted as the stabilizer during continuous net sale by FIIs and rescuer of the stock market during market crash which is in the same line of Mohan (2006). It is observed that without monthly net purchase by DIIs, the market could have crashed more leading to deeper market crash and deep depression. Due to stabilizing effect of DIIs, the stock market index .i.e. BSE Sensex has scaled new high 34184.04 during Mar 2018. The increasing investment by DIIs has stabilizing effect on the market and the Sensex which has created new milestone of 40267.62 on 3rd June 2019.

5. Suggestion and Conclusion

This paper investigated into the effect of the investments by FIIs and DIIs on liquidity and volatility of the Indian stock market. The paper has studied the purchases and sales both by FIIs and DIIs during the study period. From the empirical analysis, it is found that investments by FIIs and DIIs are on increasing trend over time. FIIs provide more liquidity into the stock market than that of DIIs. DIIs are more investment oriented than FIIs. FIIs are more trading oriented than DIIs with short term motive of profit booking. FIIs buy when the market rises and sell when the market falls. Investments by FIIs have contributed to stock market volatility. DIIs buy when FIIs sale and the increasing investments by DIIs have better stabilizing effect on the market and the BSE Sensex. The findings of this empirical study are highly significant for regulators of stock markets and all other stakeholders to control volatility in order to stabilise the market and to protect investors' interest particularly retail investors. To stabilise the market during crisis, necessary measures may be taken by the regulators to empower DIIs to purchase more when FIIs sale. There is scope for further study on the factors influencing FII and DII investment.

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