Foreign investors under stress: Evidence from Indian firms

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Foreign investor behavior in Indian stock markets

- *Understanding the ADR premium under market segmentation* Matthieu Stigler, Ajay Shah and Ila Patnaik. NIPFP Working Paper, 2010.
- *The investment technology of foreign and domestic institutional investors in an emerging market, Ila Patnaik and Ajay Shah*, Journal of International Money and Finance, 2013.
- *Foreign Investors under Stress: Evidence from India* Ila Patnaik, Ajay Shah and Nirvikar Singh. International Finance, 2013.
- *Foreign investors under stress: Firm level evidence* Work in progress.
- *Foreign investors under stress: Cross country evidence* Work in progress.

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3. "Are foreign investors big fish in a small pond? Can their trades (regardless of the motivation) kick off short-term price distortions?"
4. "Will my country get hit with selling for no fault of ours when there is a crisis in the foreign investors' home country?"

Evidence

- Patnaik et al. 2013 find no significant macroeconomic effects for India.
- These results may not hold for other, smaller markets.
- These results aggregate over all firms. The impact may be different for more or less liquid firms.

This inspires our ongoing work:

1. Similar analysis for many countries
2. Analysis at the level of firms.

The importance of extreme events

- If you put all the data together and estimate linear models there isn't much going on.
- But the fact that the average response is zero is cold consolation for a policy maker.
- What foreign investors do on most days is not interesting.
- The real concerns are about extreme days.

Going from macro data to firm data

- While the overall results are benign, could there be cross sectional variation?
- Maybe Infosys and ITC are well integrated into financial globalisation. Maybe smaller firms are not.
- Maybe FIIs are big fish in a small pond for small stocks.
- This motivates an examination of firm data.

A unique dataset

- Only firms with high market capitalisation are traded by FII's
- We analyse the 384 firms which comprise of 99% of FII trade value in 2011
- From 2003 to 2011, net buy by all FIIs for every listed company.

	x =85%	x =90%	x = 99%
2003	21	26	81
2004	29	38	114
2005	51	74	246
2006	61	85	303
2007	82	117	367
2008	73	105	341
2009	68	95	297
2010	105	144	428
2011	92	128	384

Data construction

FII SEBI data

- FII transaction level data is available from 2002 onwards for around 1800 listed firms on SEBI's website which is updated on a monthly basis
- FII's are required to settle through custodians who are required to supply data to the government, and this is the source of data

Variables reported by SEBI

Custodian code	Report date
Transaction ID	FII registration number
Scrip name	Sub account registration number
ISIN code	Broker registration number
Transaction date	Transaction type
Stock exchange code	Settled code
Transaction date	Reason for delay in report
Transaction rate	Transaction quantity
Instrument type	Value of transaction
Reporting type	Reason for amendment

Steps to construct FII series

1. Extract FII transaction level data from SEBI
2. Generate daily FII series by summing up all daily transactions by FII
3. Using quarterly FII data, we generate a series for daily FII holding (*dfh*) by taking seed values as quarterly data and then adding the daily transactional sum to get daily FII holding
4. We estimate daily *fii* series as change in daily FII holding (*dfh*) w.r.t total shares (*ts*)

$$fii = \frac{dfh_t - dfh_{t-1}}{ts_t} \quad (1)$$

Purging stock returns of macroeconomic fluctuations

- Conventional event study methodology: market model
- We obtain better variance reduction using an augmented market model that controls for Nifty and for the exchange rate.
- Extreme events are tail values for the residual, they are bad news or goods news *for the firm*.

Dataset of extreme events

- Totally we have roughly 7000 events in each tail.
- For each quintile, approximately we have 1400 events in each tail
- Very strong dataset; ability to resolve fairly small events.

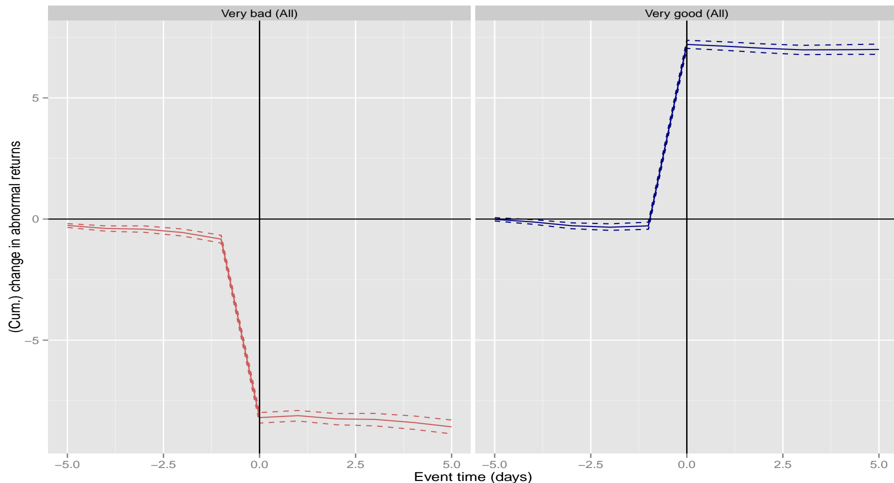
Data

We now hold a data set of:

- Dates of extreme stock price movement of 384 firms purged of macro factors.
- Daily data of share of FII holdings in each of those firms.
- Liquidity of the shares of each of those firms.

How efficient is the market?

All extreme events



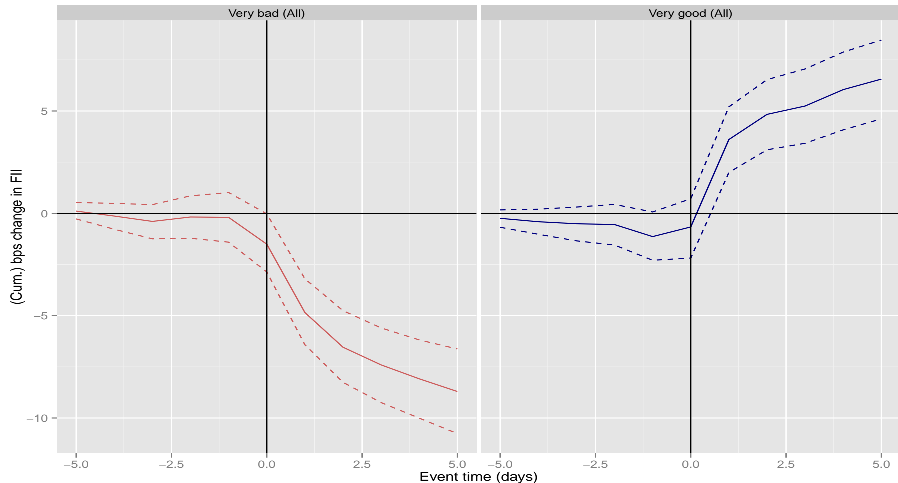
From event date to 5 days later

	Lower bound	Mean	Upper bound	p-value
Very good days	-0.48	-0.21	0.07	0.14
Very bad days	-0.76	-0.38*	-0.01	0.05

What can rational traders do?

- They should sell on good event days and buy back 5 days later to make the 0.21 gain.
- They should sell on bad event days as price falls further after that.

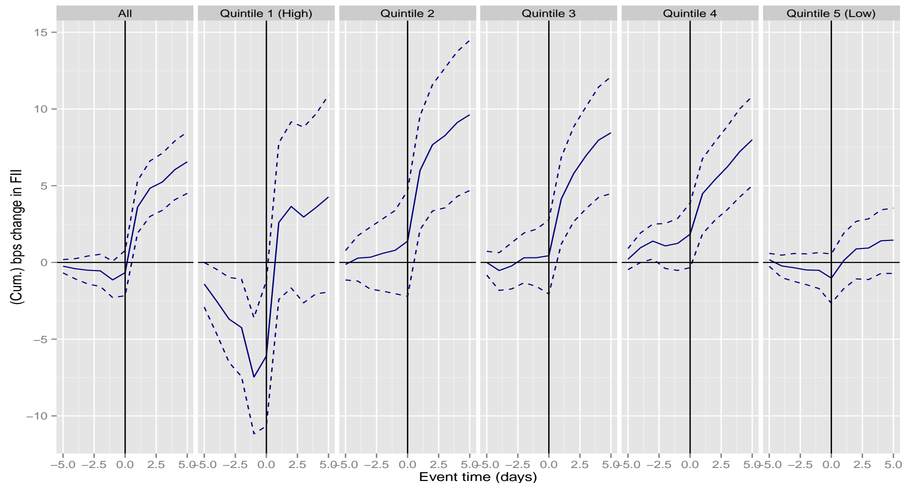
Event on abnormal returns and response of FII



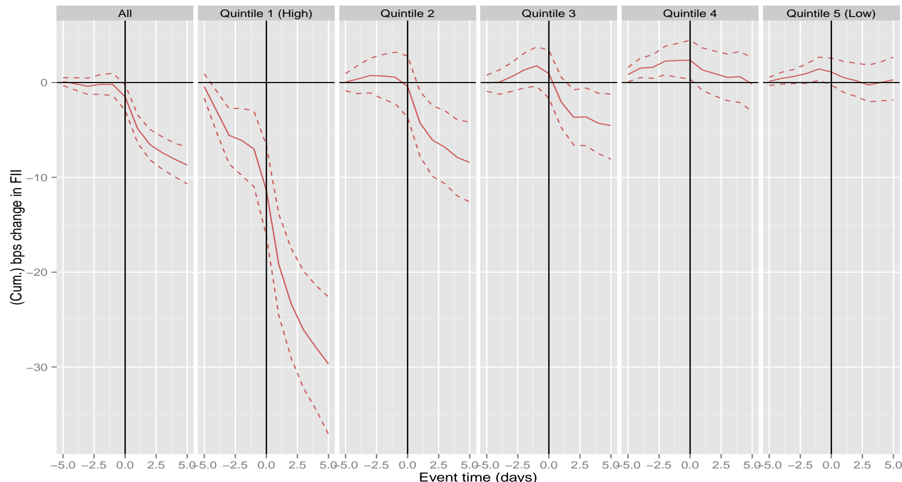
FII trading strategy

- Sell after bad days and keep on selling
- Buy after good days and keep on buying
- Positive feedback trading

Liquidity quintiles; very good event



Liquidity quintiles; very bad event



What have we learned?

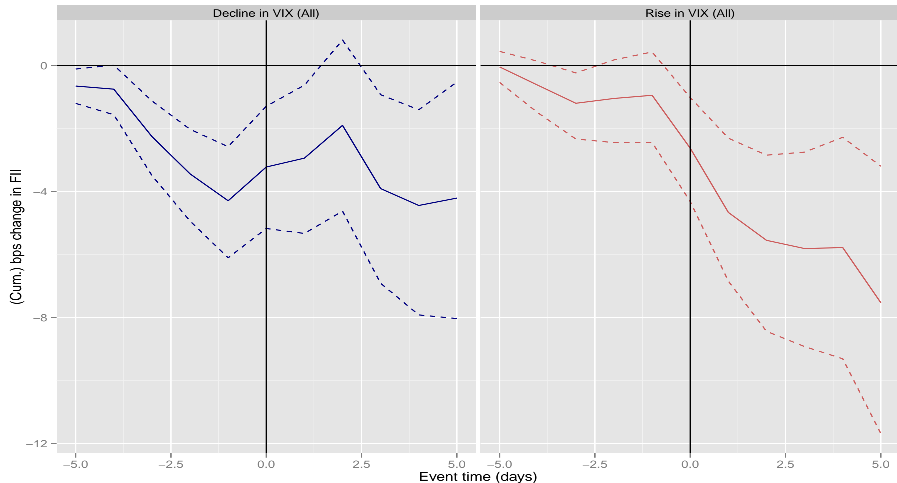
- FIIs are positive feedback traders on average.
- They do this with large and liquid stocks but not for small / illiquid stocks.
- With the most liquid stocks, they are *selling* prior to a big +ve day.
- With the most liquid stocks, they are selling prior to a big -ve day. They could be causing the fall or they could be forecasting it well.
- They do better on bad events than on good events.

Impact of VIX on FII behaviour

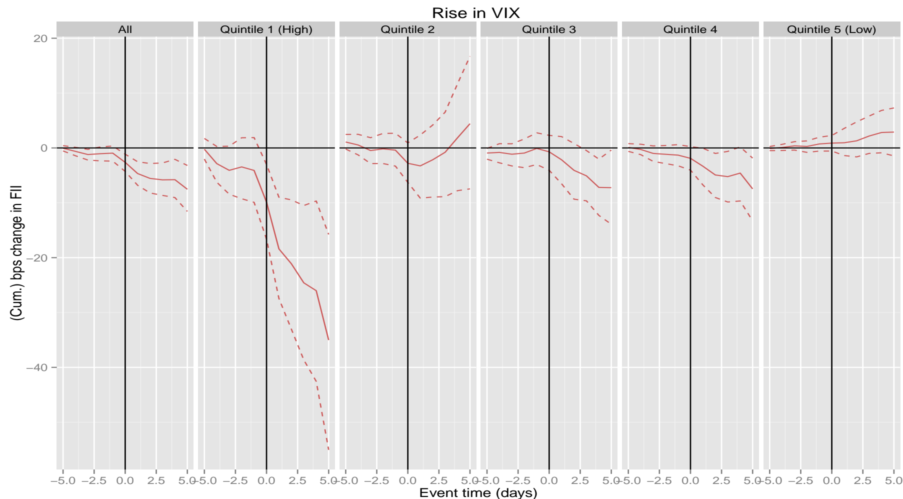
How might the VIX matter?

- A well established idea in international finance: When VIX goes up, money gets pulled back from EMs.
- Effects seen with macro data were muted.
- Does the picture change when we go down to firm data?

Event on VIX and response of FII

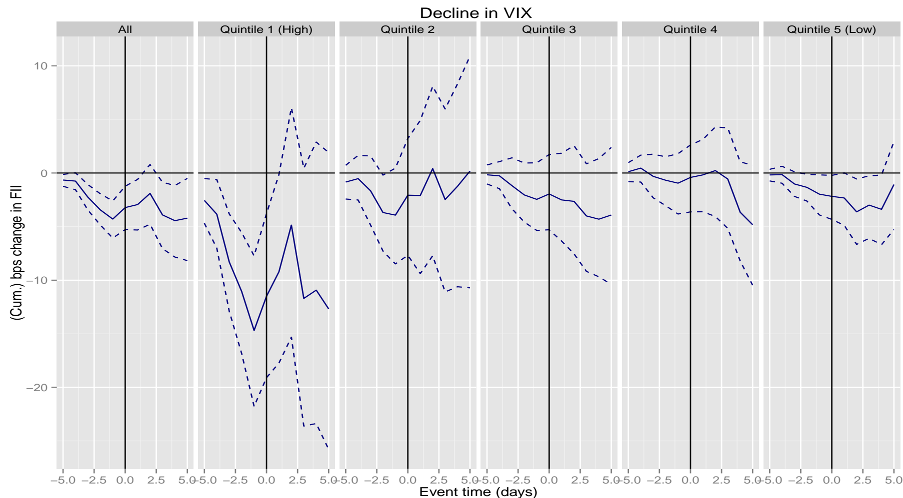


Liquidity quintiles; strong rise in VIX



Liquidity quintiles; strong drop in VIX

Decline in VIX and response of FII



Interpretation

- FIIs sell after days of a big rise in VIX
- This is expressed through the most liquid firms.
- Less liquid firms slumber on.

Findings

- *FIIs don't possess a great investment technology*: They are positive feedback traders.
  Consistent with *The investment technology of foreign and domestic institutional investors in an emerging market*, in *Journal of International Money and Finance*, 2013.
- *For the most liquid stocks FII sales are seen before the sharp fall in price.*
- *They express their decisions through the most liquid stocks* e.g. in response to a rise in VIX.
- *They are mindful of liquidity in transacting*.
- *Their extreme days do not kick off temporary price pressure with overshooting/undershooting*.

Conclusions and further work

- Novel dataset; novel methodology
- Offers an opportunity to analyse the transmission of global shocks to firm level stock prices.
- FIIs do not seem to push stock returns for the most liquid firms up, but they could be pushing them down when they sell. We have only established correlations here and not causation.
- Does this imply that the most liquid firms suffer from negative global shocks while small illiquid firms are insulated?
- We need to think deeper about causes and consequences.

Thank You