An Analytical Study to Identify the Dependence of BSE 100 on FII & DII Activity (Study Period Sept 2007 to October 2013)

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ABSTRACT: *Conventional wisdom confirms that FIIs & DIIs are the principal movers & shakers in the Indian equity market. They are seen as the cardinal constituents of the entire investment domain in the union of India. This study is carried out to measure their impact in a mathematical way, and to figure out whether they are the true market movers or not. This is a comparative study to measure the impact of the two most important cash flow generators in Indian stock market. The study period is carefully chosen in order to avoid unnecessary sentiment based or event driven periods apart from the global credit crisis in 2008.*

KEYWORDS: *FII, DII, BSE 100, Indian Stock market*

I. INTRODUCTION

FIIs were first allowed to invest in Indian bourses post 1992, as a measure of liberalization. Currently many major corporates are witnessing sizeable stake being held by FIIs, such as Pension Funds, Mutual Funds etc. They are viewed as sophisticated investors (Han &Wang, 2004), as they are better informed & equipped in comparison to the common retail investors. The immediate impact of introduction of FIIs in January 1993, saw a significant surge in trading volumes & capital inflows. The impact study of FIIs flows on domestic stock market is important from government as well as investor point of view, for example, does the opening up of the market for FII increase speculation in the market and thus make the market more volatile and more vulnerable to foreign shocks (Li, 2002). As of today there are more than 1480 registered FIIs operating under SEBI in Indian Markets; however the data for FII is available starting from April 2006, while data for DII is available only starting from April 2007. DIIs refer to Domestic Institutional Investors in India who are investing in Indian Financial Markets. Life Insurance Corporation of India (LICI) & Unit Trust of India (UTI) are the prime examples of DII.

II. RESEARCH METHODOLOGY

In this study BSE100 Monthly adjusted close is considered for a period of 6 years plus. Monthly net inflow (Gross Purchase minus Gross Sales) of both FIIs & DIIs have been considered for the same period of study. A total of 74 data points are under consideration. Multiple Regression has been carried out with Residuals to test the Hypothesis. This study is limited to the mentioned study period, Forex fluctuations are not considered here, BSE 100 is given precedence over BSE 30 as it is not concentrated, on the other hand quite a broad based Index compared to BSE 30. During September 2007 to October 2013, the major global financial crisis & recovery from the same is captured, so the effect of that cannot be ignored though. Both the data set of FII & DII are credibly available from mid of 2007. So, Sept 2007 was chosen as the start of the event period. As FIIs are observed to pump in funds for an expectation of an election based rally in Indian stocks post October 2013, so the time period is considered up to October 2013. This is deliberately done to keep the study unbiased against a possible sentiment based call on the part of FIIs. Inflow from FIIs into Indian equity markets stood at Rs. 88,772 crore since the announcement of Narendra Modi as the prime ministerial nominee of BJP in September 2013. By its nature & structure this study could be termed as secondary data based analytical work.

III. HYPOTHESIS SETTING

Hypothesis for X Variable 1, FII Activity- Net Purchase or Sales in each day by the FIIs.
Ho- BSE 100 movement doesn't depend on FII Activity (Study Period Sept 2007 to Oct 2013)
Ha- BSE 100 movement depends on FII Activity (Study Period Sept 2007 to Oct 2013)

Hypothesis for X Variable 2, DII Activity- Net Purchase or Sales in each day by the DIIs.

Ho- BSE 100 movement doesn't depend on DII Activity (Study Period Sept 2007 to Oct 2013)
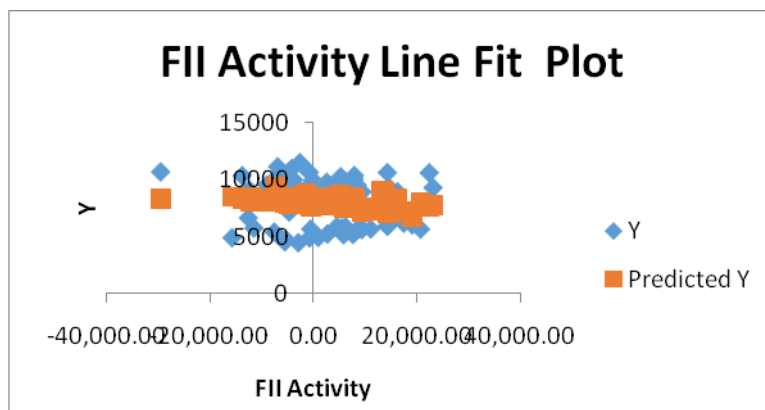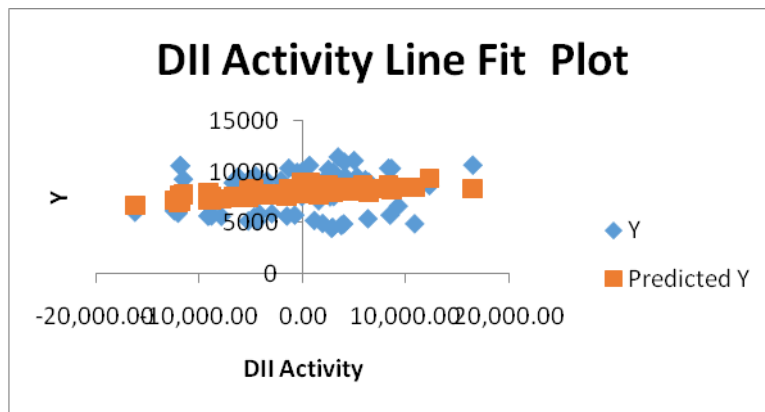Ha- BSE 100 movement depends on DII Activity (Study Period Sept 2007 to Oct 2013)

This is a comparative study to measure the impact of two most important cash flow generators in Indian stock market.
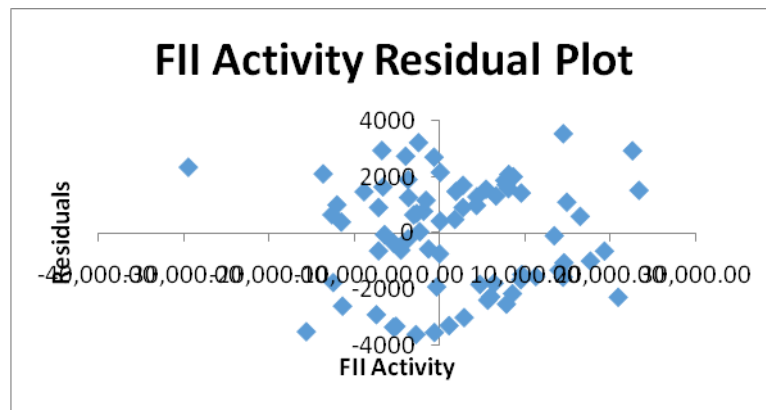
Analysis& Charts

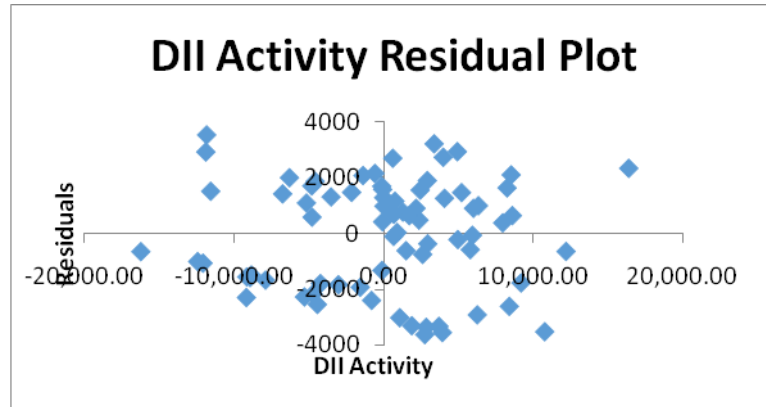| Regression Statistics	
Multiple R	0.23452098
R Square	0.05500009
Adjusted R Square	0.02838037
Standard Error	1969.50079
Observations	74

ANOVA

	df	SS	MS	F	Significance F		
Regression	2	16028847	8014424	2.06614108	0.134223253		
Residual	71	2.75E+08	3878933				
Total	73	2.91E+08					

	Coefficients	Standard Error	t Stat	P-value	Lower 90.0%	Upper 90.0%	Occurrence %
Intercept	7908.5	252.5884	31.310	2.7395E-43	7487.5834	8329.511	
FII Activity X1	0.07510	0.058164	1.2913	0.20078518	-0.021828	0.172044	79.92%
DII ActivityX2	0.16152	0.089111	1.8126	0.07411717	0.0130125	0.310039	92.59%

DII Activity Residual Plot

FII Activity Residual Plot

IV. CONCLUSION

Conventional wisdom confirms that FIIs & DIIs are the principal movers & shakers in the Indian equity market. They are seen as the cardinal constituents of the entire investment domain in the union of India. This study is carried out to measure their impact in a mathematical way, and to figure out whether they are the true market movers or not.BSE 100 is a large Cap broad-based Index & FII, DII data is from Sept 2007 to October 2013 for the said Index. This study is intended to measure the impact of FII, DII trading activity from September 2007 to October 2013 on BSE 100.Adjusted R Square is most important in such a multivariate analysis, here it is found to be quite feeble (0.02838). A relative high value of R Square increases the predictability of the model, such a low value doesn't help the cause at all.74 observation points are in consideration over a little more than 6 years. Degree of Freedom (df) suggests the number of variables, here there are two (namely FII Activity/DII Activity).F factor is only 2.066 whereas Significance F is 0.134, so the Regression statistics is semi strong to weak. At 90% confidence level, FII Activity P value is not that less; comparatively DII Activity P Value is lesser.X2 variable shows occurrence is within the Probability Plot. T Critical is 1.665996. t Stat of X2 variable falls in the Tails (i.e. post T Critical) so, Ho should be rejected & Ha should be accepted. So, it is tested that BSE 100 does depend upon the DIIs (period Sept 2007 to Oct 2013). Now the next question is, what the impact of DIIs in BSE 100 is; is it strong or feeble. But the intensity of the following DII activity will not be significant though, as the Coefficients are very low (0.1615), thus confirming the similar outcome that of R Square, that is the impact will be extremely low. Now focussing on the Residuals or the observed error. The difference between the observed value of the dependent variable (y) and the predicted value (ŷ) is called the residual (e). So, each data point has one residual.

This is quite evident from the chart that predicted level of BSE 100, cannot just be predicted by FII & DII Activity.

The gap between the observed value & predicted value is quite substantial & more importantly diverging from 2010 onwards.

Non-random pattern of the curve supports a non-linear model.

The sum of the residuals is always zero, whether the data set is linear or nonlinear.

So, to sum up, it could be concluded that though BSE 100 depends on DIIs and their money inflow, but yet neither that impact is substantial nor there is a clear pattern to predict the future trend of BSE 100.

The study started with FIIs & DIIs and their relations with BSE 100 in that given period of time. First part of the work has omitted FIIs as a factor for the same. The second part diminishes the impact of even DIIs in the movement of BSE 100.

Often it has been heard that "too much money is chasing too few stocks". If that point has to be proved then more concentrated Index such as Sensex (BSE 30) or NIFTY (NSE 50) are to be considered. One more important point could be considered that, FIIs & DIIs are trading in most of the time. So, the money is not staying in the stock or the Index for a considerable length of time. Because of that reason the impact may be lesser than what it ideally be.

V.   LIMITATIONS OF THE STUDY
[1] This study is only for BSE 100.
[2] Time period is specified from Sept 2007 to Oct 2013.
[3] Only DIIs & FIIs are taken into consideration as market participants.
[4] Monthly data is used for the entire study period.
[5] Currency effect is not considered.

Scope for further Research
[1] This study could be carried out for BSE 30 (Sensex) or NSE 50 (NIFTY).
[2] Time period could be taken differently.
[3] Along with FIIs & DIIs, SME, HNI and other market participants could be included.
[4] Instead of Monthly data, daily data could be used.
[5] Currency effect could have been implemented too.
[6] FDI can be also taken as a parameter.

Key Take away
[1] BSE 100 moves in a weak correlation with the DIIs, and doesn't depend on FIIs (study period Sept 2007 to October 2013).
[2] BSE 100 movements could not be predicted with even DII movement.

Teaching Notes

[1] Conventional wisdom & market dynamics often take different routes

[2] FIIs inflow is robust but the outflow is irregular and huge too, thus the impact reduces

[3] Money from FIIs are purely from the trading perspective, so it hardly spends time in the market, so, impact reduces

[4] DIIs too to some extent have similar pattern of investment like FIIs so the impact is less

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