

Foreign Investors under Stress: An Event Study for India

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Outline

- Introduction
- Data and Methodology
- Results
- Conclusions

Introduction

- Financial globalization
 - impacts of large international capital flows on emerging markets
- Are foreign investors
 - big fish in small ponds, who create large waves?
 - smart, and process information better, driving efficient price adjustment?
 - clueless trend chasers?

Introduction

- Policy makers care especially about crises
- What happens in stressful market conditions may differ from day-to-day outcomes
- Event study methodology
 - The events are extremes of returns or net FII flows
 - FII: Foreign Institutional Investor

Introduction

- Stigler, Shah and Patnaik (2010)
 - Estimate a five-variable VAR: net FII investment, Nifty index, S&P 500 index, ADR premium, INR/USD exchange rate
 - Causality tests indicate that a shock to net FII flows does not cause the Nifty index
 - Reverse causality does hold
 - Shocks to net FII flows do not feed through to any of the other four variables
 - Positive shocks to the exchange rate, ADR premium and S&P 500 all affect net FII flows

Data

- Daily data
- Sample period: January 2002 to August 2010
- Nifty index
- FII inflows
- Cospi market capitalization
- S&P 500 index
- INR-USD exchange rate

Figure 1: Net FII Flows

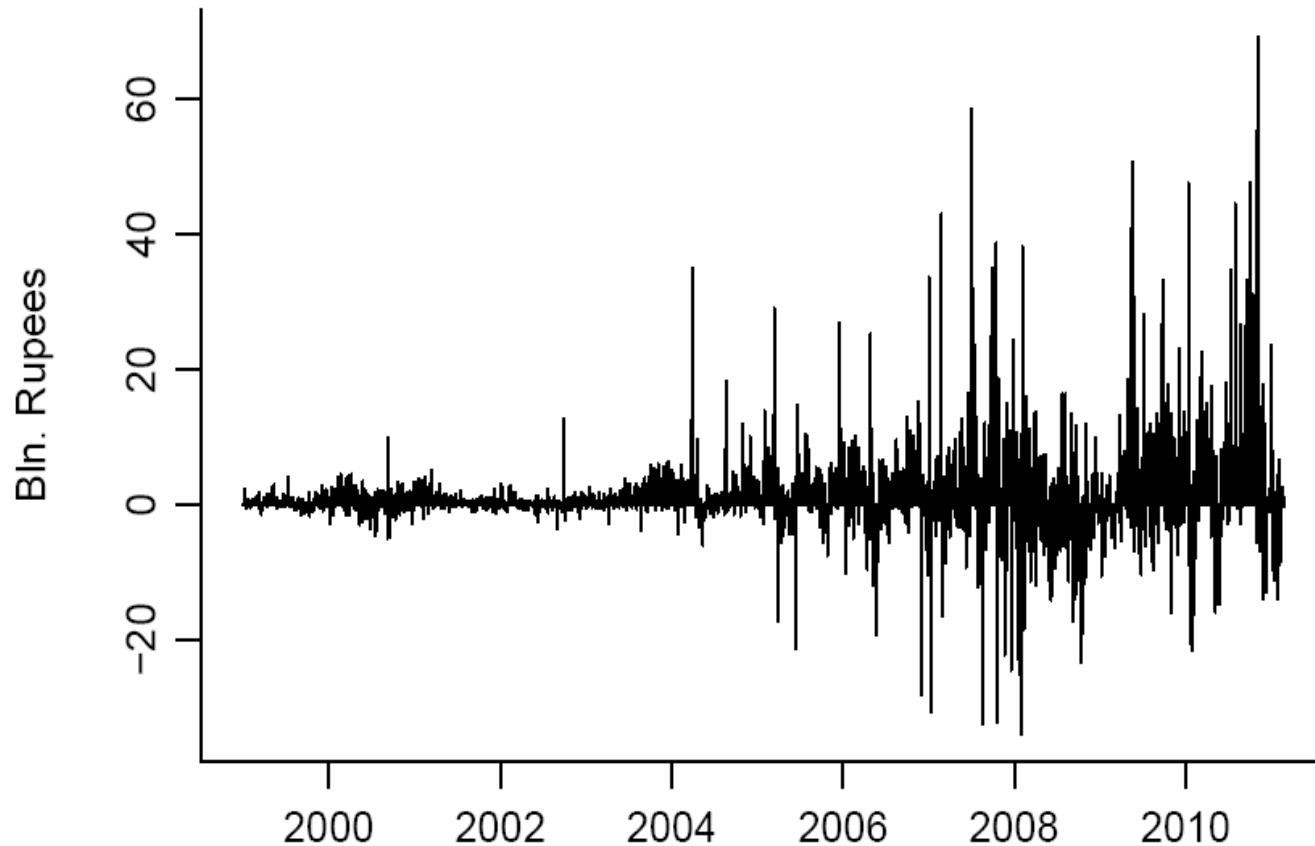


Figure 2: Normalized Net FII Flows

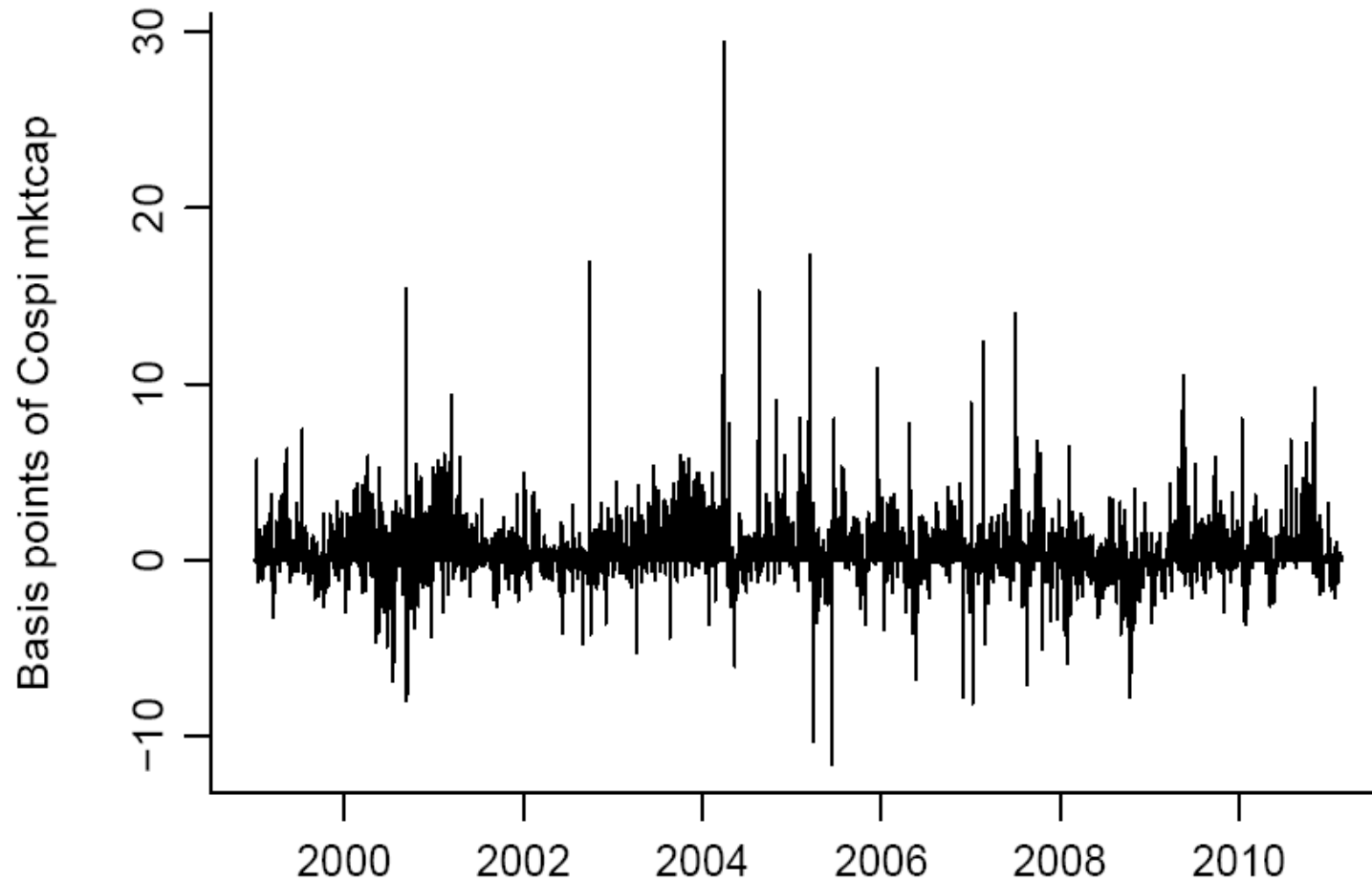


Table 1: Summary Statistics

	Dependent Variable
max	0.17298
min	-0.11623
mean	0.00578
SD	0.0204
1st Quartile	-0.0041
Median	0.00445
3rd Quartile	0.014396

January 2002 to August 2010

Events

- Extreme events
 - Occur with probability 5% or less on either side of mean
- Alternative definitions
 - Nifty returns (INR or USD terms)
 - S&P 500 returns
 - Net FII flows

Empirical Issues

- Length of event window
- Clustering of events
- Length of pre- and post-event windows
- Serial correlation

Table 2: Average Net FII Flows by Event Type and Period Category

	No event	Positive Event	Negative Event
S&P500	0.00833	0.00124	0.00006
N.days	893	446	253
Nifty	0.006969	0.000732	0.003303
N.days	847	297	448
Nifty \$	0.006582	0.003048	0.002488
N.days	847	331	414

Table 3: Net FII Flows Before and After Extreme Events

	Positive Event			Negative Event		
	Before	After	Number	Before	After	Number
S&P500	-0.0028223	0.001441	71	-0.002340	-0.002870	59
Nifty	-0.001773	0.002084	74	-0.001688	-0.002196	55
Nifty \$	-0.002488	0.002303	72	-0.001746	-0.003016	53

Table 4: Net FII Flows Before and After Extreme Events (Non-Overlapping)

	Positive Event			Negative Event		
	Before	After	Number	Before	After	Number
S&P500	0.00334	0.00427	8	0.0003	-0.00244	15
Nifty	0.00523	0.01365	4	0.00642	-0.00101	20
Nifty \$	0.00655	0.01369	6	0.00596	-0.00123	19

Figure 3: Net FII Flows around S&P 500 Shocks

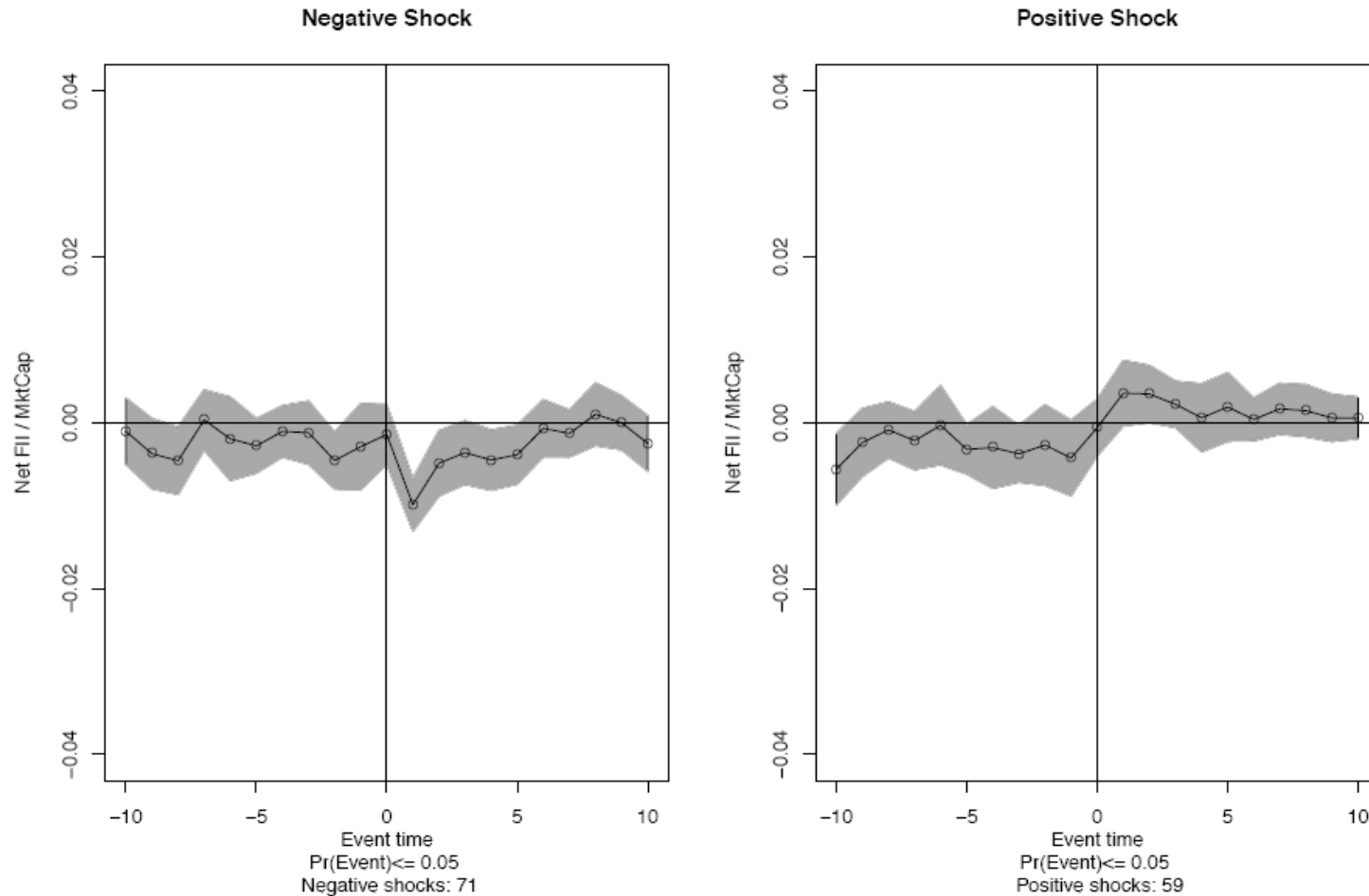


Figure 4: Net FII Flows around Nifty Shocks

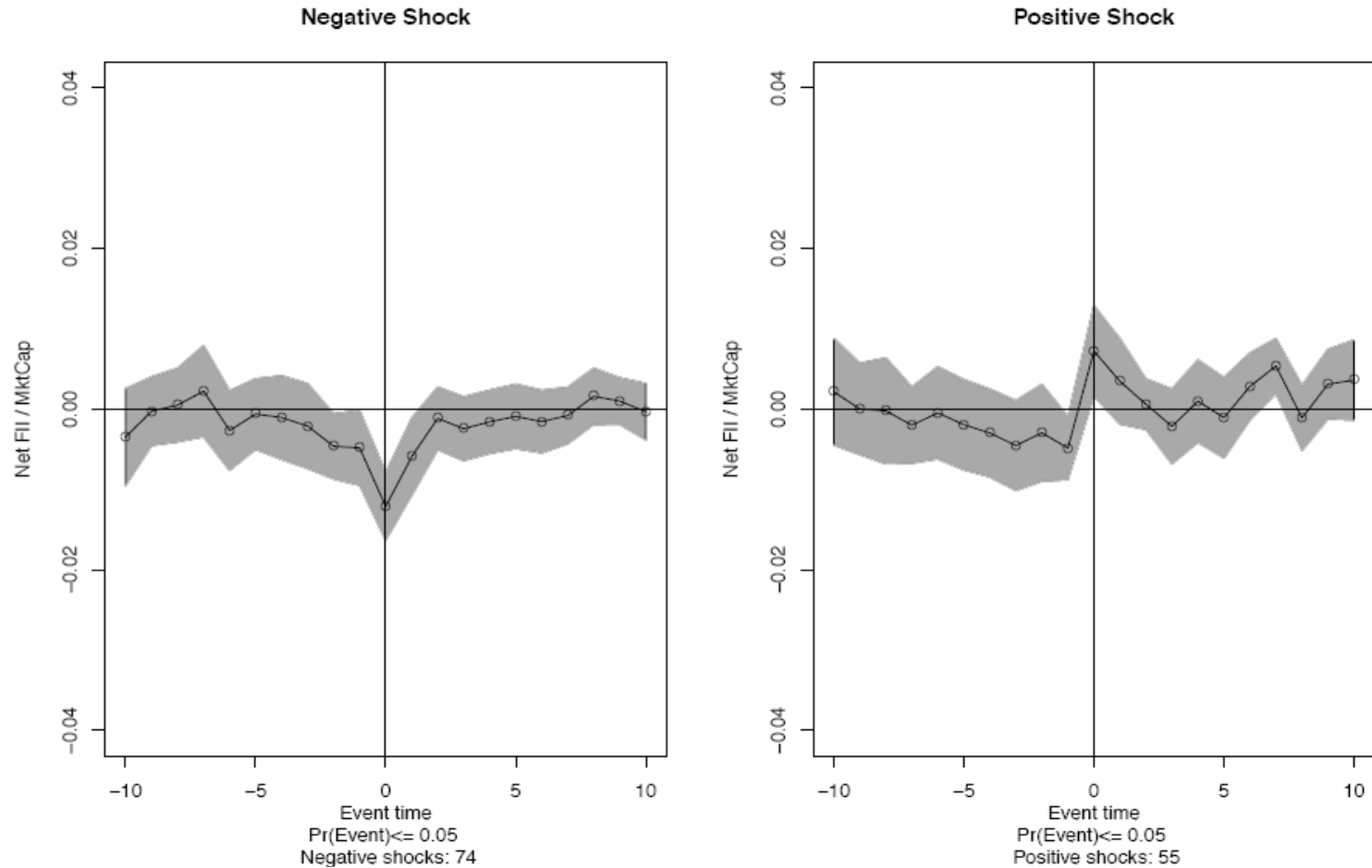


Figure 5: Net FII Flows around Nifty Shocks in USD

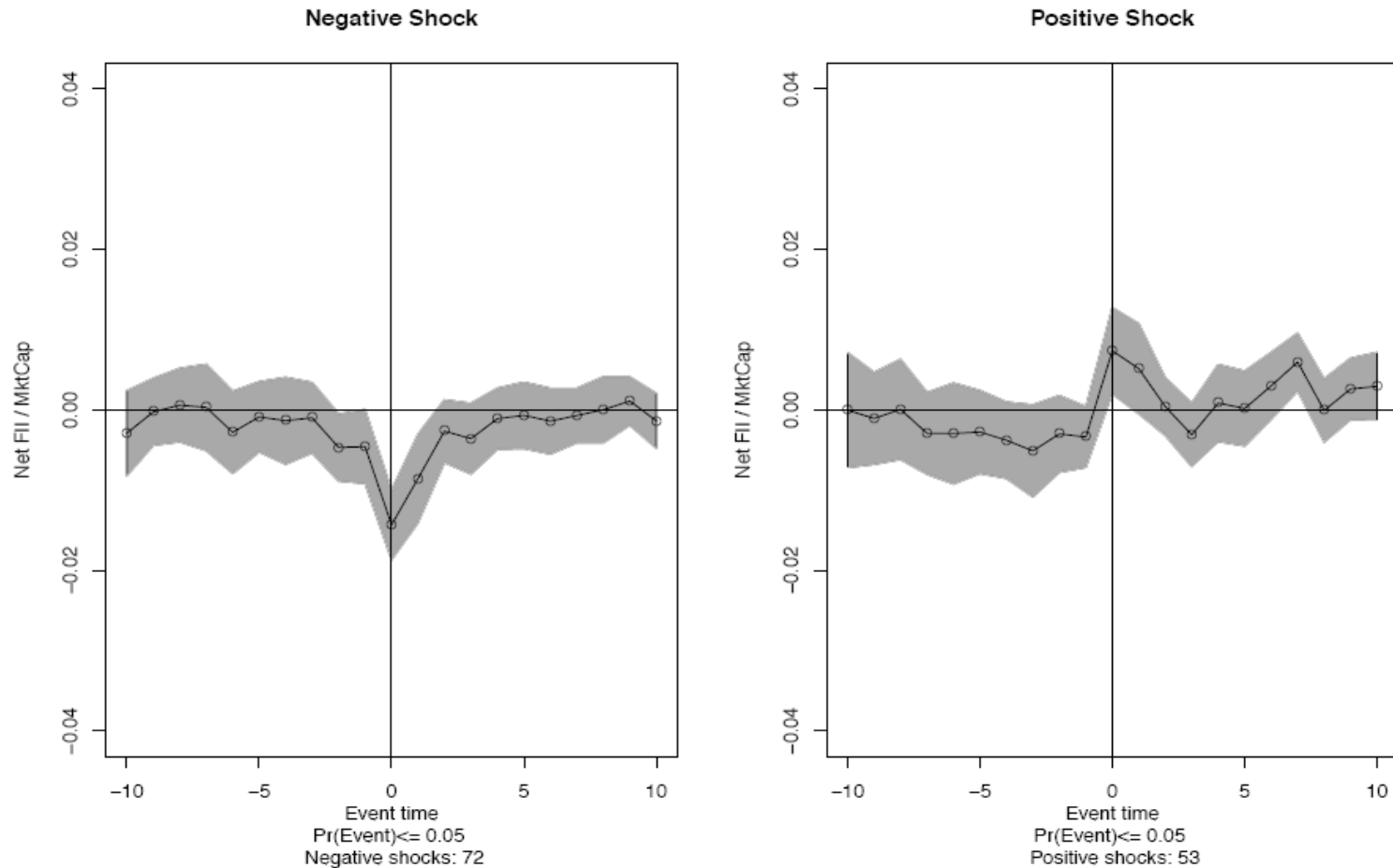


Figure 6: Net FII Flows around Nifty Shocks (Non-Overlapping)

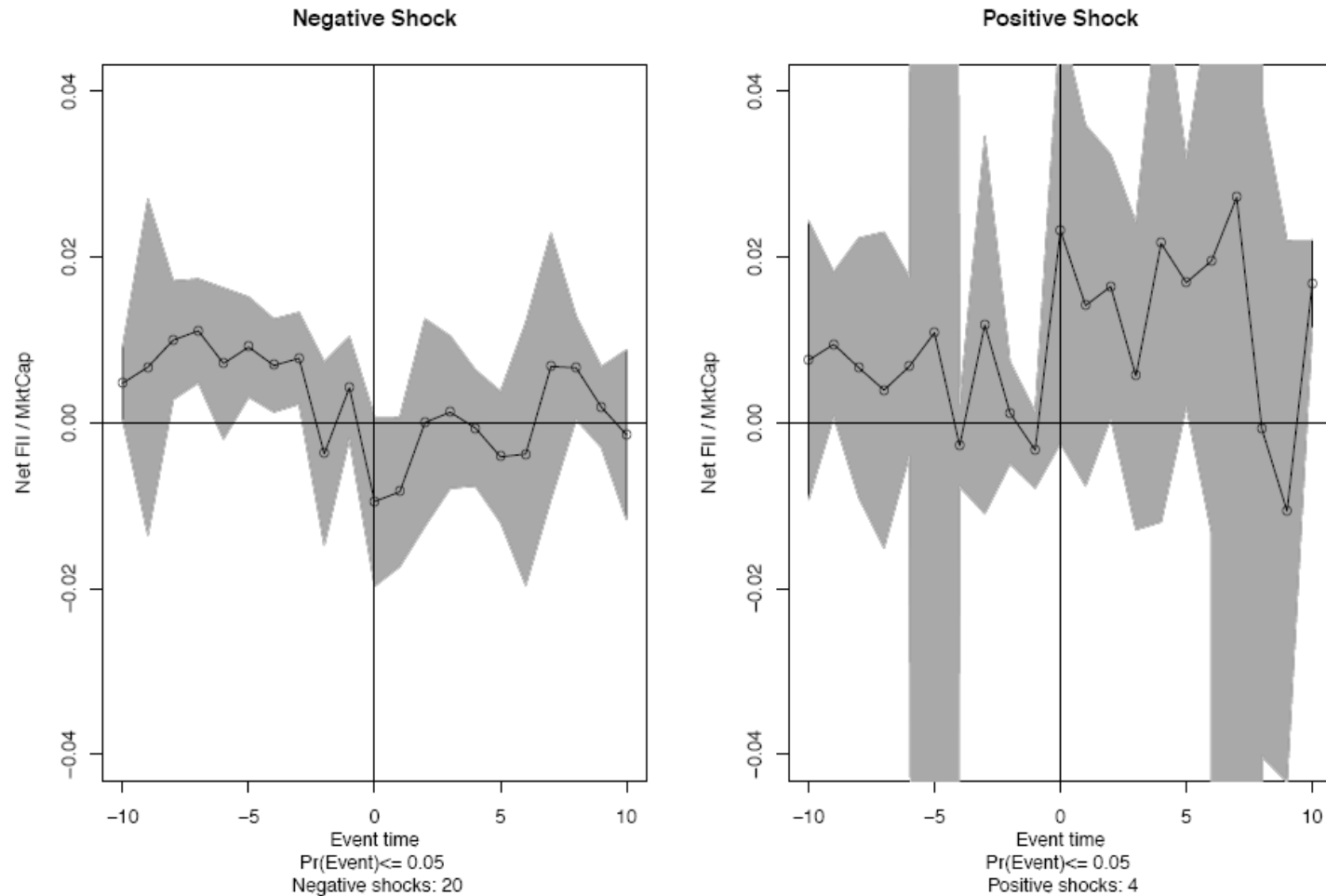


Table 5: Pattern of FII Flows around S&P 500 Extreme Events

FII flows
follow
S&P 500
shocks
by 1 day

<i>Variable</i>	<i>Coefficient</i>	<i>Standard Error</i>	<i>t-value</i>
(Intercept)	0.0057	0.0006	9.9020***
shock	-0.0013	0.0027	-0.5020
shockn	-0.0025	0.0025	-1.0180
lagp1	-0.0020	0.0027	-0.7270
lagp2	-0.0006	0.0027	-0.2260
lagp3	-0.0019	0.0027	-0.6830
lagp4	0.0000	0.0027	0.0080
lagp5	-0.0070	0.0027	-2.5530
leadp1	0.0103	0.0027	3.8510***
leadp2	-0.0008	0.0027	-0.3120
leadp3	0.0023	0.0027	0.8470
leadp4	-0.0035	0.0027	-1.3160
leadp5	0.0016	0.0027	0.6030
lagdep	0.2912	0.0242	12.0140***
lagn1	-0.0001	0.0025	-0.0420
lagn2	-0.0019	0.0025	-0.7540
lagn3	-0.0042	0.0024	-1.7430*
lagn4	-0.0042	0.0024	-1.7170*
lagn5	0.0002	0.0024	0.1000
leadn1	-0.0096	0.0025	-3.9050***
leadn2	-0.0035	0.0025	-1.3920
leadn3	-0.0037	0.0025	-1.5050
leadn4	-0.0047	0.0025	-1.8830*
leadn5	-0.0002	0.0025	-0.0790

Table 6: Pattern of FII Flows around Nifty Extreme Events

Negative FII flows (relative to baseline) precede and follow negative Nifty shocks

<i>Variable</i>	<i>Coefficient</i>	<i>Standard Error</i>	<i>t-value</i>
(Intercept)	0.0065	0.0006	10.9820***
shock	0.0107	0.0028	3.8550***
shockn	-0.0103	0.0024	-4.2480***
lagp1	-0.0011	0.0028	-0.3830
lagp2	-0.0024	0.0028	-0.8450
lagp3	-0.0016	0.0028	-0.5870
lagp4	-0.0002	0.0028	-0.0630
lagp5	0.0010	0.0028	0.3400
leadp1	0.0050	0.0028	1.7850*
leadp2	-0.0014	0.0028	-0.5210
leadp3	-0.0009	0.0027	-0.3390
leadp4	-0.0026	0.0027	-0.9600
leadp5	-0.0011	0.0027	-0.4170
lagdep	0.2608	0.0245	10.6650***
lagn1	-0.0056	0.0024	-2.3060**
lagn2	-0.0055	0.0024	-2.2870**
lagn3	-0.0006	0.0024	-0.2690
lagn4	-0.0041	0.0024	-1.7510*
lagn5	-0.0020	0.0023	-0.8520
leadn1	-0.0067	0.0024	-2.7360**
leadn2	-0.0029	0.0024	-1.1930
leadn3	-0.0069	0.0024	-2.8240**
leadn4	-0.0039	0.0024	-1.6220
leadn5	-0.0023	0.0024	-0.9600

Table 7: Pattern of FII Flows around Nifty Extreme Events (Non-Overlapping)

<i>Variable</i>	<i>Coefficient</i>	<i>Standard Error</i>	<i>t-value</i>
(Intercept)	0.0046	0.0006	8.2840***
shock	0.0153	0.0096	1.5900
shockn	-0.0137	0.0043	-3.1730***
lagp1	0.0060	0.0096	0.6280
lagp2	-0.0070	0.0096	-0.7270
lagp3	0.0027	0.0096	0.2840
lagp4	0.0067	0.0096	0.7010
lagp5	0.0043	0.0096	0.4420
leadp1	0.0024	0.0096	0.2530
leadp2	0.0075	0.0096	0.7830
leadp3	-0.0040	0.0096	-0.4150
leadp4	0.0154	0.0096	1.5960
leadp5	0.0057	0.0096	0.5910
lagdep	0.3076	0.0241	12.7860***
lagn1	-0.0044	0.0043	-1.0230
lagn2	-0.0107	0.0043	-2.4710**
lagn3	0.0002	0.0043	0.0510
lagn4	0.0016	0.0043	0.3600
lagn5	0.0029	0.0043	0.6770
leadn1	-0.0101	0.0043	-2.3130**
leadn2	-0.0034	0.0043	-0.7830
leadn3	-0.0053	0.0043	-1.2300
leadn4	-0.0057	0.0043	-1.3190
leadn5	-0.0082	0.0043	-1.8950*

Negative FII flows (relative to baseline) precede and follow negative Nifty shocks

Cumulative Effects: 1999 to 2011

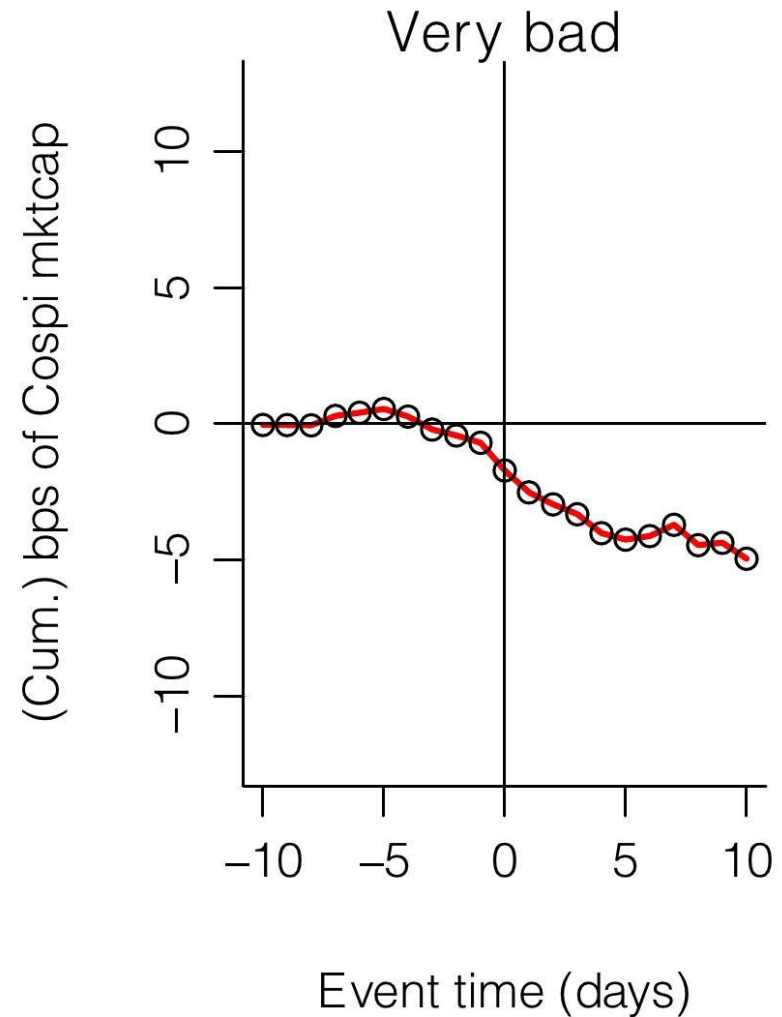
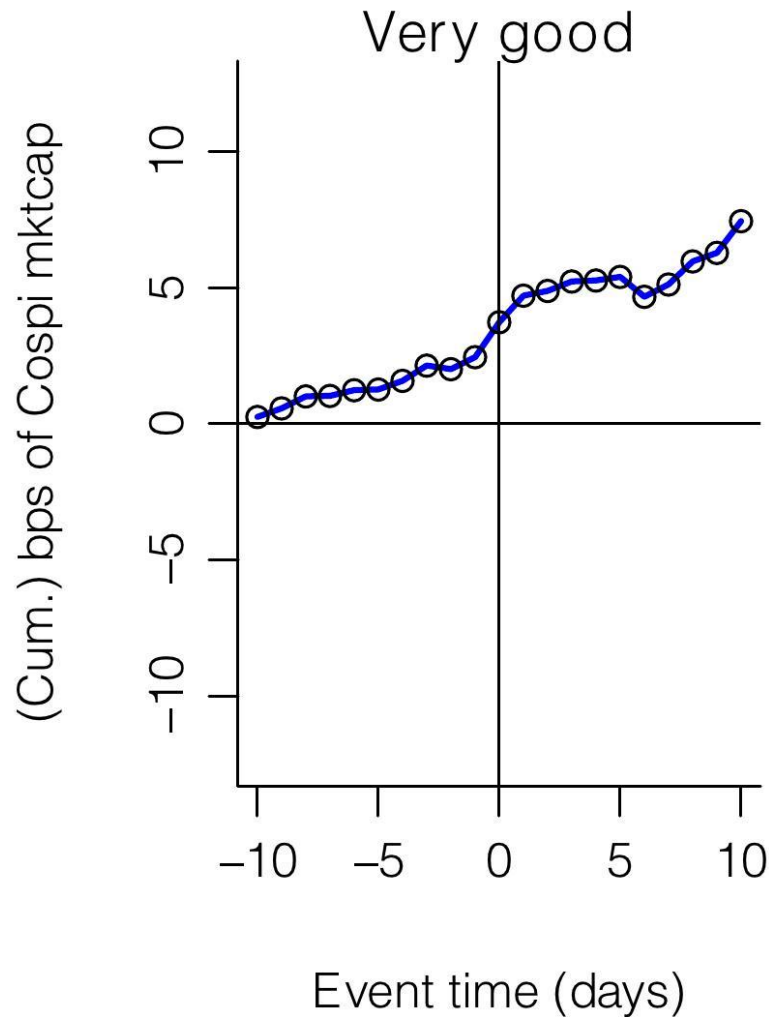


Table 8: Nifty Daily Returns Before and After Extreme Events (S&P 500 or Net FII Flows)

	Positive Event			Negative Event		
	Before	After	Number	Before	After	Number
S&P500	-0.191586994	0.179958618	59	-0.270430385	-0.295451083	71
FII	0.243945	0.249939	56	-0.379219	-0.192062	47

Table 9: Nifty Daily Returns Before and After Extreme Events (Non-Overlapping)

	Positive Event			Negative Event		
	Before	After	Number	Before	After	Number
S&P500	0.126004	0.227075	8	-0.262203	-0.297993	15
FII	-0.041273	0.461536	19	-0.068529	-0.071412	18

Figure 7: Nifty Returns around Net FII Shocks

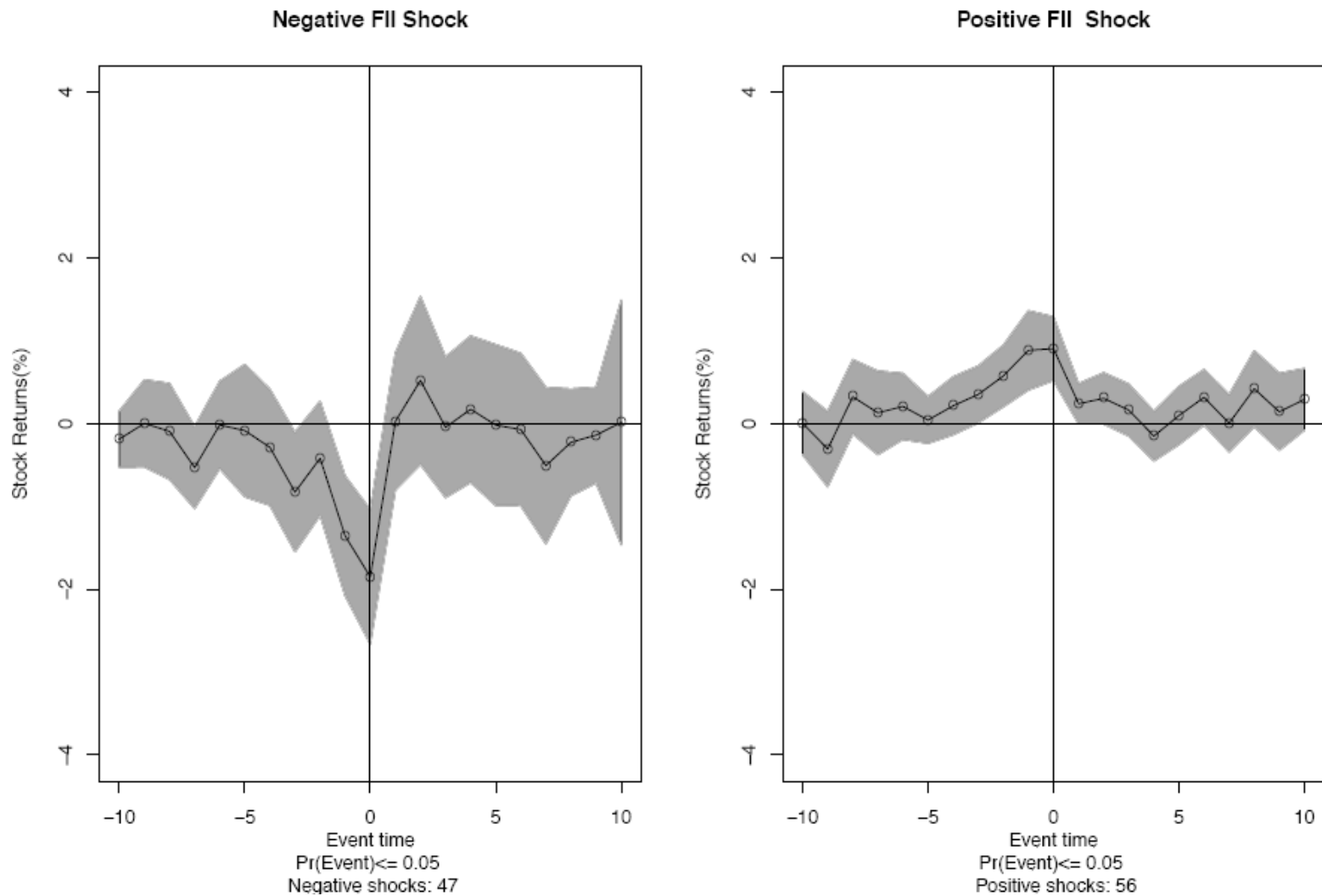
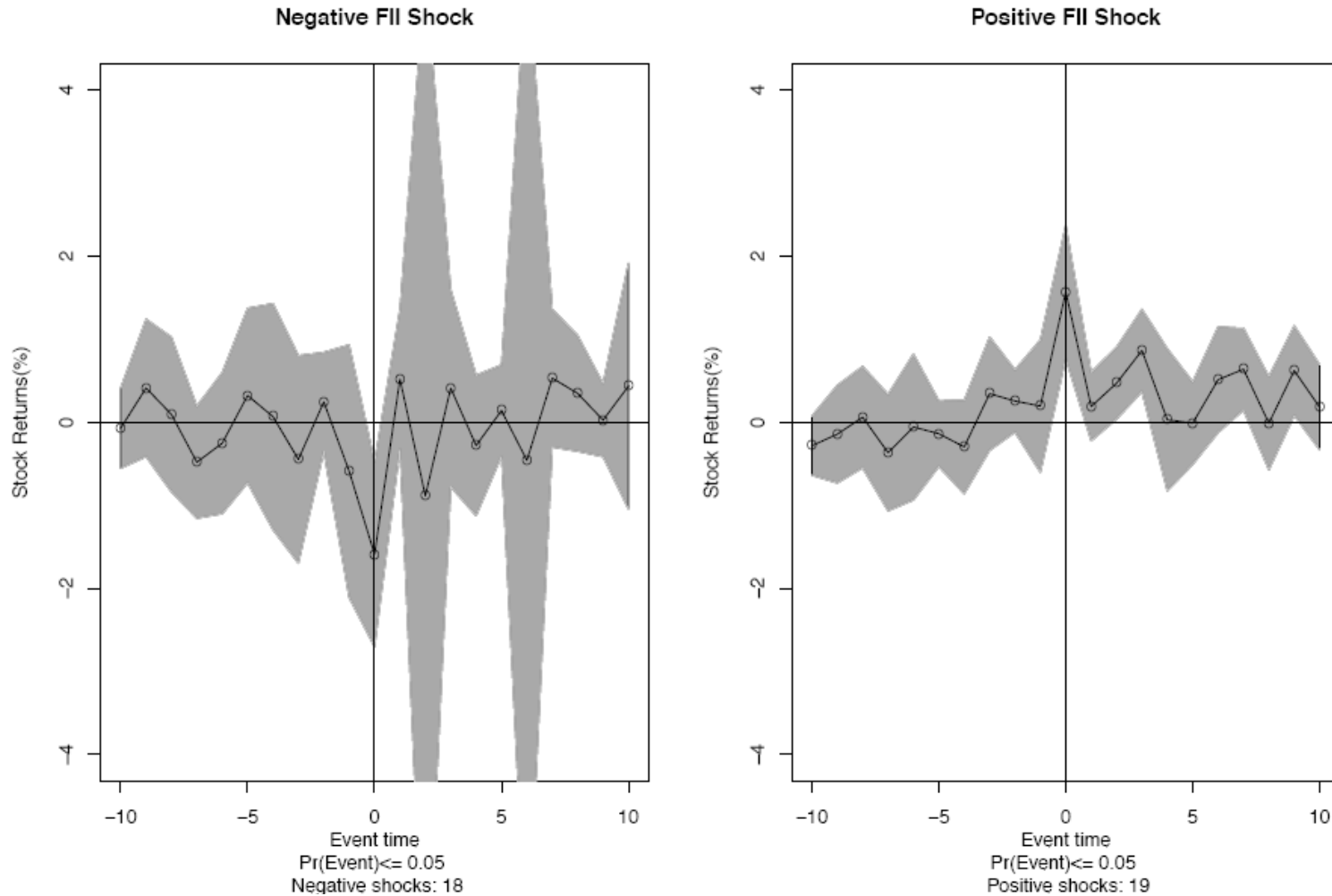


Figure 8: Nifty Returns around Net FII Shocks (Non-Overlapping)



Conclusions

- If we are interested in impacts on Indian markets of extremes of FII flows
 - Event study approach is useful and underutilized
 - Results depend on the nature and definition of extreme events, and the precise hypotheses tested
- Some evidence that FIIs follow the market
- Some evidence that they lead it
- Need to check when each happens, and robustness of results

Thank You
