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FII Flows in Indian Equity Markets: Boon or Curse?

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The principal risk facing India remains the inward spillover from global financial market volatility, involving a reversal of capital flows.

—IMF Country Report, February 2014[2]

1. Introduction

Cross-border capital flows can have significant real effects. For instance, during the early 1990s, several East Asian countries experienced significant amounts of capital flows into their markets; subsequently however, they faced a sudden reversal of capital flows in 1997. The currency and stock markets of Indonesia, Thailand, Malaysia, Philippines, and South Korea suffered a major decline due to the flight of capital to safety. Although capital flows reverted to original levels by 1999, during the interim period (1997–1999), the crisis spread from East Asia to Latin America, leaving many developing countries in a state of recession.

The initial symptoms of flight of capital are often associated with excessive short-term volatility. The debate about the perils of capital flows, thus, rests on gaining a better understanding of the *precise* impact of foreign fund flows on the short-run volatility in domestic financial markets. Not much empirical research has been done, however, to gauge the magnitude as well as the longevity of the impact of capital flows on *equity* markets. In this study, we fill this gap by examining how foreign institutional investor (FII) flows into India affect the performance of the domestic equity market in terms of both the magnitude of the immediate impact as well as the permanence of the impact.

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[2] Source: IMF Country Report No. 14/57, February 2014 (Item No. 46, p. 20). (Available at: http://www.imf.org/external/pubs/ft/scr/2014/cr1457.pdf)

2. Are Foreign Institutional Investor Flows Significant?

Foreign fund flows in and out of Indian stock markets are now a sizeable portion of the market activity. Cumulative net investment flows from foreign institutional investors (FIIs) exceeded USD 100 billion in the last decade, and FII gross flows account for a significant portion of the daily traded value in Indian exchanges. The number of FIIs registered with the Securities and Exchange Board of India (SEBI) increased steadily from 882 in March 2006 to 1757 in March 2013; on average, FIIs accounted for approximately 20% of the total turnover at the National Stock Exchange of India (NSE) over this period.

3. Does FII Trading Activity Affect Market Volatility?

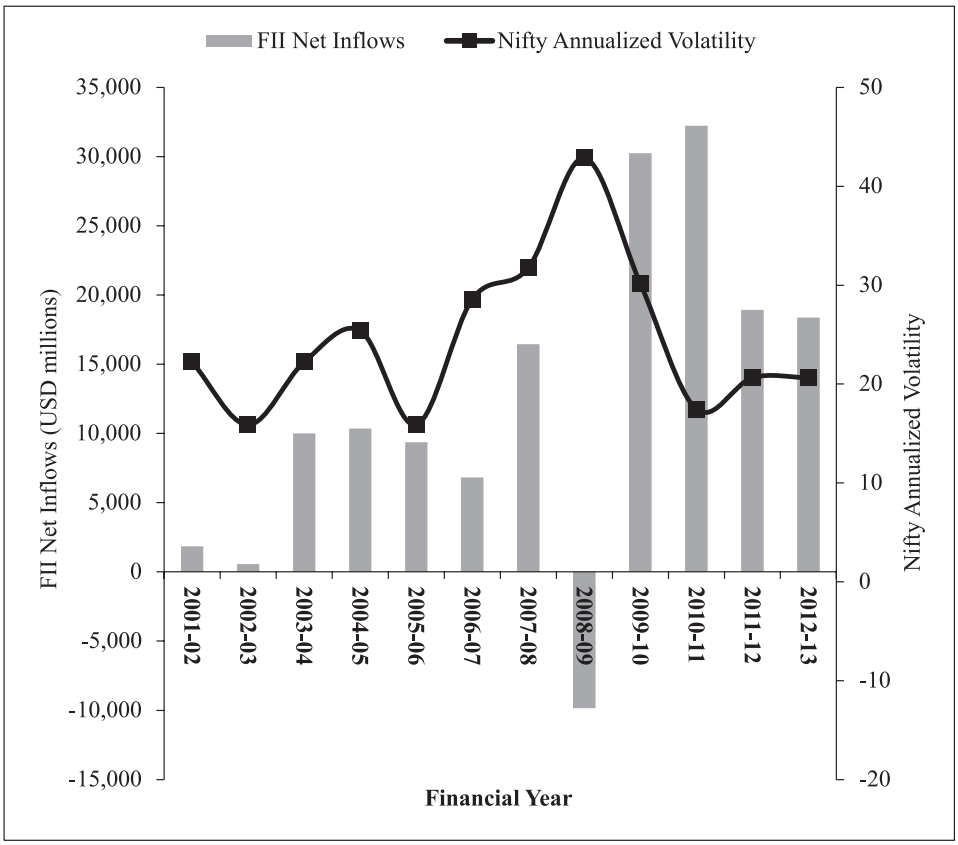
There is a widespread perception that the increasing FII participation in equity markets could be responsible for substantial volatility in markets, especially during times of stress. Figure 1 shows the relationship between annual FII net inflows and the annualized standard deviation of the daily returns on the CNX NIFTY index for each fiscal year over the period 2001–2012.

Figure 1 shows that during the global financial crisis (2008–2009), FII inflows turned negative (net outflows equaled approximately USD 10 billion), consistent with the overall flight to quality. The volatility of the NIFTY—an index measuring the broad stock market performance in India—was also much higher during this period in comparison to that in other years, lending casual support for the hypothesis that FII flows may have induced volatility in emerging markets. This evidence, however, is based on *annual* and market-wide FII flows, and we require further analysis at shorter intervals and at the level of individual stocks to understand the *causal* relationship between daily FII flows and domestic market volatility.

4. Does Global Volatility Affect FII Trading Activity?

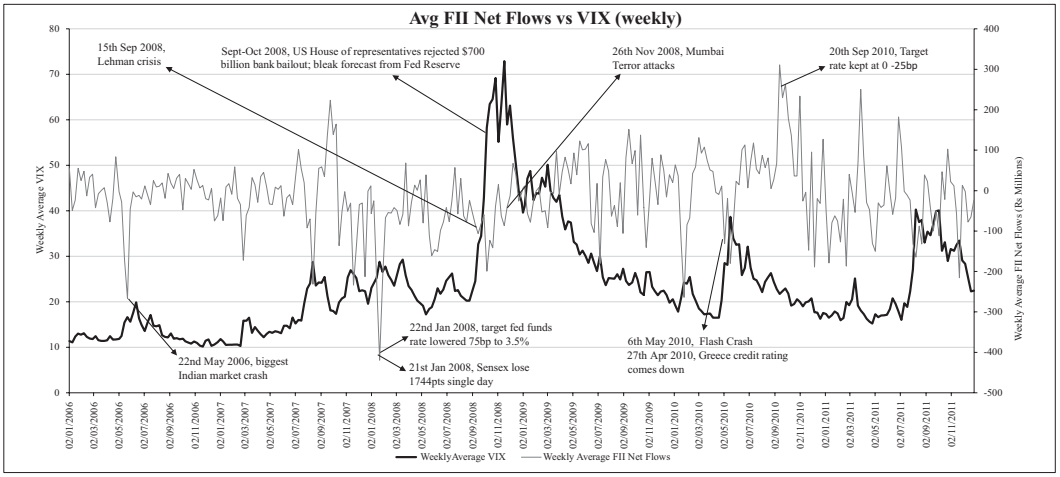
If FII flows induce volatility in emerging markets, a natural follow-up question is: What drives the FII flows? Specifically, does global volatility drive FII flows? In essence, does FII trading activity provide a channel for the transmission of global volatility to domestic markets? Figure 2 provides some ground-level insights on the relationship between capital flows and global market volatility. We plot the average FII flows and the VIX indicator on a weekly basis. The weekly interval analysis allows us to gain a perspective of short-term flow effects.

Figure 1: FII annual net flows into Indian equity markets and NIFTY volatility during 2001–2012



A broad trend of a negative relationship between FII flows and VIX levels emerges during the 2008–2010 period. Several other episodes also illustrate the impact of global uncertainty on FII flows in short-horizon intervals. For instance, the Indian capital market suffered its biggest collapse on 22 May 2006, exactly at a time when the VIX was exhibiting a sharp increase, as can be seen in the bottom left corner of Figure 2. Further, the immediate recovery in FII flows around the same date mirrors the sharp reduction in VIX, suggesting not only that global risks are an important factor in Indian capital markets but also that the FII flows are a critical channel of contagion across international markets. Another classic example is the flash crash in Indian capital markets on 6 May 2010. The crash happened soon after a critical credit rating downgrade of Greece on April 27 2010. Interestingly, the variation in FII flows is driven by local India-related events as well, as seen by the spikes in FII flows on 26 November 2008, when the Mumbai terrorist attacks occurred.

Figure 2: Weekly patterns in FII net flows vs. VIX



5. Our Study

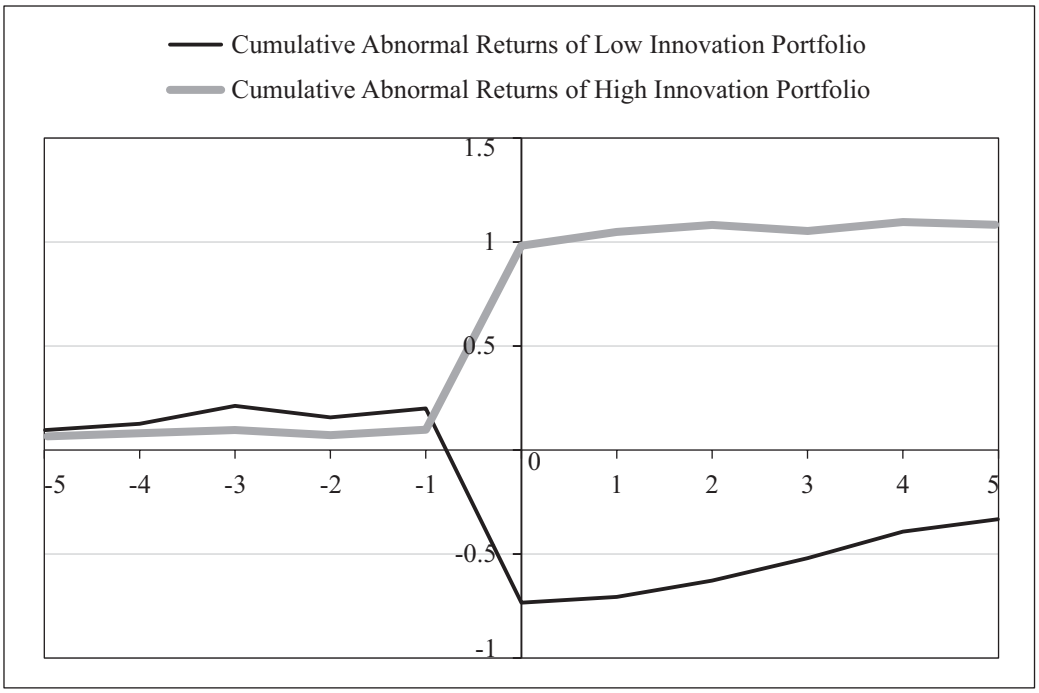
To understand these linkages further, we exploit the stock-level *daily* trading data for FII purchases and FII sales during 2006–2013. We classify stocks into those experiencing abnormally high and low FII flow innovations. We first predict FII flows at the stock level based on lagged firm characteristics, FII flows, and market-wide factors. The unpredictable FII flows are then used to rank stocks each week to form high and low (innovation) FII flow portfolios.

We find that stocks with high FII flows (i.e., stocks with high innovation in FII flows) are associated with a coincident (portfolio formation day) price increase that is permanent, whereas stocks with low FII flows (or low innovation in FII flows) are associated with a coincident price decline that is in part transient, reversing itself within one week (see Figure 3). The difference in cumulative abnormal returns between high and low FII flow stocks over a five-day period starting with the formation day is nevertheless significant, both statistically and economically.

When we examine the abnormal returns for the low FII flows portfolio in Figure 3, we see that a significant proportion (approximately 0.3%, which is nearly 40% of the abnormal return effect) of the abnormal returns on the portfolio formation day is reversed in the post-formation period. Given that the volatility of a typical stock is around 36.16%, a return reversal of approximately 0.3% implies a transient effect of $(0.3 * \sqrt{252}) / 36.16$, or nearly 13.17% of the annualized volatility of a typical stock.

Further, we find that this effect of FII flows increases in response to global market volatility (VIX) as well as local stock market volatility. These results are consistent with a price "pressure" on stock returns induced by FII sales, given the partial reversal of negative returns for stocks experiencing abnormally high FII *outflows*. However, the results are also partly consistent with information being revealed through FII purchases and (partly also through) FII sales, given the partial reversal of returns in the post-formation period for stocks experiencing abnormal FII flows.

Figure 3: Cumulative abnormal returns around portfolio formation days



5.1 Effects during the crisis

We find that during the crisis period (January–December 2008), both FII purchases as well as FII sales induce higher impact than they do during the non-crisis period. Interestingly, FII purchases and FII sales have asymmetric price effects. During the crisis period, excess FII sales have a greater adverse impact compared to FII purchases, whereas during the non-crisis period, excess FII purchases have a greater impact compared to FII sales (see Figure 4). Thus, FII trading activity seems to provide a channel for the transmission of global volatility to domestic markets.

Additionally, we segregate the sample into days associated with high VIX and days associated with low VIX relative to the median VIX level in the sample. The impact of FII flows are, in general, higher on days with high VIX as compared to that on days associated with low VIX (see Figure 5 below). This finding suggests that there is volatility spillover from the developed markets into emerging markets.

Figure 4: Cumulative abnormal returns around shocks in FII flows: Effects of the crisis

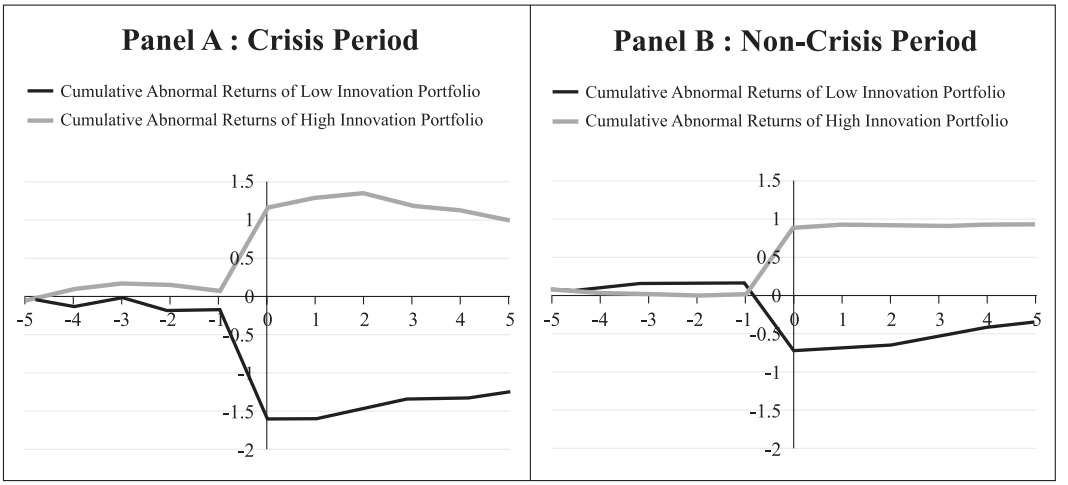
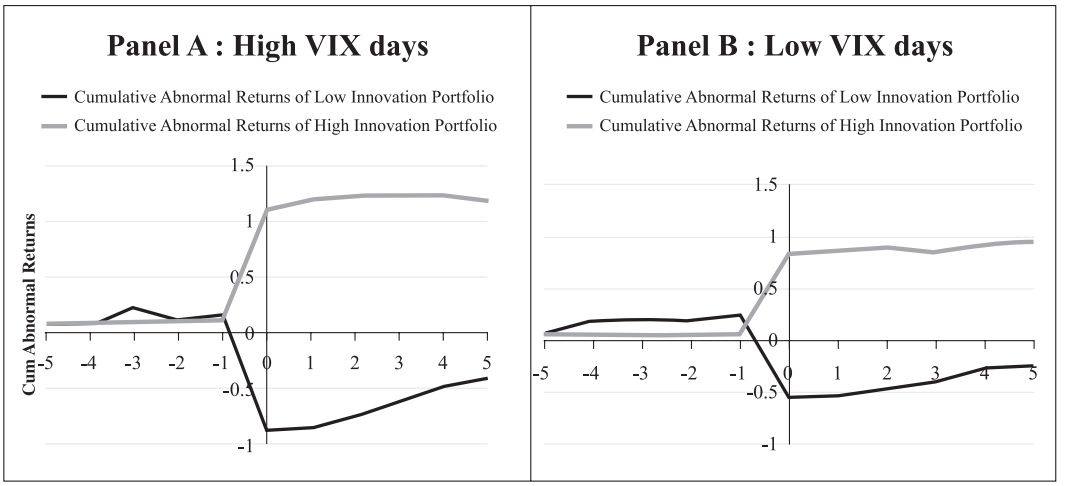


Figure 5: Cumulative abnormal returns around shocks in FII flows: Effects of market stress



5.2 Size effect

In the overall sample, the high innovation portfolios are associated with a permanent price impact, whereas about 40% of the price impact is reversed in the case of the low innovation portfolios. We question whether these effects are secular across stocks that vary in market capitalization. To answer this question, we classify the sample into three sub-samples: large-cap, mid-cap, and small-cap stocks. We find that the magnitude of abnormal returns on the high and low innovation portfolios is related to firm size, i.e., it is greater in the case of large-cap stocks, lower for mid-cap stocks, and is lowest for small-cap stocks.

Next, we examine the post-formation window for the high innovation portfolio and the low innovation portfolio for each size category to examine whether the abnormal returns are permanent or transient (i.e., reversed). In large-cap and medium-cap stocks, there is no price reversal for the high innovation portfolio; however, there is partial price reversal for the low innovation portfolio. This finding suggests that in large-cap and medium-cap stocks, abnormal FII purchases are information-based trades, whereas abnormal FII sales are driven partly by information and partly by portfolio rebalancing motives. For small-cap stocks, however, there is no price reversal for either the high or the low innovation portfolios. The absence of price reversal in small-cap stocks suggests that FII traders may be wary of portfolio rebalancing in small-cap stocks because of illiqudity concerns. In other words, both FII purchases as well as sales in small-cap stocks are likely to be information-based trades.

6. Recommendations

Our findings suggest that instead of placing restrictions on FII flows, regulators should recognize that (i) while FII outflows contribute to transient volatility for stocks experiencing the outflows, (ii) trading by FIIs generates new information. The first point suggests that domestic investors in Indian stock markets can find profitable trading opportunities based on FII flows. If global financial firms suddenly lose risk appetite and withdraw capital from Indian equity markets, domestic investors who purchase stocks being sold by the FIIs can generate excess returns. However, regulators should help create a greater depth in domestic institutions and provide liquidity capital for "arbitrage trading." The second result suggests that as is the case in developed markets, in emerging markets, trading—FII trading in particular—is central to generating information. These relative effects of foreign fund flows must be balanced against one another while evaluating their desirability for emerging markets.