Tax Threat and Disruptive Market Power of Foreign Portfolio Investors

Abstract

Exploiting an unexpected policy announcement that threatens to increase tax liability of foreign portfolio investors (FPIs), this paper investigates their reaction, the market implications of this reaction and their response following subsequent removal of the same threat. Our quasi-experimental results show that following the effective date, FPIs quickly withdraw approximately Indian Rupees 7.27 million daily for an average equity. We also find that the FPIs' withdrawal has a disruptive effect on stock liquidity, volatility, and prices. However, after the threat has been removed, FPIs do not re-enter the market with the same speed and volume of trading compared to the initial market withdrawal.

JEL Classification: G11, G18

Key Words: tax threat; foreign portfolio investors' reaction; implications; elimination of tax threat

1. Introduction

The importance of foreign portfolio investors (FPIs), particularly for the capital constrained emerging markets, is well documented in the literature (Bekaert and Harvey, 2003). For example, higher foreign portfolio investments can lead to lower cost of capital which in turn encourages the real investments (Henry, 2000). Recognizing the benefits of foreign investments, regulators often shape policies that attract and support FPIs. However, recent evidence suggests that FPIs themselves can influence policymaking to suit their own investment preferences provided they can exert pressure on domestic shareholders/managers, who in turn could lobby regulators to alter their policies (Kerner, 2015). In this study, we argue that FPIs also possess a direct market-based means of instituting changes in domestic policies by explicitly withdrawing from the market and therefore reducing foreign portfolio investment which itself can exert pressure on regulators. We do so in the context of the Indian market where FPIs hold around 40% of the market capitalization.[1]

Prior to 2015, FPIs in India received subsidies on long term capital gain tax using double-taxation treaty agreements. Although a policy decision in August 2012 made FPIs liable for a "Minimum Alternative Tax" (hereafter MAT), it did not invoke concerns on the part of FPIs as the decision was challenged in the Supreme Court. MAT was aimed at curbing tax avoidance practices by forcing FPIs to pay some minimum tax on their transactions. Unexpectedly, the Indian Government in February 2015 announced that FPIs would not be liable for MAT on transactions effective from April 1, 2015.[2] Although the decision clarified FPIs' tax liability for future transactions, it was ambiguous on whether FPIs would be liable for MAT on transactions made prior to April 1, 2015. This threat of retrospective MAT materialized towards the end of March and early April 2015 when the Indian government began

1 "More foreign funds to face India tax demands", *Financial Times*, April 13, 2015.
2 The MAT announcement is discussed in detail in Section 2.

demanding MAT from a select group of FPIs for transactions conducted prior to the effective date (approximately 68 FPIs were asked to pay 20% tax on long term capital gains).[3] Although the threat was eliminated after five months we use this period of a potential tax threat (referred as *MAT Threat Period* hereafter) to examine the trading behaviour of FPIs and the market reaction in three ways. First, we test the direction and size (volume of trading) of FPIs trading during the *MAT Threat Period*. Second, we investigate the possible implications of FPIs trading on stock market liquidity, volatility and price during the *MAT Threat Period*. Finally, we also examine the response of FPIs trading (direction and size) once the government removes the MAT threat.

Our choice of the tax threat, particularly in the Indian setting, to examine the trading behaviour of FPIs is attractive for a number of reasons. First, the unexpected MAT threat provides an exogenous shock that enables us to isolate the effect of removing tax avoidance practices from other possible factors that might drive FPIs' trading.[4] During the first half of our sample period, January to March 2015, the Indian equity market witnessed a positive inflow of around INR 199 billion by FPIs. But the second half of our sample period, April to August 2015, saw a series of outflow cumulating to approximately INR 447 billion.[5] The collapse was triggered by the threat surrounding the application of MAT on FPIs' income, thus providing us with an empirical set-up where credible causality can be established.

Second, despite the large size of its equity market (Indian is ranked 9th in the world at the end of 2016 in terms of market capitalization, 4th in terms of country weights in MSCI

3 See the following financial press news: "100 FPIs get tax notices for $6bn, says its retrospective", *The Economic Times*, April 6, 2015; "Foreign funds brace for India's alternate tax demand" *Financial Times*, April 8, 2015; "India's unclear tax policy has come back to haunt Modi", *Quartz*, April 8, 2015; "More foreign funds to face India tax demands" *Financial Times*, April 13, 2015; "Government to press ahead with Rs. 40,000 crore tax demand on FIIs: Arun Jaitley", *The Economic Times*, April 15, 2015; "Sebi backs foreign portfolio investors, raises concern over impact of MAT", *The Economic Times*, May 29, 2015.

4 Unlike other tax policy changes, the potential tax change used in this paper was significant (as it threatened to increase tax liability by almost 20%) and, to the best of our knowledge, was not contaminated by other information or policy changes. We address the effect of other systematic events during the shock period in Section 5.4.1.

5 The average US$/INR rate during the sample period was INR 63.24/US$ (Source: Reserve Bank of India).

Emerging Markets Index), the characteristics of the Indian equity market are otherwise similar to other emerging economies (Gopalan and Gormley, 2013). For example, the Indian market is characterized by lower foreign institutional ownership, higher ownership concentration, lower investor protection, and lower legal enforcement (see Douma, George and Kabir, 2006; Bhaumik and Selarka, 2012; Vig, 2013). Further, policy uncertainty is a typical example of economic policy risk prevalent in emerging markets. Despite this the Indian equity market is viewed as an attractive destination for FPIs due to its growing economy.[6] Analysing the FPIs' equity flow[7] in this environment is likely to provide general insights on how the threat of tax changes and general policy uncertainty affect FPIs' equity flow in other emerging economies.

The third advantage of our empirical setting is the availability of unique database that provides trade-level granular data.[8] The transaction-level data enables us to analyse differential trading responses of FPIs following the threat of MAT. This Difference-in-Differences approach allows us to provide causal evidence on how the threat of additional tax liability affects the trading activities and to analyse its subsequent effect on the market. Finally, existing studies show that tax policies are an important consideration when FPIs invest in overseas markets (Daude and Fratzscher, 2008; Desai and Dharmapala, 2009a, 2011). This suggests that any policy changes aimed at altering the tax liability of FPIs could carry a material effect on their trading behaviour.

Our main findings are as follows. First, the results show that there was a significant market withdrawal by FPIs following the effective date that threatened to impose additional tax liability. The estimated level of FPIs withdrawal is not only statistically significant but also

6 Gross Domestic Product (GDP) grew by 7.6% in 2015-16 and is expected to grow by 7.4% in 2017-18 (Source: Reserve Bank of India). Also, see "India is the jewel in the emerging market crown", *Financial Times,* May 31, 2015; "Faster growing India confirmed as most dynamic emerging market", *Financial Times,* May 31, 2016.

7 Net investment by FPIs in Indian equity market has grown from INR 440 billion (approximately US$9.6 billion) in 2003-04 to INR 1,102 billion (approximately US$18.01 billion) in 2014-15 (Source: Reserve Bank of India).

8 We discuss this in greater detail in Section 4.

economically material. We find that, on average, the withdrawal by FPIs translates into a decline of 0.309 basis points of market capitalization per day for an average equity (reflecting approximately an average of Indian Rupees (INR) 7.27 million per firm per day) during the *MAT Threat Period*. We also find that FPIs' reaction to the threat is immediate and begins within the first seven trading days after the effective date. These findings continue to hold when controlling for other systematic shocks, including the use of an alternative treatment group, ruling out the possibility of false experiment and addressing the issue of attrition bias.

Second, our examination of the implications of the FPIs' trading indicates that the outflow during the *MAT Threat Period* has a detrimental effect on market liquidity, volatility, and stock prices in the Indian market. In economic terms, we find that on average for a typically traded equity a one basis point decline in the daily net equity trading by FPIs triggers 90 basis points fall in turnover ratio, 0.029 points increase in the stock illiquidity index,[9] and 4.2 basis points surge in stock volatility. As these results are based on daily data, they demonstrate a significant and material market effect. Further, we examine trading strategies based on the strength of reaction to the FPIs' withdrawal where we take a long position on firms highly affected by the withdrawal relative to a short position on firms that are least affected by the withdrawal. We found that FPIs' withdrawal during the *MAT Threat Period* has depressing pricing effects on the market. Specifically, our results show that on average there is a decline of 18 basis points in daily stock return for an average equity for the long strategy compared to 23 basis points rise for the short strategy.

Finally, after the government provided clarification on MAT and decided not to impose the additional tax liability we find no immediate and substantial inflows compared to the abrupt and economically sizeable outflows observed after the MAT effective date. In terms of size,

9 Further, there is also a surge of 1.86 points in an alternative stock liquidity ratio where higher value is associated with lower stock liquidity.

the reversal of the MAT policy attracts on average an inflow of only 0.048 basis points of market capitalization per day per equity compared to an outflow of 0.309 basis points post the effective MAT date.

Our paper adds to the following strands of the literature. First, we contribute to the literature on FPIs' role in influencing policy making in emerging markets. To the best of our knowledge, this is the first study to provide evidence of a more direct channel through which FPIs can influence policy making by withdrawing from the market. Second, we also add to the literature on tax avoidance and FPIs in emerging markets. The significance of taxes on portfolio choice has received some attention in the literature (Poterba, 2001; Graetz and Grinberg, 2002; Sialm, 2009), but the reaction of FPIs to proposed changes in tax related policies and their subsequent actions is so far unexplored. Despite a few studies suggesting that FPIs are sensitive to tax policies (Daude and Fratzscher, 2008; Desai and Dharmapala, 2009b, 2011), there is little evidence on the magnitude of their reaction to a proposed tax avoidance reform. We contribute to this literature by quantifying the reaction of FPIs to the tax threat, analysing the market implications of FPIs' withdrawal, and examining the response of FPIs when the threat is mitigated.

Third, we also add to a specific debate on whether tax subsidies are important for FPIs, particularly in emerging markets which are characterised by the asymmetric information problem that local investors are better or earlier informed about the prospect of investments' return. Razin, Sadka and Yuen (1998) argue that tax subsidies by the host market may be necessary to attract FPIs to overcome the problem of information asymmetry.[10] However, Razin, Sadka and Yuen (1998) note whether foreign capital inflows effectively receive any favourable tax treatment has not been explored yet. Our study fills in this void by showing how

10 Studies also document that the information asymmetry friction forces FPIs to become momentum investors without any due consideration of the fundamentals and privileged information (see Brennan and Cao, 1997; Griffin, Nardari and Stulz, 2004). Thus, the high cost of information acquisition may lead to sub-optimal undersupply of foreign capital, which may be reduced by providing FPIs with tax subsidies.

FPIs react to a shock when the prevailing subsidies (no long-term capital gain taxes and exploitation of double taxation treaty agreement, see section 2) are threatened by the MAT provisions.

Fourth, our use of the unexpected MAT threat allows us to make a methodological contribution. Empirically, measuring the effect of tax avoidance has been a major challenge in the literature. Studies use various measures such as long run effective tax rates, book-tax differences, unrecognized tax benefits, and tax shelters (Desai and Dharmapala, 2006; Dyreng, Hanlon and Maydew, 2008; Desai and Dharmapala, 2009a; Graham and Kim, 2009). However, these measures either do not fully capture tax avoidance (construct validity bias) and/or are endogenous in nature (Hanlon and Heitzman, 2010). Instead of using these endogenous proxies, the unexpected exogenous shock of MAT threat allows us to examine the causal links between the benefits of tax avoidance and FPIs' trading activities.

Finally, we also add to the conflicting literature on the destabilizing effect of FPIs' trading in emerging markets by investigating the post-MAT withdrawal impact of FPIs. Most of the existing studies do not find evidence of a destabilizing effect of foreign trades (Choe, Kho and Stulz, 1999; Bekaert and Harvey, 2000; Schuppli and Bohl, 2010). However, de Long *et al.* (1990) suggest that noise traders, such as FPIs, can have a destabilizing effect on asset prices. We provide credible shock based evidence that there were implications in the Indian market of the sudden withdrawal of FPIs.

The findings of our study carry important implications for policy makers, particularly in emerging markets. Graetz and Grinberg (2002) argue that robust and credible empirical evidence on the effects of taxation on international portfolio allocation is required to better inform policy makers. Therefore, our study provides empirical evidence that tax advantages are one of the important attractions of FPIs in emerging markets. However, any proposed change that risks curtailing a tax advantage can act as a sufficient trigger for FPIs to exit the

market. This could put pressure on the government to remove the tax policy threat. However, even after the tax threat has been removed the tax uncertainty seems to have a damaging effect on FPIs as there is not an immediate or substantial return to the market.

The rest of the paper is organized as follows. Section 2 provides a brief review of the background and key dates related to the MAT announcements. Section 3 presents the underlying theoretical framework. Section 4 describes the trading data followed by a discussion of the empirical results and robustness tests of FPIs' reaction in Section 5. Section 6 analyses the effect of FPIs' market withdrawal on the stock market and Section 7 examines FPIs' re-entry in the market following the elimination of the MAT threat. Finally, Section 8 concludes the paper.

2. Minimum Alternative Tax

In a bid to attract foreign investment in India, FPIs are provided tax subsidies by exempting them from paying the long-term capital gain taxes and they pay a short-term capital gain tax rate of 15%. However, most FPIs in India take advantage of the double-taxation treaty agreement (DTTA) with countries such as Mauritius, Singapore, and Hong Kong to avoid the Indian tax liability. For instance, capital gain taxes are exempt in Mauritius, which encourages FPIs to "treaty shop" and establish a holding company in Mauritius for investment in India.[11] This resulted in the avoidance of capital gain taxation in India by FPIs.[12]

11 Annual Report for 2015/16 published by the Securities Exchange Board of India (SEBI), shows foreign portfolio investments from Mauritius, Singapore and Luxembourg had the highest value of assets under custody during 2015/16 after the US.

12 The issue of tax avoidance by foreign investors began concerning the Indian government when a Dutch subsidiary of Vodafone, a UK-based multinational telecom company, purchased an indirect but controlling stake of 67% in Hutchinson Essar Ltd (HEL), who held and operated a telecom licence in India. The deal was processed through acquisition of stocks of a Cayman Islands company from a subsidiary of Hutchinson Telecommunication International Limited (HTIL), the latter also located in the Cayman Islands. HTIL, purchased by Vodafone, owned an indirect interest in HEL through several tiers of Mauritius and Indian companies. The Indian government claimed that the transaction was liable to be taxed, around $2.5 billion, since the transaction involved purchase of assets based in India. Vodafone argued that since the deal was between two foreign entities in a foreign jurisdiction, the Indian government had no right to impose capital gain tax. Though the Supreme Court ruled in favour of Vodafone, in 2012 the Indian government changed its

With the objective of curbing these tax avoidance practices of FPIs, the Indian government introduced MAT on the income of FPIs. MAT is an alternate tax mechanism to ensure "zero-tax companies" pay at least 18.5% tax on net profit, which would include FPIs. Table I shows the key dates of the introduction of MAT. In 2010, the Authority for Advance Rulings (AAR) ruled that MAT was not applicable to companies having no permanent establishment in India.[13] However, in 2012 the AAR ruled that MAT provisions override the DTTA and would also be applicable to FPIs.[14] After the AAR ruling, the Indian Tax Department (ITD) finalised their assessments in December 2014 and raised notices asking for the payment of the new MAT liability to selected FPIs. The ruling was later challenged in Supreme Court who accepted Special Leave Petition in May 2013.

On February 28, 2015, the Indian government made an unexpected announcement that effective from April 1, 2015, MAT would not be imposed on the transactions of foreign companies (including FPIs) having no permanent establishment or place of business in India. The announcement did clarify that MAT would not be applicable to FPIs on the transactions conducted after the effective date but it created uncertainty as to whether MAT would be imposed retrospectively. This announcement only provided temporary relief to FPIs as towards the end of March 2015, particularly in early April 2015 the Indian government unveiled surprise plans to raise $6.4 billion in the form of MAT from FPIs.[15] The government started sending notices to several FPIs demanding MAT for preceding years, arguing that MAT would be applicable for all income (including capital gains) of FPIs earned before the effective date

Income Tax Act retrospectively to ensure that such offshore share transfers are liable to pay a domestic capital gain tax if at least 50% of the assets held by target foreign companies are based in India. The retrospective change in tax law also affected other transactions involving the indirect transfer of assets between international companies and Indian subsidiaries, such as the Idea Cellular-AT&T and General Electric-Genpact deal.

13 The Timken Company vs. Income Tax Department (ITD) (July 23, 2010) and Praxair Pacific Ltd. vs. ITD (July 23, 2010).

14 Castleton Investment Ltd. vs. ITD (August 14, 2012).

15 "In April, India's government unveiled surprise plans to raise $6.4bn in tax from global fund managers "*Financial Times*, 30 May 2015., "India is the jewel in the emerging market countdown"

and for all income (other than capital gains) after the effective date.[16] However, some of the FPIs approached the courts challenging the legality of the tax liability.[17]

[Insert Table I about here]

To address the concerns of the FPIs, a high-level committee was formed by the Indian government on May 7, 2015 to specifically provide recommendations on the issue of MAT on FPIs for the period prior to the effective date.[18] The committee submitted a report and subsequently, on September 1, 2015, the government made another announcement that MAT would not be imposed on FPIs retrospectively. Therefore, we consider April 1, 2015 as the key date in our study around which the FPIs were threatened with notices for retrospective tax demands.[19] Thus, the trading period between the effective date of April 1, 2015 and the clarification announcement on September 1, 2015 (*MAT Threat Period*) allows us to investigate how FPIs respond to a proposed change in the tax regime and what are the market implications of such FPIs' response.

3. Theoretical Framework

In this section, we discuss a theoretical framework[20] that highlights the role of the tax burden, one of the costs/barriers to investing in emerging markets on the trading behaviour of FPIs.

16 "100 FIIs get tax notices for $6bn, say its retrospective", *The Economic Times*, April 6, 2015; "India on collision course with investor over $6.4 billion tax target", *Financial Times*, April 15, 2015; "How to end India's Tax Terrorism", *Bloomberg*, April17, 2015 and, "Sebi backs foreign portfolio investors, raises concern over impact of MAT", *The Economic Times*, May 29, 2015.

17 For instance, Aberdeen Asset Management filed a petition in Mumbai's High Court to challenge the Tax claim by ITD.

18 The committee consisted of three core members who conducted various rounds of consultation with major groups that also represented the interests of FPIs, such as KPMG, Deloitte, Ernst & Young, PricewaterhouseCoopers, Federation of Indian Chambers of Commerce and Industry (FICCI), Confederation of Indian Industry (CII), and Progress Harmony Development Chamber of Commerce and Industry (PHDCCI).

19 "…another issue of concern is tax. In April, India's government unveiled surprise plans to raise $6.4bn in tax from global fund managers." in "India is the jewel in the emerging market crown", *Financial Times*, May 31, 2015.

20 We address the first and third question of our study based on a theoretical framework discussed in this section and the second question regarding implications of the reaction, which is an empirical issue, is examined in Section VI.

The framework we follow models the severity of barriers to international investments in emerging economies (see Bacchetta and Van Wincoop, 2000). It demonstrates how the dynamics of capital flows in emerging markets changes following gradual liberalization reforms (such as reduction in taxes) initiated by the host government. In our model, we assume that FPIs choose to allocate their wealth, *W*, between the Indian market *(IND)* and other *N* identical countries. Thus, the total number of markets invested is *N+1*. Period *t* returns on investments in other countries n_i *(N=*$\sum_{i=1}^{N} n_i$*)* are denoted by $r_{n_i\,t} \sim N(\bar{\mu}_N, \sigma_N^2)$. Let period *t* returns on *IND* equities be $\mu_{IND,t} \sim N(\mu_{IND}, \sigma_{IND}^2)$. For foreign investors, the return on *IND* equities is subject to an income tax, $\tau_{IND,t}$ translating into net return of:

$$r_{IND,t} = \mu_{IND,t} - \tau_{IND,t} \tag{1}$$

In Equation (1), $\tau_{IND,t}$ denotes the general applicable taxes on investments, such as short term capital gain taxes. Further, we assume that the returns are uncorrelated across countries and $\sigma_{IND}^2 = \sigma_N^2$. We also assume that investors have an exponential utility function $U(C) = e^{-\theta C}$ where consumption *C* is portfolio return, i.e. = $R_t \times W$, and θ is the degree of risk preference ($\theta > 0$). Thus, foreign investors choose portfolio allocations to maximize period *t* utility which is a function of the mean-variance trade-off:

$$max_{\alpha_{nt}} E(R_t) - \frac{\gamma}{2} var(R_t) \tag{2}$$

where $n \in [1, N+1]$, India is the *(N+1)*st equity market, α_{nt} is the weight of country n_i in the portfolios (with $\sum_{n=1}^{N+1} \alpha_{n_i\,t} = 1$), $\gamma = \theta W$, and R_t is portfolio returns given by:

$$R_t = \sum_{n=1}^{N} \alpha_{n_i\,t} . r_{n_i\,t} + \alpha_{N+1,t} . r_{IND,t} \tag{3}$$

Next, if the average expected return in other countries is $\bar{r}_t = \sum_{n=1}^{N} \bar{r}_{n_i t}/N$ and the expected return on the *IND* is $\bar{r}_{IND,t}$, the portfolio weight in the Indian market (i.e. *(N+1)st* market*)* by foreign investors is thus given by:

$$\alpha_{N+1,t} = \frac{1}{N+1} + \frac{\bar{r}_{IND,t} - \left[\frac{\bar{r}_{IND,t} + N\bar{r}_t}{N+1}\right]}{\gamma\sigma^2} \quad (4)$$

Following the arguments by Bacchetta and Van Wincoop (2000) and Edison and Warnock (2008), Equation (4) suggests that an increase in $\tau_{IND,t}$ will lead foreign investors to reduce portfolio weight in the Indian equity market. In our case, we assume $\varphi_{IND,t}$ to be the threat of expected additional MAT, where MAT, $\varphi_{IND,t}$ increased from $\varphi_{IND,t} = 0$ to $\varphi_{IND,t} = \bar{\varphi}_{IND,t}$. After the effective date of *MAT Threat Period*, the portfolio weight in the Indian equity market (i.e. *(N+1)*st market*)* by FPIs, now denoted as $\hat{\alpha}_{N+1,t}$, is shown in Equation (5):

$$\hat{\alpha}_{N+1,t} = \frac{1}{N+1} + \frac{(\bar{r}_{IND,t} - \bar{\varphi}_{IND,t}) - \left[\frac{(\bar{r}_{IND,t} - \bar{\varphi}_{IND,t}) + N\bar{r}_t}{N+1}\right]}{\gamma\sigma^2} \quad (5)$$

Equation (5) suggests that an increase in $\varphi_{IND,t}$ from 0 to $\bar{\varphi}_{IND,t}$ after the MAT implementation should result in a reduction of portfolio weight in the Indian equity market. Subtracting Equation (5) from Equation (4) will give us the difference in portfolio allocation in the Indian market after the introduction of additional MAT liability:

$$\alpha_{N+1,t} - \hat{\alpha}_{N+1,t} = \bar{\varphi}_{IND,t}\left(\frac{N}{\gamma\sigma^2}\right) \quad (6)$$

Thus, the difference in portfolio allocation before and after the tax threat is attributable to the change in the potential MAT liability $\bar{\varphi}_{IND,t}$. Based on the prediction of the theoretical framework, we would expect that the net portfolio inflow to fall as a response to the potential retrospective increase in tax liability($\bar{\varphi}_{IND,t}$). This could be further exacerbated by the prevalence of incomplete information as Bacchetta and Van Wincoop (2000) argue that investors may not have immediate full information about the announced reforms in emerging markets. This suggest that when uncertainties about the extent of the reforms and their implementation are high, it should have higher negative effect on the foreign portfolio inflows and encourage outflows. Similarly, the same theoretical framework would also suggest that the

FPIs' portfolio flow should increase following the removal of a potential MAT liability. The removal of $\bar{\varphi}_{IND,t}$ would bring the portfolio weight back to the previous level. Thus, the portfolio inflows should increase or the level of outflow should fall after the eradication of the threat to introduce retrospective MAT liability on FPIs.

4. Data and Summary Figures

This study uses trading level data of FPIs obtained from the Securities Exchange Board of Indian (SEBI) endorsed National Securities Depository Limited (NSDL) database. The database contains most of the details of all the trading conducted by FPIs since January 1, 2003 which includes each transaction identification, scrip name, ISIN code, transaction date, transaction type, exchange traded, traded rate, quantity, value, and instrument types. 99.45% of all transactions are conducted on the National Stock Exchange (NSE) and Bombay Stock Exchange (BSE) and 99.36% of all traded securities are equities. Our analysis is based on the purchase and sale of equities on NSE and BSE covering 99.34% of all transactions. Since the MAT related threat lasts from April 1, 2015 to August 31, 2015, our sample period is from January 1, 2015 to August 31, 2015.

Figure 1 depicts the monthly total net equity trading (i.e. purchase – sale, in million INR) of all listed Indian equities traded by all FPIs during the year 2015. These figures are winsorized at the 1st and 99th percentile to limit the presence of any extreme outliers in the transaction. Total net equity trading by FPIs for the first three months witnessed a positive inflow of around INR 199 billion (the highest total net equity trading being INR 102 billion in January 2015). However, immediately after the effective MAT date of April 1, 2015, we witness a series of outflows until September. Although transactions increased briefly during July, the transaction value of around INR 25.5 billion is less than half of the transaction value observed during March 2015. The total net equity outflow during the *MAT Threat Period* is

approximately INR 447 billion.

[Insert Figure 1 about here]

Figure 2 shows the monthly average net equity trading for an average equity traded during the year 2015 by all FPIs. The figure shows a similar trend as Figure 1, i.e. the first three months before the effective date there is a positive average transaction per equity of INR 139 million, INR 36 million and INR 90 million respectively. However, post the effective date of MAT, the average figures are negative (the lowest figure being INR -254 million in August 2015). The decrease in net equity trading during the *MAT Threat Period*, as identified in Figures 1 and 2 provides some initial support of our argument that the threat of MAT liability has a significant negative effect on the trading behaviour of FPIs.

[Insert Figure 2 about here]

5. Empirical Findings: MAT Threat and FPIs' Trading Activities

We begin our empirical analyses on the reaction of FPIs by assessing the univariate summary difference between pre and post MAT threat period for the entire sample followed by multivariate regression estimations. Then we undertake the univariate and multivariate DiD examinations followed by a series of robustness checks.

5.1. Effect of MAT Threat: Mean Differences

Following Froot, O'Connell and Seasholes (2001), Bekaert and Harvey (2002), and Richards (2005), we define net equity trading (in basis point) as:

$$NET_{it} = \frac{\sum(quantity_{i,t} \times price_{i,t})}{MCap_{i,t-1}} \quad (7)$$

In Equation (7), $\sum(quantity_{i,t} \times price_{i,t})$ is the net equity traded on the trading day t for equity i. The term $quantity_{i,t}$ is the number of equities i purchased/sold on date t at $price_{i,t}$ (positive figure for purchase and negative for sale). $MCap_{i,t-1}$ is the previous day's

market capitalization for equity i.

We begin by conducting a paired t-test for the mean differences in NET_{it} before and after the MAT effective date using five different window periods. For *Seven Trading Days*, we use seven trading days' data before the effective date for *Pre-MAT Threat Period* and seven trading days' data after the effective date for *Post-MAT Threat Period*. Similar is the case for the *One Month, Two Months* and *Three Months'* window periods. Finally, we create the *MAT Threat Period* window using the dates between January 1 to March 31, 2015 as the *Pre-MAT Threat Period* and April 1, 2015 to August 31, 2015 as the *Post-MAT Threat Period*.

[Insert Table II about here]

The results in Panel A of Table II show the difference in average net equity trading in the post-MAT threat period relative to the pre-MAT threat period. In relation to the *Pre-MAT Threat Period*, after the threat of MAT liability, there was a decline of 0.235 basis points within *Seven Trading Days*, statistically significant at the 1% level. Economically, the MAT threat leads to the daily withdrawal of almost, on average, INR 5.63[21] million market capitalization per share. The difference is higher for other window periods. During the *MAT Threat Period*, the daily average withdrawal constitutes virtually INR 6.45 million market capitalization per equity. The statistically and economically significant univariate differences in average equity trading for various pre and post MAT windows provide support to our theoretical prediction that FPIs withdrew from the market in response to the threat of MAT.

5.2. Effect of MAT Threat: Baseline Regression Results

We use the following general equation to run daily fixed effect panel data regression model based on different time periods as discussed in the previous section:

$$NET_{it} = \beta(MAT\ effect_t) + \gamma_i + \varepsilon_{it} \quad (8)$$

21 The average market capitalization per equity during the *Seven Trading Days*, *One Month*, *Two Months*, *Three Months* and *MAT Threat Period* was around INR 239.68, INR 236, INR 237.87, INR 236.86 and INR 235.41 billion respectively.

In Equation (8), NET_{it} is the day *t* net equity as defined in Equation (7). $MAT\ effect_t$ is the dummy variable which takes the value of 1 in the *Post-MAT Threat Period* and 0 in the *Pre-MAT Threat Period* for each window period. γ_i is the vector of firm dummies controlling for firm fixed effects and ε_{it} is the error term. We also cluster all the standard errors at firm level. β captures any change in net equity trading caused by the threat of MAT.

The results in Panel B of Table II is in line with our prediction that the threat of MAT has a significant negative effect on the trading activities of FPIs. The effect during the *Seven Trading Days* window period is 0.238 basis points (daily market capitalization of approximately INR 5.73 million per share), which increases to 0.396 basis points (daily market capitalization of approximately INR 9.35 million per share) for the *One Month* window period. The coefficient is also higher for other window periods compared to the first *Seven Trading Days* period.

Next, we estimate different specifications of general regression Equation (9), during the *MAT Threat Period,* controlling for other competing factors that could provide alternative explanations:

$$NET_{it} = \beta(MAT\ effect_t) + X_{it} + \gamma_i + \delta_t + \varepsilon_{it} \quad (9)$$

In Equation (9), X_{it} is a set of control variables discussed in the following paragraph. To control for firm-level heterogeneity, we use firm fixed effects (γ_i) and to account for time fixed effects we also include time (days) fixed effects (δ_t). We also double cluster our standard error at the firm and time (day) level.

The first factor we include in controls is recent stock returns. Brennan and Cao (1997) argue that investors tend to purchase foreign assets in periods when the return on foreign assets is high and to sell when the return is low. Thus, empirical evidence suggests a positive relation between net foreign flows and lagged stock returns. We control this effect at the firm level by including the previous day's return of individual firms that FPIs trade on a particular day on

the NSE and/or BSE. We source this data from the Prowess database maintained by the Centre for Monitoring Indian Economy (CMIE). The returns data provided in Prowess include dividend and capital gains, i.e. they are total returns. We denote this as *Stock Return* in our regressions.

Second, we control for a set of variables jointly referred as pull factors, i.e. home characteristics that attract or deter foreign inflows. Griffin, Nardari and Stulz (2004) suggest that equity flow in the host country increases with the return of the host country's stock market. We control market return by including the previous day's return on the NSE or BSE index *(Market Return).* Both these indices are sourced from the Reserve Bank of India. Further, Ülkü (2015) documents that the riskiness of host market, such as volatility of local returns, also influences the decision of foreign investor. We include the daily standard deviation calculated using previous 90 days return on BSE or NSE *(Market Volatility)* (sourced from the BSE and NSE) as a proxy for host market riskiness. Studies also note that equity flows into foreign market are positively related to exchange rate appreciation (Hau and Rey, 2006). We control the exchange rate fluctuation by including the USD/INR daily standard deviation of the exchange rate using the previous 90 days' figures (*USD/INR Volatility)* (sourced from the Reserve Bank of India). Further, we take account of the time varying microeconomic factors by incorporating the last quarter's real gross domestic product growth rate *(Real GDP Growth Rate)* (obtained from Thomson Reuters).

We also include "push factors" which are information external to host economies in the model (Stulz, 1999; Griffin, Nardari and Stulz, 2004). Richards (2005) argues that changes in global and emerging market returns, that directly affect foreign investors' wealth, has significant implications for investment in an emerging market. We use the previous day's return on the MSCI Total World Market Index *(World Return)* as a proxy of global return, and previous day's return on the MSCI Total Emerging Market Index *(EM Return)* as a proxy of

emerging market return (sourced from Thomson Reuters). Similarly, several studies note that US interest rates as one of the major push factors that influence the flow of portfolio capital into emerging markets (Ülkü, 2015; Sarno, Tsiakas and Ulloa, 2016). We factor in this effect by using the previous day's return on one year US Treasury Bill rate *(US TB Rate)* (sourced from Thomson Reuters). Finally, investors' risk aversion may also explain the push of equity flows from home countries into host countries (Fratzscher, 2012; Sarno, Tsiakas and Ulloa, 2016). We control global risk aversion by using the daily return on Global VIX index *(Global VIX Return)* (sourced from Thomson Reuters). This index is based on one-month model-free implied volatility of the S&P 500 equity index. Richards (2005) argues that most of the investment in emerging markets occurs through specialized investment managers investing only in emerging markets. This implies that the riskiness related to emerging markets might also be relevant in FPIs' decision-making process. Therefore, the return on Emerging Market Volatility Index *(EM VIX Return)* is also included as a control variable.

Table III provides the descriptive statistics of all the control variables. The *Stock return* declines by around 0.070% in the after the MAT threat. Similarly, post MAT effective date the daily market return *(Market Return)* experiences a fall of 0.099%, but the daily market volatility *(Market Volatility)* increased by nearly 0.073%. These figures provide some initial indications that the subsequent withdrawal post MAT effective date may have a detrimental effect on the market return and volatility. The change in *USD Volatility* (-0.020%), *Real GDP Growth Rate* (-1.688%) and *US TB Rate* (0.059%) after the effective date are also statistically significant and could influence the trading of FPIs.

[Insert Table III about here]

The results estimating different specifications of Equation (9) with various control variables are presented in Table IV. In Model 1, we use the dummy variable $MAT\ effect_t$ only. In Model 2, in addition to the dummy variable, we include stock returns

and in Model 3, we incorporate the dummy variable, stock returns and the pull factors. Finally, in Model 4, we incorporate the remaining control variables. In all models our main variable of interest $MAT\ effect_t$ enters the regressions with statistically significant (at the 1% level of significance) coefficients ranging from -0.318 to -0.362. The effect is not only statistically noteworthy but also economically pertinent as it leads to a withdrawal in the range of INR 7.49 to INR 8.52[22] million market capitalization per day per share. This sizeable drop in net portfolio equity flow is consistent with the prediction of our theoretical framework that tax threat leads to investment outflows resulting in inefficient allocation of portfolio.

[Insert Table IV about here]

For the control variables, we find support for the return-chasing behaviour/momentum trading at the firm level, but not at the market level suggesting that FPIs seem to exploit firm level recent returns to extract information about future returns. Further, we find strong evidence of the significance of pull factors. The negative impact of *Market Volatility* on net equity trading is consistent with Ülkü (2015) which implies that there is an increase in market uncertainty during the *MAT Threat Period*. In line with the findings of Hau and Rey (2006), the outcomes also indicate that higher exchange rate volatility (*USD Volatility*) results in lower net foreign portfolio inflow. Further, among various push factors, we find a significant influence of *US TB Rate* during the sample period, providing some evidence of the significance of global push factors (Ülkü, 2015).

5.3. Effect of MAT Threat: Difference-in-Differences Results

We now use a quasi-natural experiment (using DiD method)[23] with the MAT effective date as the exogenous shock date. Since the tax applies to all FPIs we do not have access to any natural treatment and control groups. To generate the treatment and control group we divide the firms

22 Calculated as -0.318 and -0.362 basis point of daily average market capitalization of each equity during the *MAT Threat Period* which is around INR 235.41 billion.

23 This method compares the effect of an event on groups affected or more affected by the event (called the treatment group) with those that are unaffected or least unaffected (called the control group) (Vig, 2013).

based on total cumulative holdings (TCH) by all FPIs in different sectors. We first identify the sector based on the first two digits of the National Industry Classification of India. For each sector, we calculate the TCH from January 1, 2003[24] to March 31, 2015 and sort the entire table based on the TCH. Next, we sort the TCH for each sector into terciles and define the top 33rd percentile of the sectors that have the highest value of exposure as the treated group and the bottom 33rd percentile as the control group.[25] Therefore, we argue that any exogenous shocks that affect the trading activities would have a greater impact on sectors/firms that had higher TCH (treatment group) as compared to sectors/firms that had lower TCH (control group).

Figure 3 provides the difference in TCH and its trends pre and post MAT effective date for the treated and the control groups. The TCH for the treatment group before the event was INR 161 billion compared to TCH for the control group of INR -0.36 billion.[26] However, after the MAT effective date, the net equity trading for the treatment group dropped by staggering INR 576 billion compared to the control group of INR 83 billion.

[Insert Figure 3 about here]

We undertake the DiD examination in two ways. First, we examine the mean difference in the NET_{it} values for the treated and control group pre and post the MAT effective date. Panel A of Table V presents the results of DiD for NET_{it} values for the *Pre-MAT Threat Period* and *Post-MAT Threat Period*. Firms in the treatment group are compared to the control groups. We find economically significant effect of the proposed change in tax policy on net equity trading. For firms in the treatment group, the figure drops from 0.2322 to -0.0484, a fall of 0.2807 basis points of market capitalization. In contrast, for control firms, the figure drops marginally from 0.1815 to 0.1030, a fall of 0.0785 basis points, which is not statistically significant. There is no

24 The FPIs' trading data are only available from the year 2003.

25 We find that the TCH in sectors such as financial services, textiles, IT, pharmaceuticals, and telecom are substantially higher compared to sectors such as advertising and market research, retail trade, mining, construction companies, and sports and recreation.

26 It is worth noting that the estimated TCH could also have negative values as the data before 2003 is not available. However, our purpose is to show the level of exposures in different sectors.

statistical difference in the net equity trading between the treatment and control groups prior to the MAT effective date. The estimate shows the net equity trading of treatment firms drops by 0.2022 basis points more than control firms. The differential effect is also economically significant as it suggests a daily reduction of INR 4.76 million market capitalization per share.[27]

The second approach we take is to examine the regression coefficient for two different equations. First, we run the DiD using Equation (10) for different window periods similar to Equation (8):

$$NET_{it} = \beta(MAT\ effect_t \times TRMT_i) + \boldsymbol{\gamma_i} + \varepsilon_{it} \quad (10)$$

All the variables are as defined previously. $TRMT_i$ takes the value of 1 for firms in the treatment group and 0 for firms in the control group. We cluster all the standard errors at firm level. The term β, which captures the DiD effect, relates to change in net equity trading of the treatment firms relative to a corresponding change on the control firms.

[Insert Table V about here]

The estimates in Panel B of Table V provide evidence consistent with our conjecture that the MAT threat has a detrimental effect on FPIs' trading activities. The β coefficient during the *Seven Trading Days* window period suggests an effect of -0.202 basis points of the daily market capitalization per share for the treatment firms in relation to the control firms. Again, the effect is higher for the other window periods compared to the *Seven Trading Days'* period, supporting the proposition that the MAT threat leads to market withdrawals by FPIs.

We now consider other potential factors constant that could provide an alternative explanation for our result. Thus, we estimate different specifications of the following regression equation during the *MAT Threat Period* including several competing control factors that we discussed previously:

27 Calculated as 0.2022 basis point of daily average market capitalization of each equity during the *MAT Threat Period* which is around INR 235.41 billion.

$$NET_{it} = \beta(MAT\ effect_t \times TRMT_i) + X_{it} + \gamma_i + \delta_t + \alpha_k + \varepsilon_{it} \quad (11)$$

In Equation (11) we also control for sector fixed effects α_k where *k* denotes the sector, since the classification of treatment and control group is based on the TCH in different sectors. We cluster our standard errors at firm, time (day) and sector level.

Table VI shows the results of regression-based DiD with controls. Our main variable of interest $MAT\ effect_t \times TRMT_i$ is statistically significant at 1% in all models which confirms our arguments on the MAT threat. The basic regression Model 1 shows that the average NET_{it} ratio decreases by 0.360 basis points and this result holds for all our models including the various controls. Again, the MAT threat is not only statistically significant but economically meaningful as well, as it results in a daily reduction of INR 7.27 million market capitalization per share. These findings thus stand up in the face of various controls for FPIs' trading and is consistent with our theoretical prediction is consistent with the prediction of our theoretical framework that tax threat (deadweight costs) to international investments would lead to inefficient allocation of portfolio resulting in substantial outflows. The results for the control variables are similar to those reported in Table IV.

[Insert Table VI about here]

5.4. Robustness Tests

In this section, we undertake several additional checks to provide confidence in the robustness of the results reported above.

5.4.1. Addressing Systematic Shocks

One of the major challenges in isolating the effect of MAT threat is the existence of other confounding events that may have occurred during the same period. Any of these events, if not controlled for, could result in a biased estimation of the treatment effect. We conduct an extensive search of national and international newspapers to identify any major exogenous shocks that could substantially affect the trading behaviour of FPIs which may not have been

captured by our control variables, time (day) effect, firm-specific effect, and sector effects. One possible effect on the trading of FPIs was the possibility of Greece exiting from Eurozone, referred to as "*Grexit*" hereafter.[28] It could be possible that the threat of Greece exiting the Eurozone would have amplified the global risk aversion triggering withdrawal from emerging market securities. To test this possibility, we include an additional dummy variable $Grexit_t$ that takes value of 1 for the period between June 22, 2015 and July 13, 2015. The results are presented in Table VII. In Model 1 of Table VII, we include our $Grexit_t$ dummy variable in Equation (11) along with all the formerly used control variables including time (day), firm, and sector fixed effects. The $Grexit_t$ dummy variable is statistically insignificant and our main result is still robust. The economic significance of our main variable is similar to the results reported in Table VI. Further, to control for any other industry-specific shocks that may have altered the trading behaviours we include the interaction between sector and time (day) fixed effects ($\delta_t \times \alpha_k$) in Model 2 of Table VII. Similar to Model 1, the $Grexit_t$ dummy is statistically insignificant and the main variable of interest $MAT\ effect_t \times TRMT_i$ remains statistically significant and economically similar to our earlier results.

5.4.2. Alternative Treatment and Control Group

Another difficulty in inferring the causal impact of an exogenous shock is to identify a valid comparison group relative to those firms that are highly affected by the MAT threat. So far in our analysis, the control group consists of firms where FPIs have lower TCH during January 1, 2003 to March 1, 2015 based on the lowest tercile. As an alternative treatment and control

28 On June 22, 2015, the Greek government submitted an "economic reform" proposal in a bid to negotiate a 7.2 billion Euro rescue package to meet its debt obligations and reduce the possibility of *Grexit*. The Euro-group meeting was held on June 24, 2015 to discuss the proposal and negotiate bailout agreements. Bank of America Merrill Lynch in their research report stressed that FPIs were closely monitoring the bailout negotiations and in the event of *Grexit*, FPIs' investment in the equity market of India could stall, potentially driven by increased global risk aversion. On July 13, 2015, after days of negotiations, Eurozone leaders and the Greek government agreed on a bailout package conditional on various economic and policy reforms. "Grexit may stall FPI inflows into India: Bank of America Merrill Lynch", *The Economic Times*, July 4, 2015.

group, we use median TCH for each sector as a cut-off point to separate the treatment and control groups. Specifically, the treatment group includes firms in sectors whose TCH is higher than the median TCH. We rerun Equation (11) with these alternative groups and present the results in Model 3 of Table VII. This shows our main result on the MAT threat is robust, and the coefficient is larger in magnitude than in Table VI.

Additionally, we also create alternate treatment and control groups based on the FPIs' identification. Though the public data set provided by NSDL masks the original identification of FPIs, it provides a unique key for each of the FPIs which we use to divide the FPIs into control and treatment groups. First, we calculate a modified net equity trading measure, as shown in Equation (12):

$$NET_{jit} = \frac{\sum(quantity_{j,i,t} \times price_{j,i,t})}{MCap_{i,t-1}} \quad (12)$$

In Equation (12), $\sum(quantity_{j,i,t} \times price_{j,i,t})$ is the net equity trading on the trading day *t* for equity *i* by FPI *j*. All other indicators are as previously defined. In this case, the net equity trading is the sum of all equity trades (purchase as positive trade and sell as negative trade) by each FPIs for each stock each day scaled by previous day market capitalization. Next, we identify the control and the treatment groups based on the TCH values by each FPIs during January 1, 2003 to March 31, 2015 (sorted based on highest value to the lowest). Initially, we create control and treatment groups based on the cut-off point of median TCH values (FPIs higher than median TCH values as the treatment group and below median as the control group) and then create another alternate control and treatment groups based on terciles of the TCH values (FPIs with the top 33rd percentile as the treatment group and the bottom 33rd percentile as the control group). We rerun Equation (11) by replacing NET_{it} by NET_{jit} and including FPIs fixed effects in our regression in addition to the firm, time (day), and sector fixed effects. The results are presented in Table VII Models 4 and 5. In Model 4 we use median value as the cut-

off point and in Model 5 we use terciles as the cut-off point, as discussed above. In all alternate models using FPIs' identifications, the results are consistent to our main results.

[Insert Table VII about here]

5.4.3. Balanced Panel and False Experiment

Given our daily panel data is unbalanced, there is the possibility of attrition bias. To ensure that our estimates using unbalanced panel data are robust to attrition bias, we re-run Equation (11) using fully balanced data during the sample period.[29] The result is reported in Table VII (Model 6). In this balanced setting, our primary results on the MAT threat are consistent with our main results.

An alternative approach to ensure that the estimated effects are attributable to the MAT threat rather than some other confounding factor is to examine a placebo test – particularly a "false experiment". The basic idea is that if the underlying effect is detectable in the period other than the *MAT Threat Period*, then it would be difficult to attribute the effect to the tax threat that occurred only during the event period. To eliminate this concern, we run a similar specification in Equation (11), modified to assume the occurrence of non-existent events (placebo event) in the period other than the year 2015. To run this test, the false experiment for 2014 replaces the interaction term of interest in Equation (11) – $MAT\ effect_t \times TRMT_i$ – with the interaction between $TRMT_i$ and an indicator variable $MAT\ effect_t$ for the period covering January 1, 2014 to August 31, 2014. Model 7 of Table VII reports the result of the false experiment. The estimated "effect" for an event in 2014 is statistically indistinguishable from zero. The absence of any significant estimated effects for these false experiments provides us with confidence our main results in Tables IV and VI are attributable to the MAT threat rather than to some other confounding factors.

29 We only include those firms who were traded during the sample period.

6. Empirical Findings: Implications of FPIs' Market Withdrawal on Stock Market

So far, our inference is consistent with the conjecture that the threat of MAT led to substantial outflows by FPIs. This raises the following question: What are the implications of such withdrawal on the Indian market? In this section, we investigate the likely consequences of such a systematic withdrawal of funds by examining the potential effect of FPIs' departure on stock market liquidity (also a proxy for the cost of capital), volatility and on valuation (price). We begin by describing our measures of liquidity, volatility and valuation followed by a brief description of their summary figures, and finally, show the results of multivariate regressions including that of pricing effects.

6.1. Measures of Liquidity, Volatility and Valuation

For policymakers, one of their main concerns is how FPIs' trading could have a direct or indirect effect on the overall growth of the economy. It is well recognised in the literature that lower stock market liquidity increases firms' cost of capital (Amihud and Mendelson, 2000; Balakrishnan *et al.*, 2014). Following this literature, we proxy cost of capital using three different measures of stock market liquidity proxies. The first firm level liquidity measure is the turnover ratio for stock *i* at time *t* and is computed as:

$$Turnover\ ratio_{it} = \frac{Number\ of\ shares\ traded_{it}}{Number\ of\ shares\ outstanding_{it}} \tag{13}$$

Second, following Amihud (2002) we estimate the daily index of illiquidity for stock *i* at time *t* as:

$$Illiquidity\ Index_{it} = \frac{|R_{it}|}{V_{it}} \tag{14}$$

where R_{it} is the return of stock *i* at time *t*, and V_{it} is the daily volume of stock *i* at time *t*. The index is then multiplied by 10^6. A higher value of illiquidity index indicates lower stock liquidity.

The third proxy we use is based on Hui and Heubel (1984) where the daily measure is calculated as:

$$Liquidity\ Ratio_{it} = \frac{(P_{max-}P_{min})/P_{min}}{V/(S.\bar{P})} \quad (15)$$

where P_{max} is the highest daily price in the last 5-day period, P_{min} is the lowest daily price in the last 5-day period, V is the total volume of stock *i* traded over the 5-day period, *S* is the total number of shares outstanding over the same period and $\bar{P}$ is the average closing price over the same period. A higher value of the liquidity ratio indicates lower stock liquidity.

Emerging equity markets are characterised as having higher volatility which in turn can also increase the cost of capital of firm. Similarly, studies that examine the issue of liberalizations and volatility in the stock market show that the stock market volatility reduces after liberalizing when foreign investors begin holding the local market (Bekaert and Harvey, 1997, 2000; Kim and Singal, 2000). Following this argument, we suggest that when FPIs withdraw from the market the stock volatility should increase. We calculate firm level *Stock Volatility* by using the square of daily stock returns.

Finally, we also test the valuation effect using price-to-book ratio (*Price-to-Book)* as the ratio of market price to book value per share. All the variables used to study the potential implications are sourced from Prowess database.

6.2. Summary Statistics

We begin by comparing the pre and post MAT differences of the firm level proxies discussed above. The results are reported in Panel A of Table VIII which shows a significant decline in *Turnover Ratio* and an increase in *Illiquidity Index* and *Liquidity Ratio* indicating worsening market liquidity. The figures also show a material increase in *Stock Volatility* and a decrease in *Price-to-Book Ratio* after the MAT effective date. These pre and post univariate figures

provide an indication that FPIs' withdrawal in after the MAT threat had negative implications for stock level liquidity, volatility, and valuation measures.

[Insert Table VIII about here]

6.3. Implication on Stock Liquidity (Cost of Capital)

We investigate the effects on liquidity by running different specifications of the following regression equation:

$$Y_{it} = \beta_1(MAT\ effect_t) + \beta_2(NET_{it}) + \beta_3(MAT\ effect_t \times TRMT_i \times NET_{it}) + X_{it} + \gamma_i + \delta_t + \alpha_k + \varepsilon_{it} \quad (16)$$

In Equation (16), Y_{it} is a vector of dependent variables, i.e., measures of stock market liquidity where firms are indexed as *i* and daily time periods are indexed as *t*. We use our three different liquidity measures. The $MAT\ effect_t$, NET_{it}, and $TRMT_i$ factors are as defined in previous section. X_{it} is a set of control variables discussed below.

In terms of controls, empirical evidence suggests that firm and stock trading characteristics are the most common factors that affect stock liquidity (Chordia, Roll and Subrahmanyam, 2000; Stoll, 2000). Specifically, evidence suggests that stock price, volatility, trading volume, market capitalisation, and absolute stock return are the influential determinants of stock liquidity (see Stoll, 2000; Lesmond, 2005; Chai, Faff and Gharghori, 2010). Accordingly, we use log of the average stock price at the end of each trading day to control the effect of the price of a stock (*Stock Price*). We use previous day stock return volatility constructed as the square of daily stock return to control for the effects of return variance (*Volatility*). We also use log of the number of trades during the previous day (*Trades*) to control for trading volume. The log of market capitalization, in million INR, at the end of the previous trading day, (*Market Capitalization*), are also incorporated. We also take account for absolute stock return as an additional measure of volatility. We use the absolute value of previous day stock return (*Absolute Return*). All these variables are sourced from the Prowess database.

Finally, we also control for time (day) δ_t, sector α_k and firm fixed effects, γ_i. With respect to efficiency, we cluster the standard errors at firm, time (day) and sector level.

Model 1 in Panel B of Table VIII shows that the reduction in net equity trading, NET_{it}, as result of FPIs' withdrawal following the MAT threat, reduces the stock turnover ratios. In terms of economic significance, one basis point decline in NET_{it} leads to 0.009% decline in *Turnover Ratio*. Similarly, in Model 2 the results also suggest that the stock illiquidity increases significantly following FPIs' exit from the market, with one basis point decline in NET_{it} leading to 0.029 points increase in *Illiquidity Index*. Finally, in Model 3, FPIs' withdrawal of funds post MAT reduces liquidity (higher value suggests lower liquidity). One basis point decline in NET_{it} leads to 1.861 points increase in *Liquidity Ratio*. Consistent with earlier studies (Bekaert and Harvey, 2002), these results show that FPIs' withdrawal reaction after the MAT effective date has negative effects on market liquidity, implying an increase in cost of capital.

Before concluding this subsection, we briefly comment on the control variables where we find evidence generally in support of the existing studies. Specifically, we find *Volatility* reduces both turnover and liquidity of the stock which is consistent with the findings of Stoll (2000). Though our results report inconsistent evidence on the link between *Price* and stock turnover/liquidity measures, it is consistent with findings reported by Chai, Faff and Gharghori (2010). In line with Stoll (2000) and Chai, Faff and Gharghori (2010), we find *Volume* and *Market Capitalization* positively related to turnover ratios and other liquidity measures. Finally, *Absolute Return* is negatively correlated to stock liquidity.

6.4. Implication on Stock Volatility

To examine the effect of FPIs' withdrawal on stock volatility, we run different specifications of following regression equation:

$$Stock\ Volatility_{it} = \beta_1(MAT\ effect_t) + \beta_2(NET_{it}) + \beta_3(MAT\ effect_t \times TRMT_i \times NET_{it}) + X_{it} + \gamma_i + \delta_t + \alpha_k + \varepsilon_{it} \quad (17)$$

where $Stock\ Volatility_{it}$ is the daily stock volatility of firms (in %) calculated as square of daily stock returns for firm i at time *t.* $MAT\ effect_t$, $TRMT_i$ and NET_{it} are defined in the previous section. We include a set of controls (X_{it}) as follows. Empirical evidence suggests that size and liquidity are related to stock return volatility (Bekaert and Harvey, 1997; Bae, Chan and Ng, 2004; Li *et al.*, 2011). Accordingly, we include the log of market capitalization *(Market Capitalization)* as measure of size, *Turnover Ratio* and *Illiquidity Index,* as defined earlier, as a measure of stock liquidity. Following Wei and Zhang (2006) and Li *et al.* (2011), we also include previous day's *Volatility* as it is established that return volatility is auto-correlated. Finally, we also include *Price-to-Book Ratio* as a proxy of risk factor.[30]

The results on the implications on stock volatility are presented in Panel C of Table VIII. The coefficient of our main variable on the effect of the MAT threat is negative and significant at the 10% level in Model 1. Economically, our results suggest that one basis point decline in NET_{it} leads to a 0.042% increase in *Stock Volatility*. Thus, there is weak evidence that FPIs' departure following the MAT effective date potentially has negative consequences for stock volatility. Our results for our control variables are consistent Li *et al.* (2011), specifically a significant impact of previous day's *Volatility* and *Turnover Ratio* on stock volatility is observed.

6.5. Pricing Effects

Next, we examine whether FPIs' withdrawal has any pricing effects, particularly we evaluate whether potential trading strategies adopted before the MAT effective date would yield significantly different returns post the effective date. A possible rationale behind this strategy

30 Chan and Chen (1991) and Fama and French (1993) suggest size and price-to-book ratio are a proxy for firm riskiness that capture the variation in stock returns.

is that if FPIs trade less in stocks after the effective date then the traded stocks would be underpriced. To examine the trading strategy, we take a long (short) position on the treated (control) firms and compute the cumulative returns of this position over holding period of one, five, ten, 15 and 22 trading days.[31] The daily panel fixed effect regression in Equation (18), for treated and control firms is run to evaluate the pricing effect (see Gao and Lin, 2015):

$$\frac{1}{w}\left[\log\left(1+r_{t+w,w}\right)\right] = \beta_1(MAT\ effect_t) + \beta_2(MAT\ effect_t \times NET_{it}) + X_{it} + \gamma_i + \delta_t + \varepsilon_{it}, \quad w = 1, 5, 10, 15, 22 \tag{18}$$

where $\log\left(1+r_{t+w,w}\right) \equiv \log(1+r_{t+1}) + \cdots + \log(1+r_{t+w})$ and r_{t+1} is the return on day *t+1*. We express cumulative returns in percentage. We vary *w* from one to 22 trading days. $MAT\ effect_t$ and NET_{it} are defined in previous section X_{it} is vector of control variables discussed in the following paragraph. γ_i and δ_t represent firm fixed effects and time (day) fixed effects respectively.

The first control variable that we include is previous day's stock return (*Stock Return)* as Brennan, Chordia and Subrahmanyam (1998) suggest that past stock returns affect expected return. Similarly, research shows that stock expected returns are negatively related to the size and the price-to-book ratio (see Fama and French, 1995; Jensen, Johnson and Mercer, 1997). Correspondingly, we include log of previous day's *Market Capitalization* and previous day's *Price-to-Book* ratio. Further, Chordia, Subrahmanyam and Anshuman (2001) and Amihud (2002) find a negative relation between stock returns and liquidity measures. Thus, we include previous day's *Turnover ratio* as a proxy for the liquidity measure. The previous day's daily *Volatility* as a measure of total risk is also incorporated. Before discussing the regression results, Panel A of Table IX reports summary statistics of the cumulative stock returns over various holding periods for long strategy on treated firms and short strategy on control firms.

31 We exclude cumulative returns for each holding period that include returns before the MAT effective date and the second announcement date. For example, for five working days, we do not include cumulative returns for five trading days before the effective date and five trading days before the second announcement. We follow this approach for the other holding periods.

[Insert Table IX about here]

As shown in the *Difference* column of Panel A.1 and Panel A.2, the cumulative stock return for the long strategy declined significantly after the MAT effective date for all the holding periods whereas similar return for the short strategy on control firms increased significantly after MAT event for 15 and 22 trading days holding period. These findings suggest that long (short) strategy on more (less) affected firm yields significant negative (positive) returns potentially driven by FPIs' withdrawal following the MAT effective date.

We report the regression results of Equation (18) in Panel B of Table IX. In Panel B.1, we regress cumulative stock returns for long strategy on treated firms traded by FPIs and in Panel B.2, we regress cumulative stock returns for short strategy on control firms traded by FPIs. The key conclusion is that MAT effect coefficient is positive and statistically significant for the long strategy on treated firms for one, five, and ten trading days holding period. The short strategy in control firms yields negative returns for one day and five trading days. We also perform similar trading strategy using alternative treatment and controls groups based on median value (as discussed in Section 5.4.2) and observe similar results (available from the authors on request). In summary, our results suggest that the MAT threat and the subsequent FPIs' exit produces a significant pricing effect in both the long and short strategies over short-term periods up to ten days.

7. Empirical Findings: Elimination of the MAT threat and FPIs' Market Re-Entry

The theoretical framework discussed in section III suggests that FPIs, after the MAT threat, should reduce. However, it is important to also consider the FPIs' trading reaction following the elimination of the MAT threat. First, we conduct a simple paired t-test for the mean differences in NET_{it} before and after the second announcement removing the MAT threat on September 1, 2015 using five different window periods (similar to Panel A of Table II).

The results in Panel A of Table X show the FPIs' trading flows are still negative after

the clarification of the MAT rules, but the size of the outflows have reduced as evidenced by the positive mean differences. Generally, this is consistent with the prediction of the theoretical framework where the fall in the magnitude of the tax barrier (deadweight costs) to international investments should lead to more efficient allocations. However, what is striking about these univariate results suggest that compared to the exit reaction the elimination of the MAT threat does not lead to an immediate and material inflow of FPIs, rather only the pace of the FPIs' investment outflow reduces.

[Insert Table X about here]

Further, we run two different specifications of the following regression equation after controlling for other confounding factors:

$$NET_{it} = \beta_1(MAT\ reversal\ effect_t) + \beta_2(MAT\ reversal\ effect_t \times TRMT_i) + X_{it}+\boldsymbol{\gamma_i} + \delta_t + \alpha_k + \varepsilon_{it} \quad (19)$$

In Equation (19), $MAT\ reversal\ effect_t$ is a dummy variable that takes the value of 0 for the *Before Second Announcement* between April 1, 2015 and August 31, 2015, and value of 1 for the *After Second Announcement* period between September 1, 2015 and December 31, 2015. All other factors are the same as described in the section 5.

The results of the two different estimations of Equation (19) are presented in Panel B of Table X. In Model 1, we include the dummy variable $MAT\ reversal\ effect_t$ and in Model 2, we include the DiD variable $MAT\ reversal\ effect_t \times TRMT_i$ along with control variables. The coefficients of the main variable of interest are positive but not statistically significant. If we consider the economic significance, we see that compared to the models on withdrawal (a decline of 0.309 basis point, as reported in Table VI), the DiD coefficients of post policy reversal period show an increase of 0.0476 basis points. These results suggest that though FPIs are quick to move out of the Indian market reacting to the threat of unfavourable tax policies, the reversal of the change in policies does not lead to immediate and equally substantial inflows of FPIs.

8. Conclusion

FPIs play an important role in supplying funding and liquidity in the capital constrained emerging markets, which motivates policy makers to attract and retain FPIs. Given their importance in the capital market the literature suggests that FPIs can indirectly influence policy making through their ability to pressurize shareholders and managers of the firms in which they invest to make representations on their behalf for favourable investment policies. However, we suggest that when changes in policy of the host government are detrimental to FPIs future prospects they could directly influence policy changes by their market power, i.e. by withdrawing from the market and causing disruptive effects on the market. We exploit an unexpected change in tax policy (known as MAT) that threatened to impose retrospective taxes on FPIs to not only examine FPIs reaction in response to the threat of MAT but also to consider the implications of market avoidance by FPIs.

We find during the MAT threat period there was economically significant market abandonment by FPIs. This constitutes, on average, an outflow of almost INR 7.27 million per day per equity. Further, we also find that the effect of the impeding tax liability was immediate as FPIs withdraws from the market within the first seven trading days after the MAT effective date. This dramatic response of FPIs to exit from the market also has disruptive effects on stock liquidity, volatility, and pricing. These effects, driven by a sudden and unexpected outflow of FPIs, could have played a key role in forcing the government to reverse the proposed MAT change. Further, our results also indicate that the elimination of the threat by the government does not lead to immediate and materially substantive inflows compared to the exit reaction.

To conclude, our study implies that tax advantage is one the important attractions of FPIs in emerging markets. FPIs are highly sensitive to tax policies and any change that increases their explicit tax liability could result in severe withdrawal of funds in emerging markets. This is a direct channel through which FPIs could influence government policies to

suit their own preferences. Although FPIs in emerging market may quickly pull out of the market in case of unfavourable tax policy, they do not move back into the market with the same speed following the reversal of changes in policies. This suggests that policymakers should take due care in formulating, announcing and implementing policies that could have a direct effect on the expected payoff of FPIs if they wish to attract and retain FPIs.

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TABLE I. Key Dates for Application of MAT to FPIs in India

Dates	Events	Comments
July 23, 2010	Authority for Advance Rulings (AAR) ruled that MAT was not applicable to companies having no permanent establishment in India.	FPIs were not liable to pay MAT in India.
August 14, 2012	AAR overruled its previous decision on the applicability of MAT to FPIs.	MAT provisions override DTTA and hence FPIs are liable to pay MAT. The ruling did not invoke concerns as the decision was challenged in Supreme Court.
February 28, 2015	The announcement in budget session that MAT would not be imposed w.e.f. April 1, 2015.	Provided relief to FPIs on the applicability of MAT, however, raised a question whether MAT would be imposed retrospectively.
End of March 2015	Tax authorities began sending notices to FPIs demanding MAT payment.	FPIs resort to legal procedures challenging the legality of MAT.
April 1, 2015	The effective date of not imposing MAT on prospective transactions.	Provided prospective clarity but more or less made the MAT threat on retrospective transactions imminent.
April 5, 2015	Tax demands intensified by Indian government valued at around 6.4 billion dollars.	Further increased the threat on FPIs on the new tax liability.
May 7, 2015	A High-level committee formed to give recommendations on the specific issues of MAT for FPIs.	
August 25, 2015	The High-level committee submitted a detailed report.	Various rounds of consultation were conducted with several stakeholders.
September 1, 2015	MAT not to be applicable retrospectively.	Eliminated the MAT threat. End of the issue of application of MAT to FPIs.

TABLE II. Different Window Periods - Summary Analysis

Panel A: Mean Difference in Net Equity Trading

Panel A shows the paired t-test of the differences in average daily net equity trading value as a percentage of previous day market capitalization (reported in pbs units) of listed stocks in BSE/NSE by all FPIs. The column *Window Period* denotes the different period of trading days. The column *Pre-MAT Threat Period* shows the average value for the corresponding trading window before MAT effective date (April 1, 2015) and *Post-MAT Threat Period* shows the average value of corresponding trading window after the MAT effective date. For *Seven Trading Days*, we use seven trading days' data before April 1, 2015 for *Pre-MAT Threat Period* and seven trading days' data after April 1, 2015 for *Post-MAT Threat Period*. Similar is the case for *One Month, Two Months* and *Three Months'* window periods. For the *MAT Threat Period*, we use January 1 to March 31, 2015 for the *Pre-MAT Threat Period* and April 1, 2015 to August 31, 2015 for the *Post-MAT Threat Period*. The column *Difference* shows the difference between *Post-MAT* and *Pre-MAT Threat* average values. *t-stat* is the t-statistics of the difference figure with a probability of the alternative hypothesis that the average difference is less than zero (i.e. Post-MAT average - Pre-MAT average <0) denoted by *p-value*. The column *Observations* shows the sample size included in each window.

Window Period	Pre-Mat Threat Period	Post-Mat Threat Period	Difference	t-stat	p-value	Observations
Seven Trading Days	0.401	0.166	-0.235	-4.776	0.000	14,054
One Month	0.375	0.030	-0.346	-10.216	0.000	28,425
Two Months	0.286	0.034	-0.252	-10.588	0.000	55,882
Three Months	0.225	-0.019	-0.243	-12.048	0.000	85,110
MAT Threat Period	0.225	-0.049	-0.274	-15.404	0.000	116,870

Panel B: Regressions for Different Window Periods

Panel B reports the regression results of the following regression specification for different window periods:

$$NET_{it} = \beta(MAT\ effect_t) + \gamma_i + \varepsilon_{it}$$

where: NET_{it} is the day *t* net trading value by all FPIs as a percentage of previous day's market capitalization of listed stocks (*i)* on the Indian stock market (reported in pbs units). $MAT\ effect_t$ is the dummy variable which takes the value of 0 in different *Pre-MAT Threat Period* and 1 for different *Post-MAT Threat Period* as discussed in the notes to Panel A. γ_i is the vector of firm dummies controlling for firm fixed effects. ε_{it} is the error term. Standard errors are corrected for clustering at the firm level. *, ** and *** denote statistical significance at the 10%, 5% and 1% significance level respectively.

	Seven Trading Days	One Month	Two Months	Three Months	MAT Threat Period
$MAT\ effect_t$	-0.238***	-0.396***	-0.314***	-0.325***	-0.354***
	(-3.36)	(-6.81)	(-6.20)	(-6.86)	(-8.05)
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.231	0.198	0.159	0.136	0.121
Number of firms	716	804	884	943	1,041
Number of observations	13,986	28,375	55,827	85,023	116,794

TABLE III. Descriptive Statistics of Controls

This table shows the overall summary statistics of control variables used in this study. First, we use *Stock Return* which is defined previous day's stock return of individual firms the FPIs traded on a particular day in National Stock Exchange (NSE) and/or Bombay Stock Exchange (BSE). Second, we use controls for various pull factors that include *Market Return* as previous day's return on NSE or BSE, *Market Volatility* as daily standard deviation of market return calculated using previous 90 days' return on NSE or BSE, *USD Volatility* as the daily standard deviation of USD/IRS exchange rate constructed using the previous 90 days' figures, and *Real GDP Growth Rate* as previous quarter's growth rate in real Gross Domestic Product. Last, we use controls for push factors that include *EM Return* as previous day's return on emerging market using the MSCI Emerging Market Index, *World Return* as previous day's return on World market using the MSCI World Market Index, *US TB Rate* as previous day's 1-year US Treasury Bills rate, *EM VIX Return* as previous day's return on the Chicago Board Options Exchange Emerging Markets Volatility Index and *Global VIX Return* as previous day's return on the Chicago Board Options Exchange Volatility Index. *Pre-MAT Threat Period* is January 1-March 31, 2015 and *Post-MAT Threat Period* is April 1-August 31, 2015. *Difference* shows the difference between *Post-MAT* and *Pre-MAT Threat Period* average values. *, ** and *** denote statistical significance at the 10%, 5% and 1% significance level respectively.

	Overall Mean	Overall Median	Overall SD	Pre-MAT Threat Period Mean	Post-MAT Threat Period Mean	Difference
Stock Return (%)	-0.023	-0.060	2.837	0.021	-0.049	-0.070***
Market Return (%)	-0.020	0.009	1.083	0.042	-0.057	-0.099**
Market Volatility (%)	0.967	0.969	0.082	0.922	0.995	0.073***
USD Volatility (%)	0.311	0.320	0.021	0.324	0.304	-0.020***
Real GDP Growth Rate (%)	2.498	3.560	2.979	3.560	1.871	-1.688***
EM Return (%)	-0.102	-0.098	0.975	0.019	-0.172	-0.191
World Return (%)	-0.017	-0.005	0.796	0.034	-0.047	-0.080
US TB Rate (%)	0.262	0.250	0.056	0.225	0.284	0.059***
EM VIX Return (%)	0.354	-0.547	8.006	-0.101	0.618	0.719
Global VIX Return (%)	0.208	-0.107	8.864	-0.156	0.420	0.576

TABLE IV. MAT Effect Regressions

This table reports the regression results of the following regression specification:

$$NET_{it} = \beta(MAT\ effect_t) + X_{it} + \gamma_i + \delta_t + \varepsilon_{it}$$

where NET_{it} is the day *t* net trading value by all FPIs as a percentage of previous day's market capitalization of listed stocks (*i)* on the Indian stock market (reported in pbs units). $MAT\ effect_t$ is the dummy variable which takes the value of 0 in the *Pre-MAT Threat Period* (January 1-March 31, 2015) and 1 in the *Post-MAT Threat Period* (April1-August 31, 2015). X_{it} is the set of control variables as defined in the notes to Table III. γ_i is the vector of firm dummies controlling for firm fixed effects. δ_t controls time (day) fixed effects. ε_{it} is the error term. Standard errors are corrected for clustering at the firm level and time (day) level. *, ** and *** denote statistical significance at the 10%, 5% and 1% significance level respectively. The sample period ranges from January 1, 2015 to August 31, 2015.

	(1)	(2)	(3)	(4)
$MAT\ effect_t$	-0.360***	-0.362***	-0.349***	-0.318***
	(-5.38)	(-5.47)	(-5.39)	(-5.14)
Stock Return		0.103***	0.104***	0.105***
		(15.48)	(13.96)	(13.62)
Market Return			0.038	0.005
			(1.20)	(0.15)
Market Volatility			-0.645**	-0.575**
			(-2.14)	(-2.10)
USD Volatility			-3.497*	-5.289**
			(-1.99)	(-2.66)
Real GDP Growth Rate			0.012	0.007
			(1.09)	(0.59)
EM Return				0.451
				(1.54)
World Return				-0.552
				(-0.78)
US TB Rate				-2.549***
				(-3.68)
EM VIX Return				0.002
				(0.38)
Global VIX Return				-0.005
				(-1.09)
Firms Fixed Effects	Yes	Yes	Yes	Yes
Time (day) Fixed Effects	Yes	Yes	Yes	Yes
Adjusted R^2	0.121	0.127	0.128	0.128
Number of Firms	1,041	1,039	1,032	1,032
Number of Observations	116,794	116,789	114,286	114,286

TABLE V. Mean and Regression based Difference-in-Differences

Panel A: Firm Level Difference-in-Differences Analysis

Panel A shows the difference between the differences of treatment and control group for the average value of NET_{it} between *Pre-MAT Threat Period* (January 1-March 31, 2015) and *Post-MAT Threat Period* (April 1-August 31, 2015). NET_{it} is the day *t* net trading value by all FPIs as a percentage of previous day's market capitalization of listed stocks (*i)* on the Indian stock market (reported in pbs units). *Treatment Group* is a dummy variable which takes value of 1 if the firms are in the treatment group and 0 if in the *Control Group*. We calculate total cumulative holdings for each sector by all FPIs since January 1, 2003 to March 31, 2015 and designate firms in the top 33rd percentile sectors as the treatment group and the bottom 33rd percentile sectors as the control group. *Difference* shows the difference between *Post-MAT* and *Pre-MAT Threat Period* average values. *t-stat* is the t-statistics of the difference figure with probability of the alternative hypothesis that the average difference is less than zero (i.e. *Post-MAT* average - *Pre-MAT* average <0) denoted by *p-value*.

	Pre-MAT Threat Period	Post-MAT Threat Period	Difference	t-stat	p-value
Treatment Group	0.2322	-0.0484	-0.2807	-13.169	0.000
Control Group	0.1815	0.1030	-0.0785	-1.233	0.218
Difference (Pre-MAT)	0.0507			1.019	0.308
Difference (Post-MAT)		-0.1514		-3.879	0.000
Difference-in-Differences			-0.2022	-3.810	0.001

Panel B: Different Periods based Difference-in-Differences Regression

Panel B reports the regression results of the following regression specification for different window periods:

$$NET_{it} = \beta(MAT\ effect_t \times TRMT_i) + \gamma_i + \varepsilon_{it}$$

where: NET_{it} is the day *t* net trading value by all FPIs as a percentage of previous day's market capitalization of listed stocks (*i)* on the Indian stock market (reported in pbs units). $MAT\ effect_t$ is the dummy variable which takes the value of 0 in the *Pre-MAT Threat Period* and 1 in the *Post-MAT Threat Period* for seven trading days, one month, two months, three months and threat period. For *Seven Trading Days*, we use seven trading days' data before April 1, 2015 for *Pre-MAT Threat Period* and seven trading days' data after April 1, 2015 for *Post-MAT Threat Period*. Similar is the case for *One Month*, *Two Months* and *Three Months'* window periods. For the *MAT Threat Period*, we use January 1 to March 31, 2015 for the *Pre-MAT Threat Period* and April 1, 2015 to August 31, 2015 for the *Post-MAT Threat Period*. $TRMT_i$ is the dummy variable which takes the value of 1 for the treatment group and 0 for the control group as defined in Panel A. γ_i is the vector of firm dummies controlling for firm fixed effects. ε_{it} is the error term. Standard errors are corrected for clustering at the firm level. *, ** and *** denote statistical significance at the 10%, 5% and 1% significance level respectively.

	Seven Trading Days	One Month	Two Months	Three Months	MAT Threat Period
$MAT\ effect_t \times TRMT$	-0.202**	-0.373***	-0.318***	-0.348***	-0.356***
	(-2.38)	(-5.44)	(-5.27)	(-6.25)	(-6.98)
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.239	0.204	0.165	0.139	0.121
Number of Firms	590	666	737	783	863
Number of Observations	11,829	23,990	47,128	71,804	98,757

TABLE VI. Regression based Difference-in-Differences with Controls

This table reports the regression results of the following regression specification:

$$NET_{it} = \beta(MAT\ effect_t \times TRMT_i) + X_{it} + \gamma_i + \delta_t + \alpha_k + \varepsilon_{it}$$

where: NET_{it} is the day *t* net trading value by all FPIs as a percentage of previous day's market capitalization of listed stocks (*i)* on the Indian stock market (reported in pbs units). $MAT\ effect_t$ is the dummy variable which takes the value of 0 in *Pre-MAT Threat Period* (January 1-March 31, 2015) and 1 in the *Post-MAT Threat Period* (April 1-August 31, 2015). $TRMT_i$ is the dummy variable which takes the value of 1 for the treatment group and 0 for the control group. We calculate total cumulative holdings for each sector by all FPIs since January 1, 2003 to March 31, 2015 and designate firms in the top 33rd percentile sectors as the treatment group and the bottom 33rd percentile sectors as the control group. X_{it} is the set of control variables as defined in the notes to Table III. γ_i is the vector of firm dummies controlling for firm fixed effects. δ_t and α_k control time (day) and sector fixed effects respectively. ε_{it} is the error term. Standard errors are corrected for clustering at the firm level, time (day) level and sector level. *, ** and *** denote statistical significance at the 10%, 5% and 1% significance level respectively. The sample period ranges from January 1, 2015 to August 31, 2015.

	(1)	(2)	(3)	(4)
$MAT\ effect_t \times TRMT$	-0.360***	-0.364***	-0.338***	-0.309***
	(-5.72)	(-5.88)	(-5.12)	(-4.55)
Stock Return		0.100***	0.101***	0.102***
		(13.28)	(12.42)	(11.96)
Market Return			0.0378	-0.000
			(1.25)	(-0.00)
Market Volatility			-0.789**	-0.712**
			(-2.39)	(-2.46)
USD Volatility			-3.271	-5.269**
			(-1.52)	(-2.16)
Real GDP Growth Rate			0.011	0.005
			(0.92)	(0.43)
EM Return				0.416*
				(1.86)
World Return				-0.304
				(-0.46)
US TB Rate				-2.552***
				(-3.00)
EM VIX Return				0.006
				(1.43)
Global VIX Return				-0.007
				(-1.39)
Firms Fixed Effects	Yes	Yes	Yes	Yes
Time (day) Fixed Effects	Yes	Yes	Yes	Yes
Sector Fixed Effects	Yes	Yes	Yes	Yes
Adjusted R^2	0.121	0.126	0.127	0.128
Number of Firms	863	861	855	855
Number of Observations	98,757	98,752	96,614	96,614

TABLE VII. Robustness Tests

This table reports the regression results for different specifications of the following regression specification for Models 1-3 and 6-7:

$$NET_{it} = \beta(MAT\ effect_t \times TRMT_i) + Grexit_t + X_{it} + \gamma_i + \delta_t + \alpha_k + \vartheta_j + \delta_t \times \alpha_k + \varepsilon_{it}$$

and following regression specification for Model 3:

$$NET_{jit} = \beta\left(MAT\ effect_t \times TRMT_j\right) + X_{it} + \gamma_i + \delta_t + \vartheta_j + \varepsilon_{it}$$

where: NET_{it} is the day *t* net trading value by all FPIs as a percentage of previous day's market capitalization of listed stocks (*i)* on the Indian stock market (reported in pbs units). NET_{jit} is the day *t* net trading value by each FPI *j* as a percentage of previous day's market capitalization of listed stocks (*i)* (reported in pbs units). $MAT\ effect_t$ is the dummy variable which takes the value of zero in *Pre-MAT Threat Period* (January 1-March 31, 2015) and 1 in the *Post-MAT Threat Period* (April 1-August 31, 2015) in Model 1-6 and the value of 0 in the placebo *Pre-MAT Threat Period* (January 1-March 31, 2014) and 1 in the placebo *Post-MAT Threat Period* (April 1-August 31, 2014) in Model 7. $TRMT_i$ is the dummy variable which takes the value of 1 for the treatment group (alternate treatment group, $TRMT_j$) and 0 for the control group (alternate control group, $TRMT_j$). $Grexit_t$ is the dummy variable which takes the value of 1 for the period between June 22, 2015 and July 13, 2015. X_{it} is the set of control variables as defined in the notes to Table III. γ_i is vector of firm dummies controlling for firm fixed effects. δ_t, α_k and ϑ_j control time (day), sector fixed effects and FPIs' fixed effects respectively where indicated. $\delta_t \times \alpha_k$ is an interaction of time and sector fixed effects for controlling any other unexpected shocks used in Model 2. ε_{it} is the error term. Standard errors are corrected for clustering at the firm level, time (day) level, sector level and FPI level where indicated. *, ** and *** denote statistical significance at the 10%, 5% and 1% significance level respectively. The sample period ranges from January 1, 2015 to August 31, 2015 (January 1, 2014 to August 31, 2014 for Model 7).

	Addressing Systematic Shocks		Alternate Group using Median	Alternate Group using FPIs' Identification		Balanced Panel	False Experiment
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$MAT\ effect_t \times TRMT$	-0.283***	-0.292***	-0.309***	-0.202***	-0.128***	-0.495**	-0.200
	(-3.91)	(-4.84)	(-4.98)	(-5.10)	(-4.95)	(-2.38)	(-1.59)
$Grexit_t$	-0.082	-0.080					
	(-0.87)	(-1.18)					
Stock Return	0.103***	0.104***	0.105***	0.013***	0.014***	0.225***	0.065***
	(11.54)	(13.96)	(13.24)	(9.07)	(9.81)	(7.31)	(9.37)
Market Return	-0.033	-0.033*	-0.002	-0.006	-0.006	0.119	0.004
	(-1.10)	(-1.68)	(-0.07)	(-0.70)	(-0.72)	(1.29)	(0.11)
Market Volatility	-0.455	-0.457*	-0.688**	-0.319***	-0.289***	-1.132	0.260
	(-1.35)	(-1.88)	(-2.71)	(-4.90)	(-4.67)	(-1.31)	(0.46)
USD Volatility	-7.298***	-7.306***	-4.968**	-0.196	-0.246	-19.24***	-0.646
	(-2.78)	(-4.40)	(-2.28)	(-0.41)	(-0.54)	(-2.96)	(-1.03)
Real GDP Growth Rate	0.006	0.006	0.006	0.005**	0.005**	-0.036	0.035**
	(0.46)	(0.60)	(0.53)	(-2.62)	(-2.46)	(-1.02)	(2.54)
EM Return	0.333	0.337	0.485**	-0.148	-0.126	0.615	0.914*
	(1.27)	(1.41)	(2.20)	(-1.57)	(-1.40)	(0.84)	(1.85)

TABLE VII. Continued

	Addressing Systematic Shocks		Alternate Group using Median	Alternate Group using FPIs' Identification		Balanced Panel	False Experiment
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
World Return	-0.051	-0.072	-0.434	-0.006	0.006	-0.670	-0.556
	(-0.07)	(-0.19)	(-0.70)	(-0.02)	(0.03)	(-0.38)	(-0.45)
US TB Rate	-2.897***	-2.843***	-2.632***	-0.971***	-0.911***	-9.601***	1.135
	(-3.69)	(-4.84)	(-3.44)	(-5.60)	(-5.82)	(-4.21)	(0.27)
EM VIX Return	0.000	0.000	0.006	-0.001	-0.001	0.016	-0.017
	(0.08)	(0.18)	(1.57)	(-0.64)	(-0.65)	(1.39)	(-1.53)
Global VIX Return	-0.003	-0.003	-0.008	-0.001	-0.001	-0.030*	0.007
	(-0.46)	(-0.93)	(-1.64)	(-0.53)	(-0.49)	(-1.80)	(0.90)
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time (day) Fixed Effects	Yes	No	Yes	Yes	Yes	Yes	Yes
Sector Fixed Effects	Yes	No	Yes	No	No	Yes	Yes
FPI Fixed Effects	No	No	No	Yes	Yes	No	No
Time × Sector Fixed Effects	No	Yes	No	No	No	No	No
Adjusted R^2	0.135	0.146	0.127	0.102	0.101	0.087	0.139
Number of Firms	855	852	1,032	1,005	1,038	91	743
Number of Observations	96,614	96,575	114,286	604,518	651,308	14,833	71,817

TABLE VIII. Implications of FPIs' Withdrawal

Panel A: Summary Statistics

Panel A shows the overall summary statistics of various variables. Liquidity measures are proxied using: (i) *Turnover Ratio* as the ratio of the number of shares traded in a day and number of shares outstanding (in %); (ii) daily *Illiquidity Index* developed by Amihud (2002) and (iii) daily *Liquidity Ratio* developed by Hui and Heubel (1984). *Stock Volatility* is the daily volatility of stock return calculated as the square of daily stock return (in %) and *Price-to-Book Ratio* as the ratio of the stock price and book value per share of the firm. *Pre-MAT Threat Period* is January 1-March 31, 2015 and *Post-MAT Threat Period* is April 1-August 31, 2015. *Difference* shows the difference between *Post-MAT* and *Pre-MAT Threat Period* average values. *, ** and *** denote statistical significance at the 10%, 5% and 1% significance level respectively.

	Overall Mean	Overall Median	Overall SD	Pre-MAT Threat Period Mean	Post-MAT Threat Period Mean	Difference
Turnover Ratio (%)	0.193	0.076	0.275	0.200	0.189	-0.011***
Illiquidity Index	0.543	0.115	0.977	0.490	0.574	0.084***
Liquidity Ratio	18.711	8.819	21.397	20.241	23.097	2.856***
Stock Volatility (%)	0.087	0.018	0.294	0.077	0.093	0.016***
Price-to-Book Ratio (times)	5.557	2.926	16.729	6.195	5.195	-1.000***

Panel B: Regression Analysis for Implications on Stock Liquidity

Panel B reports the regression results of the following regression specification:

$$Y_{it} = \beta_1(MAT\ effect_t) + \beta_2(NET_{it}) + \beta_3(MAT\ effect_t \times TRMT_i \times NET_{it}) + X_{it} + \gamma_i + \delta_t + \alpha_k + \varepsilon_{it}$$

where: Y_{it} is a vector of different proxies of liquidity measures as discussed in the notes to Panel A. Firms traded are indexed as *i* and daily time periods are indexed as *t*. $MAT\ effect_t$ is the dummy variable which takes the value of 0 in the *Pre-MAT Threat Period* (January 1-March 31, 2015) and 1 in the *Post-MAT Threat Period* (April 1-August 31, 2015). NET_{it} is the net equity trading scaled by previous day market capitalization (in pbs unit) as discussed in Equation (7). $TRMT_i$ is the dummy variable which takes the value of 1 for the treatment group and 0 for the control group. We calculate total cumulative holdings for each sector by all FPIs since January 1, 2003 to March 31, 2015 and designate firms in the top 33rd percentile sectors as the treatment group and the bottom 33rd percentile sectors as the control group. X_{it} is the set of control variables that include *Volatility* as the previous stock return volatility (in %), *Price* as the log of average price of the stock at the end of the previous day, *Trades* as the log of number of trades during the previous day, *Market capitalization* as the log of market capitalization at the end of the previous day, and *Absolute return* as the previous day absolute stock return (in %). γ_i is the vector of firm dummies controlling for firm fixed effects. δ_t and α_k control time (day) and sector fixed effects respectively. ε_{it} is the error term. Standard errors are corrected for clustering at the firm level, time (day) level and sector level. *, ** and *** denote statistical significance at the 10%, 5% and 1% significance level respectively. The sample period ranges from January 1, 2015 to August 31, 2015.

	Turnover Ratio	Illiquidity Index	Liquidity Ratio
	(1)	(2)	(3)
$MAT\ effect_t \times TRMT_i \times NET_{it}$	0.009***	-0.029**	-1.861**
	(2.72)	(-2.04)	(-2.29)
Volatility	-0.585***	0.662***	22.580***
	(-6.13)	(6.78)	(7.77)
Price	-0.0937**	0.303***	14.480***
	(-2.28)	(8.75)	(7.32)
Trades	0.208***	-0.268***	-12.530***
	(8.22)	(-18.96)	(-22.51)
Market capitalization	0.237***	-0.242***	-8.373***
	(5.59)	(-6.78)	(-9.73)
Absolute return	-0.007***	0.167***	0.809***
	(-4.41)	(10.70)	(16.32)

Panel B. Continued			
Firm Fixed Effects	Yes	Yes	Yes
Time (day) Fixed Effects	Yes	Yes	Yes
Sector Fixed Effects	Yes	Yes	Yes
Adjusted R^2	0.387	0.614	0.616
Number of Firms	779	779	779
Number of Observations	82,693	82,693	82,693

Panel C: Regression Analysis for Implications on Stock Volatility

Panel C reports the regression results of the following regression specification:

$$Stock\ Volatility_{it} = \beta_1(MAT\ effect_t) + \beta_2(NET_{it}) + \beta_3(MAT\ effect_t \times TRMT_i \times NET_{it}) + X_{it} + \gamma_i + \delta_t + \alpha_k + \varepsilon_{it}$$

where: $Stock\ Volatility_{it}$ is the daily stock volatility (in %) of firms calculated as square of stock return. Firms traded are indexed as *i* and daily time periods are indexed as *t*. $MAT\ effect_t$ is the dummy variable which takes the value of 0 in the *Pre-MAT Threat Period* (January 1-March 31, 2015) and 1 in the *Post-MAT Threat Period* (April 1-August 31, 2015). NET_{it} is the net equity trading scaled by previous day market capitalization (in pbs units) as discussed in Equation (7). $TRMT_i$ is the dummy variable which takes the value of 1 for the treatment group and 0 for the control group. We calculate total cumulative holdings for each sector by all FPIs since January 1, 2003 to March 31, 2015 and designate firms in the top 33rd percentile sectors as the treatment group and the bottom 33rd percentile sectors as the control group. X_{it} is the set of control variables that include *Volatility* as the previous day stock return volatility (in %), *Turnover Ratio* as the ratio of the number of shares traded and number of shares outstanding (in %), *Market capitalization* as the log of market capitalization at the end of the day, *Price-to-Book Ratio* as the ratio of stock price of the firm and book value per share and *Illiquidity Index* is index for illiquidity developed by Amihud (2002). γ_i is the vector of firm dummies controlling for firm fixed effects. δ_t and α_k control time (day) and sector fixed effects respectively. ε_{it} is the error term. Standard errors are corrected for clustering at the firm level, time (day) level and sector level. *, ** and *** denote statistical significance at the 10%, 5% and 1% significance level respectively. The sample period ranges from January 1, 2015 to August 31, 2015.

	(1)
$MAT\ effect_t \times TRMT_i \times NET_{it}$	-0.042*
	(-1.73)
Volatility	0.096**
	(2.49)
Turnover Ratio	0.130***
	(3.79)
Market Capitalization	-0.078
	(-1.42)
Price-to-Book Ratio	0.025
	(1.27)
Illiquidity Index	116.300
	(1.61)
Firm Fixed Effects	Yes
Time (day) Fixed Effects	Yes
Sector Fixed Effects	Yes
Adjusted R^2	0.175
Number of Firms	753
Number of Observations	81,580

TABLE IX. Pricing effects of FPIs' Withdrawal

Panel A. Summary statistics

Panel A shows the overall summary statistics of cumulative stock return calculated as $1/w\left[\log(1+r_{t+w,w})\right]$, where $\log(1+r_{t+w,w}) \equiv \log(1+r_{t+1}) + \cdots + \log(1+r_{t+w})$ and r_{t+1} is the return on day *t+1*. We vary *w* from one to 22 trading days. Panel A.1 shows the cumulative stock return for long strategy on treated firms that are traded by FPIs during the sample period. Panel A.2 shows the cumulative stock return for short strategy on control firms that are traded by FPIs during the sample period. *Pre-MAT Threat Period* is January 1-March 31, 2015 and *Post-MAT Threat Period* is April 1-August 31, 2015. *Difference* shows the difference between *Post-MAT* and *Pre-MAT Threat Period* average values. *, ** and *** denote statistical significance at the 10%, 5% and 1% significance level respectively.

A.1. Long Strategy on Treated Firms

	Stock Return (%) for Long Strategy on Treated Firms					
Window Period	Overall Mean	Overall Median	Overall SD	Pre-MAT Threat Period Mean	Post-MAT Threat Period Mean	Difference
One Trading Day	-0.006	-0.020	2.932	-0.037	-0.031	-0.068***
Five Trading Days	-0.072	-0.059	1.297	-0.033	-0.093	-0.060***
Ten Trading Days	-0.011	-0.017	0.846	-0.021	-0.004	0.017***
15 Trading Days	-0.045	-0.039	0.724	-0.014	-0.061	-0.046***
22 Trading Days	-0.076	-0.067	0.607	-0.001	-0.103	-0.101***

A.2. Short Strategy on Control Firms

	Stock Return (%) for Short Strategy on Control Firms					
Window Period	Overall Mean	Overall Median	Overall SD	Pre-MAT Threat Period Mean	Post-MAT Threat Period Mean	Difference
One Trading Day	-0.105	0.000	3.230	-0.135	-0.087	0.049
Five Trading Days	0.033	0.058	1.374	0.008	0.047	0.039
Ten Trading Days	0.020	0.015	0.755	0.004	-0.020	-0.024
15 Trading Days	-0.011	-0.000	0.895	-0.009	0.035	0.045***
22 Trading Days	0.034	0.036	0.603	-0.024	0.055	0.080***

Panel B: Regression based Pricing Effects

Panel B reports the regression results of the following regression specifications:

$$\frac{1}{w}\left[\log(1+r_{t+w,w})\right] = \beta_1(MAT\ effect_t) + \beta_2(MAT\ effect_t \times NET_{it}) + X_{it} + \gamma_i + \delta_t + \varepsilon_{it}$$

where $\log(1+r_{t+w,w}) \equiv \log(1+r_{t+1}) + \cdots + \log(1+r_{t+w})$ and r_{t+1} is the return on day *t+1*. We measure cumulative return in percentage. We vary *w* from one to 22 trading days. $MAT\ effect_t$ is the dummy variable which takes the value of 0 in the *Pre-MAT Threat Period* (January 1-March 31, 2015) and 1 in the *Post-MAT Threat Period* (April 1-August 31, 2015). NET_{it} is the net equity trading scaled by previous day market capitalization (in pbs units) as discussed in Equation (7). X_{it} is the set of control variables that include *Stock Return* as the previous day return on stock, *Market capitalization* as the log of market capitalization at the end of the previous day, *Price-to-Book Ratio* as the ratio of previous day stock price and previous day book value per share of the firm, *Turnover Ratio* as the ratio of the previous day number of shares traded and previous day shares outstanding, and *Volatility* as the previous day stock return volatility calculated as square of stock return. γ_i is the vector of firm dummies controlling for firm fixed effects. δ_t controls time (day) effects. ε_{it} is the error term. Standard errors are corrected for clustering at the firm level and time (day) level. Panel B.1 shows the regression result for cumulative stock return for long strategy on treated firms traded by FPIs during the sample period. Panel B.2 shows the regression result for cumulative stock return for short strategy on control firms traded by FPIs during the sample period. *, ** and *** denote statistical significance at the 10%, 5% and

1% significance level respectively. The sample period ranges from January 1, 2015 to August 31, 2015.

B.1. Long Strategy on Treated Firms

	One Trading Day	Five Trading Days	Ten Trading Days	15 Trading Days	22 Trading Days
$MAT\ effect_t \times NET_{it}$	0.184***	0.026***	0.006***	0.001	-0.002
	(12.78)	(5.13)	(2.95)	(0.10)	(-0.95)
Stock Return	0.036	-0.008	-0.010	-0.012**	-0.004
	(1.49)	(-0.80)	(-1.55)	(-2.09)	(-1.09)
Market Capitalization	-0.236***	-0.233***	-0.194***	-0.207***	-0.203***
	(-3.09)	(-4.15)	(-3.85)	(-4.12)	(-4.88)
Price-to-Book ratio	-0.264***	-0.228***	-0.207***	-0.209***	-0.196***
	(-4.62)	(-5.64)	(-7.27)	(-7.23)	(-7.27)
Turnover Ratio	-0.001	-0.001	-0.001*	-0.001	-0.000
	(-0.79)	(-1.32)	(-1.78)	(-0.77)	(-0.05)
Volatility	-0.176	-0.150**	-0.068	-0.094**	-0.060*
	(-1.58)	(-2.35)	(-1.44)	(-2.38)	(-1.90)
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes
Time (day) Fixed Effects	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.100	0.132	0.176	0.222	0.253
Number of Firms	532	528	500	511	519
Number of Observations	61,876	58,832	50,332	51,612	53,847

B.2. Short Strategy on Control Firms

	One Trading Day	Five Trading Days	Ten Trading Days	15 Trading Days	22 Trading Days
$MAT\ effect_t \times NET_{it}$	-0.224***	-0.042***	-0.002	-0.002	-0.003
	(-5.83)	(-2.81)	(-0.20)	(-0.32)	(-0.58)
Stock Return	-0.053	-0.009	0.012	0.008	0.005
	(-1.69)	(-0.73)	(1.45)	(1.06)	(1.07)
Market Capitalization	0.878**	0.684***	0.707***	0.633***	0.520***
	(2.71)	(3.24)	(3.12)	(3.22)	(3.07)
Price-to-Book ratio	0.246**	0.236**	0.302***	0.226***	0.148*
	(2.46)	(2.59)	(5.56)	(3.27)	(1.99)
Turnover Ratio	0.153	0.098	-0.041	-0.010	0.018
	(0.61)	(0.96)	(-0.55)	(-0.17)	(0.27)
Volatility	-0.533	0.065	0.006	-0.068	0.145
	(-0.79)	(0.24)	(0.03)	(-0.51)	(1.24)
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes
Time (day) Fixed Effects	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.105	0.118	0.154	0.184	0.191
Number of Firms	100	100	98	100	99
Number of Observations	9,904	9,422	8,075	8,210	8,533

TABLE X. MAT Policy Reversal and FPIs' Market Re-entry

Panel A: Mean Differences in Net Equity Trading following Policy Reversal

Panel A shows the paired t-test of the differences in average daily net equity trading value as a percentage of previous day market capitalization (reported in pbs units) of listed stocks in BSE/NSE by all FPIs. The column *Window Period* denotes different periods of trading days. The *Before Second Announcement* column shows the average value for corresponding trading window period before the second announcement on MAT reversal (i.e. September 1, 2015) and the *After Second Announcement* column shows the average value of corresponding trading window after the second announcement of September 1, 2015. For *Seven Trading Days*, we use seven trading days' data before September 1, 2015 for *Before Second Announcement* and seven trading days' data after September 1, 2015 for *After Second Announcement* period. Similar is the case for *One Month, Two Months* and *Three Months'* window periods. For the *Post-MAT Threat Period*, we use April 1 to August 31, 2015 for the *Before Second Announcement* and September 1, 2015 to December 31, 2015 for the *After Second Announcement*. The *Difference* column shows the difference between *After Second Announcement* and *Before Second Announcement* event average values. *t-stat* is the t-statistics of the difference figure with a probability of the alternative hypothesis that the average difference is less than zero (i.e. *After Second Announcement* average – *Before Second Announcement* average <0) denoted by *p-value*. The column *Observations* shows the sample size included in each window.

Window Period	Before Second Announcement	After Second Announcement	Difference	t-stat	p-value	Observations
Seven Trading Days	-0.531	-0.406	0.125	4.044	0.000	10,063
One Month	-0.202	-0.171	0.030	0.921	0.356	29,340
Two Months	-0.119	-0.060	0.058	2.528	0.011	58,528
Three Months	-0.177	-0.065	0.111	5.635	0.000	87,181
Post-MAT Threat Period	-0.140	-0.022	0.118	7.364	0.000	129,659

Panel B: Policy Reversal Difference-in-Differences results

Panel B reports the regression results of the following regression specifications:

$$NET_{it} = \beta_1(MAT\ reversal\ effect_t) + \beta_2(MAT\ reversal\ effect_t \times TRMT_i) + X_{it} + \gamma_i + \delta_t + \alpha_k + \varepsilon_{it}$$

where NET_{it} is the day *t* net trading value by all FPIs as a percentage of previous day's market capitalization of listed stocks (*i)* on the Indian stock market (reported in pbs units). $MAT\ reversal\ effect_t$ is the dummy variable which takes the value of 0 in the *Before Second Announcement* (April 1-August 31, 2015) and the value of 1 in the *After Second Announcement* period (September 1-December 31, 2015). $TRMT_i$ is the dummy variable which takes the value of 1 for the treatment group and 0 for the control group. We calculate total cumulative holdings for each sector by all FPIs since January 1, 2003 to March 31, 2015 and designate firms in the top 33rd percentile sectors as the treatment group and the bottom 33rd percentile sectors as the control group. X_{it} is the set of control variables as defined in the notes to Table III. γ_i is the vector of firm dummies controlling for firm fixed effects. δ_t and α_k control time (day) and sector fixed effects respectively. ε_{it} is the error term. Standard errors are corrected for clustering at the firm level, time (day) level and sector level. *, ** and *** denote statistical significance at the 10%, 5% and 1% significance level respectively. The sample period ranges from April 1, 2015 to December 31, 2015.

	(1)	(2)
$MAT\ reversal\ effect_t$	0.039	
	(0.31)	
$MAT\ reversal\ effect_t \times TRMT_i$		0.047
		(0.37)
Stock Return	0.095***	0.093***
	(16.47)	(13.61)
Market Return	-0.004	0.003
	(-0.28)	(0.18)
Market Volatility	-0.843***	-0.585**
	(-3.52)	(-2.29)

Panel B. Continued

	(1)	(2)
USD Volatility	-4.229**	-2.481
	(-2.08)	(-0.99)
EM Return	-0.016	-0.070
	(-0.06)	(-0.26)
World Return	0.004	0.145
	(0.01)	(0.29)
US TB Rate	-1.268***	-0.877**
	(-3.52)	(-2.37)
EM VIX Return	-0.008*	-0.010**
	(-1.78)	(-2.11)
Global VIX Return	-0.000	0.001
	(-0.09)	(0.35)
Firm Fixed Effects	Yes	Yes
Time (day) Fixed Effects	Yes	Yes
Sector Fixed Effects	Yes	Yes
Adjusted R^2	0.117	0.113
Number of Firms	1,070	883
Number of Observations	127,440	107,908

FIGURE 1. Month wise Net Equity Trading in 2015 (in million rupees)

This figure shows the monthly value of net equity trading value by all FPIs during 2015.

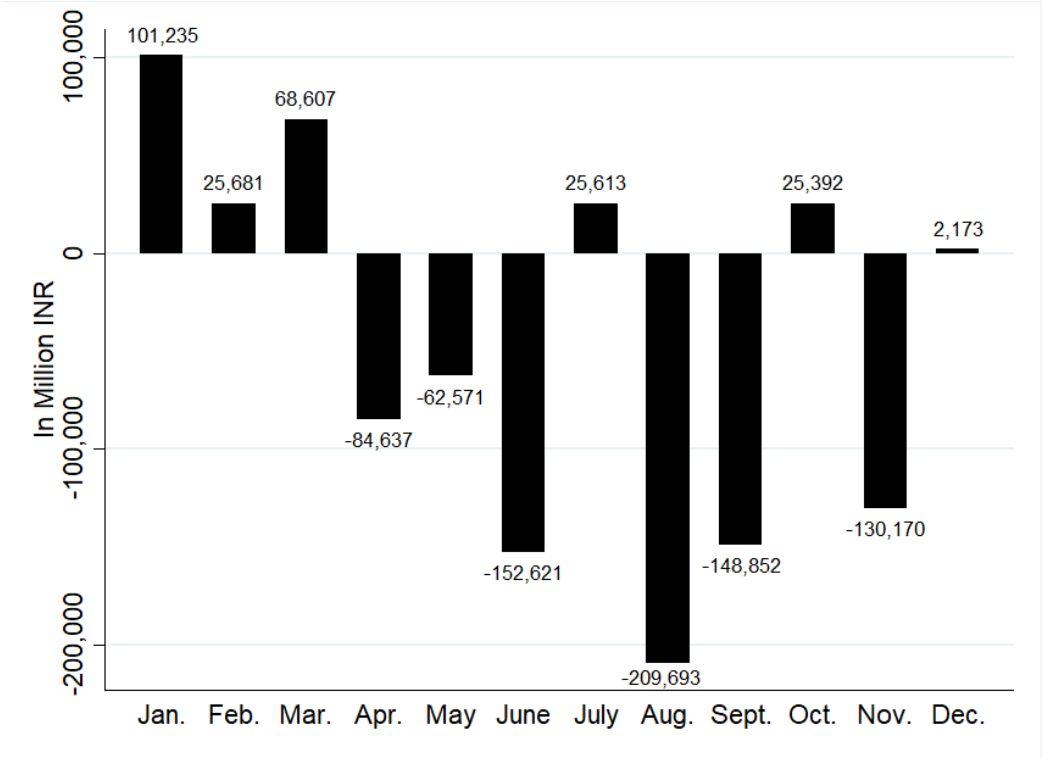

FIGURE 2. Monthly Average Net Equity Trading per Equity

This figure shows the monthly average net equity trading of individual stock traded by all FPIs during 2015.

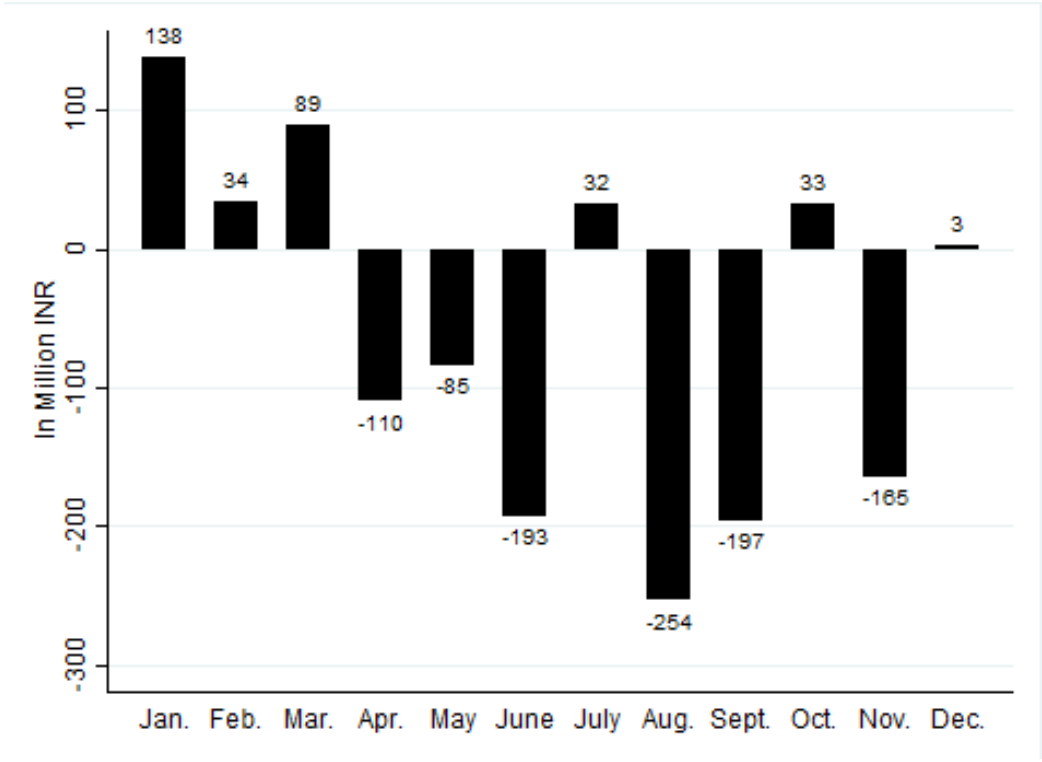

FIGURE 3. Total Cumulative Holdings (TCH) in all sectors

This figure shows TCH for control groups and treatment groups during *Pre-MAT Threat Period* (January 1, 2015-March 31, 2015) and *Post-MAT Threat Period* (April 1, 2015-August 31, 2015). We calculate TCH for each sector by all FPIs since January 1, 2003 to March 31, 2015 and designate firms in the top 33rd percentile sectors as the treatment group and the bottom 33rd percentile sectors as the control group.