

SENSEX AND FPI

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Does FPI drive the Markets?

Amongst emerging countries, India has remained a bright spot for foreign investors. The long term relation between FPI (equity) and Equity markets is positive based on monthly data. However, based on daily data the relation is weak. These are some of the results that come from the regression analysis of stock market movements on flow of FPIs. Similar analysis was conducted on Mutual Funds and results reflect that they are not a significant driver of equity indices like Sensex.

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Global macro backdrop: As per the IMF's World Economic Outlook, India's is poised to grow by 9% in FY23. On the other hand, global growth has been pegged at 4.4% in CY22 from 5.9% in CY21. The moderation in global growth is on account of multiple challenges that the global economy faces in the wake of Covid-19 crisis along with supply disruptions. However India is likely to do better than other countries on the back of improvement in investment and higher government spending. Moreover, Indian markets have always remained an attractive destination for investment especially by Foreign institutions.

What is the role of institutions in driving stock markets? There are two sets of institutions that are large investors in the market and could be driving the same- FPIs and mutual funds. In recent months, global markets have been volatile due to escalated geo political tensions between Russia and Ukraine. The impact of the same can be seen across different asset classes. Indian markets have ended in the red in the recent past with volatile FPI (equity) flows. Mutual funds also have a role to play in the market being large investors in the equity space. Their actions at times have countered those of FPIs.

How have FPIs and MFs impacted markets: To understand the relation between the two sets of variables, various regression exercises have been carried out:

- **Changes in Sensex regressed on FPI flows in equities and MFs net flows in equity on monthly basis**
- **Changes in Sensex regressed on only FPIs in equity on monthly basis**

The same has also been done on a daily basis for different time periods.

Results: While analysing the dataset it has been seen that relation between FPI and equity markets has largely been a positive one especially for a longer time span. Over the last 8 years there has been a strong positive correlation (0.6) between the FPI equity flow and returns on Sensex. Notably, there is direct relation between the two. Previously, in the year 2015 it was seen that FPI (equity) investment had dropped to US\$ 3.3bn in 2015 from US\$ 16.2bn and the return in domestic market was down by (-) 5% in 2015 compared with an increase of 30% in 2014. Different global factors were at play during this period including Fed beginning the rate hike cycle in 2015 after holding rates for a decade.

What about Mutual fund: The datasets on longer time period have clearly shown a positive correlation between FPI (equity) and Sensex, it is interesting to see if Mutual Funds also exhibit the same relation. For monthly dataset ranging from Jan'13 to Feb'22, it has been observed the while the FPI continue to have positive correlation of 0.6 with the domestic market. The Mutual fund (equity) flows tends to a draw negative correlation with capital markets at (-) 0.5. Thereby implying that mutual fund flows cannot be reliable driver of capital markets, even the regression results for the same reflect the same with much lower variations (R Square).



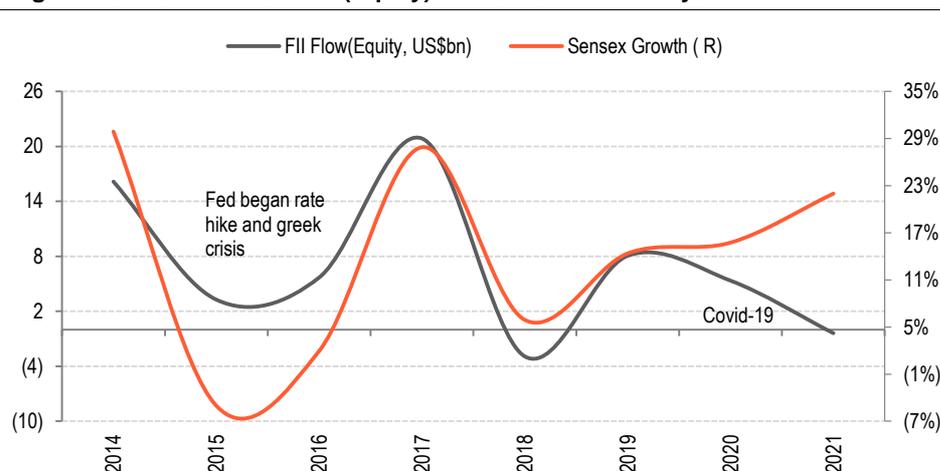
How do the FPIs fare: Tracking the *monthly database* and analysing the impact of FPI flow on changes in Sensex, further sheds light on the relation between the two variables. The correlation is fairly strong between the two, starting from Jan'13 to Feb'22 and stands at 0.6. As global economy was jolted by the emergence of Covid-19 pandemic, the dataset is also analysed taking into account pre-Covid period i.e from Jan'13 to Mar'20 and that too reveals much stronger correlation at 0.7. Though, similar analysis from Apr'20-Feb'22 (post covid) signals a relatively lower correlation at 0.5. Regression analysis has also attested to same as the results are fairly significant.

Further, *daily dataset* is used and results showcase, FPI (equity) flow are not a significant factor driving the market, there are other domestic and global factors at play. The results reveals lower correlation at 0.3 between the FPI (equity) and Equity markets during Jan'13-Feb'22 period. For pre (Jan'13-Mar'20) and post covid-19 period (Apr'20-Feb'22), the results are same, with much lower correlation. Regression results again signal the same with a lot of variations led by *much lower R square*. The coefficient for FPI is however significant.

Outlook: The ongoing conflict between Russia and Ukraine has hit a deep blow to the global markets. The stock markets are volatile across the globe with commodity prices soaring to new highs and international crude prices touching the US\$ 128/bbl mark (highest since Jul'08), as the crisis deepen between the two countries. Like other global markets, Sensex too has declined during this period and has shed as much as (-) 3.4% From Jan'-Feb'22. FPI (Equity) flow has been at (-) US\$ 9.8bn. As the results reveal that FPI have a strong correlation with capital markets, but this holds value only on long term basis. The same that was monitored for daily dataset showed a low coefficient of determination.



Fig 1 – Relation between FPI (Equity) and Sensex over the years



Source: Bloomberg, Bank of Baroda Economic Research

Table 1: Correlation matrix

	Sensex	FPI (Equity)	MF Equity
Sensex	1		
FPI Equity	0.6	1	
MF: Equity	(0.5)	(0.8)	1

Source: Bloomberg, Bank of Baroda Research

Table 2: Multiple regression between Sensex, FPI (Equity) and Mutual Fund (equity)

	Coefficients			R Square
	Constant	FPI	Mutual Fund	
Jan'13-Feb'22	267.41	0.32 (3.79)	-0.004 (-1.82)	0.38
Jan'13-Mar'20	(30.06)	0.42 (4.62)	-0.002 (-0.78)	0.43

Source: RBI, Bank of Baroda Research. Note: Data in parenthesis are t ratios reflect FPI are significant, Mutual fund is not significant

Table 3: Regression between Sensex and FPI (Equity)-Monthly frequency

	Coefficients		R Square	Correlation
	Constant	FPI		
Jan'13-Feb'22	16.04	0.43 (7.80)	0.36	0.6
Jan'13-Mar'20	(176.50)	0.48 (7.97)	0.43	0.7

Source: RBI, Bank of Baroda Research Note: Data in parenthesis are t ratios reflect FPI are significant

Table 4: Regression between Sensex and FPI (Equity) –Daily frequency

	Coefficients		R Square	Correlation
	Constant	FPI		
Jan'13-Feb'22	3.41	0.38 (12.22)	0.06	0.3
Jan'13-Mar'20	(3.24)	0.30 (8.62)	0.04	0.2

Source: RBI, Bank of Baroda Research Note: Data in parenthesis reflect FPI are significant

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