

Foreign Ownership and the Enforcement of Corporate Governance Reforms

Abstract

This study examines whether a stronger corporate governance enforcement regime influences the investment decisions of foreign portfolio investors in an emerging market context. Using a natural experiment provided by an Indian corporate governance regulatory reform introduced in 2000, but for which stricter sanctions for non-compliance were imposed in 2004 our results provide strong evidence that governance reforms that include stricter sanctions for non-compliance lead to higher foreign ownership. Depending on specifications, the difference-in-differences estimates show that, on average, the effect is up to 2.8% increased foreign ownership post regulatory reform of 2004. The paper adds to the debate on simultaneity between foreign ownership and corporate governance as we show that in the context of an emerging market corporate governance regulations are extremely important in attracting foreign investors. In the context of prevalence of weak enforcement (of existing regulations) in emerging markets, this study provides empirical support to the notion that strictly enforcing the existing governance regulations has the potential to attract higher level of foreign investment. The results suggest that policy measures aimed at attracting foreign investors in emerging markets should not only concentrate on adopting the best international corporate governance practices but should also signal strong enforcement of these regulations by assigning significant penalties for non-compliance.

JEL Classification: G30, G11, K22

Key Words: corporate governance reform; stricter sanctions; foreign equity ownership; panel data; difference-in-differences

1. Introduction

The benefits that accrue to firms and host markets from having an optimal global portfolio investor-base are well-documented.¹ Nevertheless, empirical evidence suggests that many firms, particularly those in emerging markets, have been unable to attract optimal levels of foreign investments, despite a reduction in formal barriers to international investments over the past four decades or so.² One explanation for this phenomenon is the presence of informal barriers to international investments, such as the quality of domestic corporate governance. Several studies predict that a credible corporate governance environment can help emerging markets improve efficiency and attract more foreign investments (Al-Faryan and Dockery, 2021; Carriero et al., 2013; Chen et al., 2017; Kim and Lu, 2013).³ In this paper, we extend this literature by examining impact of stricter enforcement of corporate governance regulation on foreign equity ownership in the context of a developing country. Due to a presence of a regulatory shock - which we discuss below - that can be exploited for identification strategy, the developing country we focus in this case is India.

For nearly four decades after independence up until 1991, the level of corporate governance in Indian firms deteriorated as India pursued generally collective policies (see Black and Khanna, 2007). In the pre-90 era, with most banks nationalized, external financial capital was being granted to firms based on the firms' level of investment rather than profitability and this provided very little incentive for firms to improve their corporate governance. This problem was compounded due to slow judicial proceedings and bankruptcy process. However, in 1991 there were major economic reforms in India leading to steady

¹ See, for example, Bekaert et al. (2005), Chan et al. (2009), and Stulz (1999). Market avoidance by foreign investors also has potential indirect cost to society as a whole. Lower equity prices as a result of lower foreign investments, which also reflect higher costs of capital, could decrease the investment activities of publicly listed firms as the value of projects with higher cost of capital does not justify economic worth of investments (Henry, 2000).

² See Cooper and Kaplanis (1986), French and Poterba (1991), among others.

³ "As new institutions develop and existing institutions strengthen, one ought to observe dynamic changes in ownership holdings of corporations in emerging economies..." (Armitrage et al., 2017).

economic growth by the mid-90s. As firms started seeking external capital to finance their growth, the issue of corporate governance gained prominence and a series of steps starting in 1998 eventually led to the adoption of a major governance reform in February 2000 (Ahluwalia, 2002; Black and Khanna, 2007). This reform, considered to be a milestone for corporate governance in India, is referred to as Clause 49 (see Section 2 for details about Clause 49). Clause 49 allows for specific provisions related to greater transparency, board independence, accountability, among other issues, to ease concerns related to information asymmetry problem faced by foreign investors.

It is well documented that foreign investors are attracted to transparent and well-governed firms (Aggarwal et al., 2005; Giannetti and Simonov, 2006; Leuz et al., 2010; Miletkov et al., 2014), and therefore it is reasonable to expect that foreign portfolio investors would increase their holdings in Indian firms after the adoption of Clause 49. However, as we discuss later in this paper, foreign portfolio investment stayed stagnant until 2003. One possible explanation of this initial lukewarm response to Clause 49 by foreign investors is that India, like other emerging markets, is characterized by weak enforcement mechanisms (La Porta et al., 2000). Also, foreign investors would still face information asymmetry problems (Akerlof, 1970; Brennan and Cao, 1997), and higher monitoring costs (Choe et al., 2005; Leuz et al., 2010) in emerging markets.

Following the adoption of Clause 49 in the year 2000, Indian regulators introduced stricter penalties including hefty financial penalty and criminal prosecution for non-compliance in 2004.⁴ Increasing punishment mechanisms, especially monetary fines, could ensure optimal

⁴ Section 2 provides a detailed description of this corporate governance regulation. Several other papers have also exploited the exogenous shock of Clause 49 (Balasubramanian et al., 2010; Black and Khanna, 2007; Dharmapala and Khanna, 2013).

enforcement (Becker, 1968) and monetary fines are also strong deterrent for financial crimes (Dutcher, 2009). We argue that this stricter sanction regime would compel firms to adhere to the codes of Clause 49 thus lowering the information asymmetry problem and monitoring costs for foreign investors which can ultimately attract more foreign portfolio investors.

We focus on the stricter enforcement and its implication on foreign ownership, as credible enforcement of regulations has been suggested as a critical factor in ensuring effectiveness of corporate governance practices (Berglof and Claessens, 2004).⁵ This is particularly relevant for emerging markets like India, where enforcement is considered to be the weaker aspect in governance in comparison to developed markets (La Porta et al., 2000).⁶

One of the means of improving enforcement environment, principally in developing countries, is to impose sanctions for non-compliance. For example, Becker's (1968) general economic literature on enforcement suggests that maximizing punishments, particularly monetary fines,⁷ could ensure optimal enforcement. This implies that with better enforcement, induced by stricter sanctions, firms should increase their ability to attract external financers (including foreign investors) and diversify their risk (among domestic and foreign investors) by signalling better governance quality. Similarly, Dharmapala and Khanna (2013) argue that threat of stricter punishments, particularly personal liabilities to insiders for non-compliance would incentivise firms to comply with corporate governance regulations. They further state

⁵ The relevance of enforcement has severe implications for firms seeking and attracting external financing, including foreign investors (Berglof and Claessens, 2004). Financial contracts imply the commitments made by the firm to honour obligations, predominantly to compensate the providers of external financing with an appropriate rate of return. However, a firm operating in a weak enforcement environment finds it difficult to communicate their commitment of honouring financial contracts and attract external financing. A weaker enforcement environment, through its effect on commitment to honour obligations, also affects ownership and control patterns. If commitment instruments are weak, it results in higher ownership concentration. Though higher ownership concentration may encourage better governance, it could also induce potential costs, including entrenchment of the manager and owner, poor performance of firms, limited risk diversification (among domestic and foreign investors), and higher liquidity costs.

⁶ Claessens and Yurtoglu (2013) note “that on average, enforcement is twice as high in advanced countries than in emerging markets and transition economies.”

⁷ Dutcher (2009) also argues that personal financial fines may be a strong deterrent to financial crimes.

that in the absence of stricter enforcement provisions, even the controlling shareholders who are voluntarily willing to adopt (or have adopted) better corporate governance practices could face significant challenges in convincing outside investors.

Thus, when mandatory rules are backed by stricter external public enforcement mechanisms, it provides external stakeholders a strong signal that insiders will not divert cash flows in their favour and ensure the rights of minority shareholders. This signal of enhanced corporate governance quality is particularly important to foreign investors as they face information asymmetry related problems (Akerlof, 1970; Brennan and Cao, 1997) as well as have higher monitoring costs (Choe et al., 2005; Leuz et al., 2010). Thus, in the setting of the Indian regulatory reform, we hypothesize that after the imposition of stricter sanctions for non-compliance in the year 2004, analogous to effective enforcement of corporate governance regulations, we expect a significant increase in foreign ownership of Indian firms conforming to the mandatory regulations relative to those that do not comply. The introduction of this regulation also meets the criteria of a clean shock⁸ (exogenous variation) providing us with a natural experimental setting to establish reliable causal effect of corporate governance on foreign ownership.⁹

Using a panel data set of more than 1,200 firms over the 2001 to 2007 period, and exploiting the corporate governance regulatory shock in the year 2004, we report a strong causal effect of stricter enforcement of corporate governance regulation on foreign equity ownership. The univariate and time trend analysis demonstrates that relative to the control firms (that do not have to comply with the regulations), foreign ownership in treatment firms (that have to comply with the regulations) show a significant and non-parallel rise after 2004

⁸ These criteria are: shock strength is strong which yields significant changes in FEO, the shock is exogenous with treated firms not allowed to self-select, thus the shock separate firms into treated and controls in a way that is deemed to be close to random, and the shock produces covariate balance between treated and controls (Atanasov and Black, 2016).

⁹ Similarly, Ding et al. (2010) use a 2006 corporate governance reform in China which improved supervisory board's monitoring over executive compensation as a quasi-experiment test.

when stricter sanctions for non-compliance were imposed in 2004. The regression based difference-in-differences (DiD) estimations show a significant positive effect in attracting foreign investors in the post 2004 period. With respect to the magnitude of the effect, the optimal DiD specifications show that relative to the control firms, on average, foreign equity ownership increased by a minimum of 2.4% (range of 2.4% to 2.8%) in the treated firms following the corporate governance regulatory reform of 2004.

This core result is robust to several robustness checks, including the use of size-matched comparative treatment and control groups; effects of other systematic shocks; possibility of false experiment; difference-in-difference-in-difference (DiDiD) regression specification; and employing a first-differenced regression discontinuity approach. The results of our study imply that policy measures aimed at attracting foreign investors in emerging markets should not only concentrate on adopting the best international corporate governance practices, but should also signal strong compliance to these regulations by attaching significant penalties to the reforms.

This study makes two important contributions to the literature. First, we contribute to the debate on simultaneity between foreign ownership and corporate governance. For example, Giannetti and Simonov (2006), Leuz et al. (2010) and Miletkov et al. (2014) show that corporate governance influences foreign ownership, although Aggarwal et al. (2011) find that the causality runs from ownership to corporate governance and not the other way around.¹⁰ Using a shock-based natural experimental setting, we show that in the context of an emerging market corporate governance regulations are extremely important in attracting foreign investors. By using a natural experimental setting, our paper addresses the questions around the credibility of empirical identification strategy.¹¹ Further, our empirical approach allows us

¹⁰ Liang et al. (2012) find that the presence of foreign institutional ownership motivates Taiwan firms to increase voluntary disclosure by undertaking conference calls.

¹¹ Claessens and Yurtoglu (2013) provide a review of recent literature on corporate governance in emerging markets and they argue that causality is still an issue. In a firm-level study of developed market Sweden, Giannetti and Simonov (2006) address the causality issue to some extent but they themselves acknowledge the shortcomings of their study because their proxies for corporate governance could be endogenous.

to avoid endogeneity issues arising from the reverse causality problem and construct validity issues that stem from constructing numerical proxies by summing various firm-level characteristics (Atanasov and Black, 2016).¹²

Second, our results also support the argument that regulatory reforms accompanied with greater enforcement sanctions are more important than reforms that are weakly enforced (Becker, 1968; La Porta et al., 2000; Bhattacharya and Daouk, 2009).¹³ This implies that credible threats (to insiders and directors of domestic firms) of financial sanctions and criminal prosecutions for non-compliance of corporate governance regulations could attract greater levels of foreign equity ownership in emerging markets. To the best of our knowledge, this is the first empirical study to demonstrate the positive impact of stricter regulatory sanctions on foreign investment.

The rest of the paper is organised as follows. Section 2 provides details of the regulatory shock related to corporate governance reform in India. Section 3 describes the data used in establishing the causal effect using the DiD approach, followed by the empirical results in section 4. Finally, section 5 concludes the paper.

2. Corporate Governance Regulation: Clause 49

Effective corporate governance is a major concern of developed and emerging markets (Ding et al. 2010). The Securities and Exchange Board of India (SEBI), which acts as the regulator of the securities market in India, announced corporate governance regulatory reforms in 2000 called Clause 49. Clause 49 mandated various requirements in relation to director independence, board requirements and limitations, composition and power of audit

¹² The latter problem, particularly relevant for corporate governance research, is related to the issue that the different features of the multi-dimension index may not be equally important, with some elements being either complements or substitutes.

¹³ In a study of governance reforms in Italy, Mengoli et al. (2009) argue that one of the impediments to the reforms leading to an increase in investor protection was weak enforcement.

committees, disclosures, certification of financial statements, subsidiary companies in listed firms.¹⁴ However, the regulatory mandates were only applicable to firms that fulfilled certain thresholds related to level of equity capital or enlistment date.¹⁵ Specifically all firms that were listed on the stock exchange on/after 2000 were required to comply with Clause 49 immediately. For firms that were listed prior to 2000, the only ones required to comply with Clause 49 were those whose paid-up capital was at least Indian Rupee (INR) 30 million¹⁶ at any point in time or whose net worth was at least INR 250 million at any point in time since the firm was listed. Hence, this creates two separate sets of listed firms: treatment firms (i.e. firms that are subject to Clause 49); and control firms (i.e. firms not subject to Clause 49 and subsequent reform in 2004).¹⁷

.....Insert Figure 1 here.....

Our focus is on the subsequent regulatory reform in 2004 that mandated stricter financial penalties (up to INR 250 million) and criminal penalties on individuals and firms for breaching the requirements of Clause 49. Prior to the introduction of these penalties, violation of Clause 49 attracted reputational sanctions of delisting from stock exchanges. In this paper we argue that introduction of the penalties from 2004 increases the likelihood of enforcement of Clause 49 and therefore improves the corporate governance practices of firms required to comply with the reform.¹⁸ Therefore we examine whether foreign ownership in emerging

¹⁴ For details, see http://www.sebi.gov.in/legal/circulars/oct-2004/corporate-governance-in-listed-companies-clause-49-of-the-listing-agreement_13153.html

¹⁵ An important aspect of Clause 49 is that it was applicable retrospectively. See Dharmapala and Khanna (2013) for the background to Clause 49.

¹⁶ At year-end 2000, 1 USD was roughly equal to INR 46; as at year-end 2016, 1 USD was approximately equal to INR 68.

¹⁷ These two groups by exogenous construction differ in size and we deal with this issue in section 4.5.2.

¹⁸ Compared to delisting, which possesses elements of negative externality (in that shareholders at large would also suffer), the scope of additional sanctions (in the form of financial penalty and criminal proceedings against the directors themselves) can be considered relatively harsher. Our study assumes that that for insiders who are keen to control a firm (and who have the intention to keep on enjoying controlling stake), the significant reputation penalty of delisting, may not be a strong enough dissuading factor to adhere to the corporate governance rules and/convince FEO that they were adhering to the new regulations (Becker, 1968) for further theoretical discussion

markets is influenced by increasing the likelihood of enforcing better corporate governance.¹⁹

3. Data

Data on foreign ownership and other financial variables of Indian listed firms is obtained from Prowess database²⁰ which is maintained by the Centre for Monitoring Indian Economy Pvt Ltd. (CMIE). Prowess provides financial data of approximately 37,000 Indian firms, both public and private, from 1990. From these firms, we take the subset of (approximately 7,600) firms that are listed on the Bombay Stock Exchange (BSE) and National Stock Exchange (NSE) of India.

3.1 Foreign Equity Ownership Measure

In the Prowess database, share ownership of promoters, non-promoters and custodians is reported separately for local and foreign investors for all firms.²¹ However, the foreign ownership data are only reported from 2001. Our measure of foreign ownership (FEO) is computed as follows in equation (1):

$$FEO = \frac{\text{total number of shares held by foreign non-promoter investors}}{\text{total number of shares held by all non-promoter investors}} \quad (1)$$

We do not include the promoter foreign investors as the Indian Company Act defines promoters as, *inter alia*, insiders.²² We discard all firms whose equity ownership data is not

on the role of stricter penalties). Further, the argument that the reformed set-up of the Clause 49 provisions in 2004 has led to greater enforcement is well established in existing literature (Dharmapala and Khanna, 2013).

¹⁹ Ding et al. (2010) argue that due to their lack of regulatory experience emerging markets usually take a “trial by error” approach when making corporate governance reforms.

²⁰ This database is being increasingly used in the literature, see Bertrand et al. (2002), Chhibber and Majumdar (1999), Gopalan et al. (2007), Khanna and Palepu (2000), Vig (2013), and Koirala et al. (2018).

²¹“Promoter” is defined under Section 2(69) of the Companies Act, 2013 and Regulation 2(1) of the SEBI (Issue of Capital and Disclosure Requirements) Regulations, 2009 to generally mean persons having some control over a company.

²² Transparency and other internal corporate governance related information of a firm is duly accessible to insiders compared to outside investors, which includes the foreign non-promoters. In fact the reforms were oriented to protect the interest of minority (outside) shareholders from the insiders. However, as a robustness check we test

available for periods before or after the enforcement; i.e. all firms whose time series data are available only up to 2003 or only after 2003 are dropped. Cross-listing of shares in foreign exchanges has the potential to attract foreign investors (Ammer et al., 2012). To keep our analysis free from this positive influence of foreign listing on foreign investment, we identify these firms²³ - who may already have adopted high levels of governance to meet requirements of overseas listing - and drop them from our sample. Finally, we also remove firms that have negative net worth at any point during 2001-2007. With respect to time, we use data up to 2007 to achieve a comparable length of time before and after the enforcement of regulation and before other factors begin to influence, including the global financial crisis of 2008. In summary, we use 2,831 firms over the period of 2001-2007 constituting 17,470 firm-year observations.²⁴ Appendix 1 provides information on the number of observations dropped for specific reasons discussed above.

3.2 Control Variables

Although we exploit a regulatory shock which exogenously identifies the treatment and control groups with significant overlapping characteristics, there could still be the potential effect of cross-sectional heterogeneity on foreign ownership. Hence, we control for various firm-level factors that might influence foreign ownership based on previous papers (Aggarwal et al., 2005; Ammer et al., 2012; Leuz et al., 2010).

The literature notes that high concentration of ownership within a family or group of promoters can possibly lead to expropriation of minority rights (La Porta et al., 1999). On the other hand, low concentration of ownership control could also be detrimental to shareholders

our empirical model including the non-promoters, and the results are virtually unchanged (for the Companies Act see: <http://www.mca.gov.in/MinistryV2/companiesact.html>).

²³ Cross-listing data are from <https://www.adrbnymellon.com/indices/adr-index/constituents> and <https://www.adr.com/Investors/Markets>.

²⁴ There are a number of firms that have zero FEO throughout the study period; their exclusion leads to even stronger results to support the findings of this study. These results are available on request.

due to non-alignment of interest between the dispersed owners and managers (Morck et al., 1988). The intuition is that level of family/management control could be beneficial up to an extent before it can become problematic. Therefore, the first control we use captures the ownership concentrations of the so-called inside shareholders (*Insider*) constructed as the proportion of shares held by all promoter investors of total equity shares. Additionally, we also use the *Insider* variable in its quadratic form to account for its marginal impact on FEO. We expect the quadratic relationship to be significant due to nonlinearity in relationship between insider ownership and foreign ownership.

The size effect argument carries competing theories as to how it might influence FEO.²⁵ Larger firms that enjoy more media coverage and analyst-following (relative to smaller firms) can be perceived to be more transparent and therefore have higher levels of foreign investment (Ammer et al., 2012). However, contrary to conventional wisdom, ownership of most large firms is typically controlled by families, or government in those economies that do not offer adequate shareholder rights and legal protection (La Porta et al., 1999). Hence, we control for firm size without subscribing to any a prior expectation. Since we are using firms from a single country, we use the balance sheet size of firms (*Size*).²⁶ In our regressions we use *Size* in its natural log form.²⁷

Dividend pay-outs can give positive signals to investors by suggesting that the firm can pay cash to shareholders without expropriating minority interest (Faccio et al., 2001; Jensen, 1986). Hence, we introduce a dummy variable (*Dividend*) (equal to one) for each firm year where firms have paid dividends (and zero otherwise). There is some evidence to suggest that investors would want to buy past winners - positive feedback trading (Nofsinger and Sias,

²⁵ As noted, by exogenous construction most of the treated firms are larger in size compared to control firms.

²⁶ Other related studies tend to use market capitalization as a proxy of firm size, especially in relation to different countries, as the accounting standards are different across countries (Ammer et al., 2012).

²⁷ Market capitalization could also be simultaneously determined with FEO (Aggarwal et al., 2005). Further, market capitalization could differ between two exchanges (BSE and NSE) whereas balance sheet size provides a consistent measure.

1999). As such, foreign investors can be expected to hold on to, or even increase their holdings of firms that have provided positive stock returns in the recent past. Thus, we also include one period lagged stock return variable. Stock return (*Return*) is the annual stock return to equity investors for the given year and is from Prowess. It includes all benefits that accrue to shareholders including dividend pay-outs and capital gains.

Following Leuz et al. (2010), we also control for the growth prospects of a firm as foreign investors could be inclined to invest more in firms with higher price-to-book ratio. We use the price-to-book ratio to capture growth prospects. Further, we control for firm-specific stock market liquidity, which can also influence FEO (Bailey et al., 1999). Market liquidity (*Turnover*) is taken as the annual combined number of equity shares traded on BSE and NSE scaled by the total number of equity shares for a given firm. Finally, the level of gearing (*Leverage*) is also known to impact foreign investors' decision to invest in domestic firms. Kang and Stulz (1997) and Dahlquist and Robertsson (2001) provide evidence that foreign investors invest less in small, highly leveraged firms. We take long-term debt scaled by shareholders' funds as a measure of *Leverage*.²⁸ Considering the time for firm-specific variables to filter into investor sentiments, all firm-level control variables are lagged by one period.

Various country-specific and global macroeconomic factors could also influence FEO of Indian firms. The literature documents the importance of “push factors”, i.e. shocks in advanced economies that persuade investors to invest in emerging markets, and “pull factors” that are related to the attractive features of macroeconomic fundamentals in emerging markets (Fratzscher, 2011). The econometric modelling used in this paper, discussed in section 4, controls for these aggregate fluctuations.

²⁸ A table of the key variables with brief description on the sources, and how they are constructed, is provided in Appendix 2.

4. Empirical Results and Discussion

We begin the empirical investigation by analysing the summary statistics of the variables we use in this study, followed by the graphical trend in the average FEO of the treatment (firms subject to strict enforcement of Clause 49) and control firms. Finally, we undertake the DiD examination in both the univariate and multivariate context.

4.1 Summary Statistics

Summary statistics (mean, median, standard deviation and number of observations) of all the variables used in this study are reported in Table 1. Panel A shows the statistics of the entire sample by control and treatment groups and panel B conveys year-wise statistics for all firms. Panel A highlights variability in the average value of FEO as it differs considerably between the control group (mean 0.55%) and the treatment group (mean 3.21%).²⁹ The time series statistics in the third column of Panel B show that the average FEO is growing after 2003, i.e. from the year 2004. For instance, in the year 2003, the mean FEO is 1.27% which gradually increases to 5.26% by the year 2007. What is notable is that despite the fact that Clause 49 was introduced in the year 2000, the average FEO in the following three years have slightly decreased from 1.81% in 2001 to 1.27 % in year 2003.

.....Insert Table 1 here.....

With respect to control variables, Panel B shows that insider ownership has remained relatively stable throughout the years, with the mean (and median) values ranging from 47.85% (49.17 %) to 50.52 % (50.95 %) across the years. This indicates that compared to minority foreign investors, the insiders' holding has been stable, which further suggests that the latter

²⁹ As noted there could be other potential factors that may drive this difference, particularly the role of differences in firm size could be key. We address this concern in section 4.5.2.

might have been exclusively influenced by the regulatory reforms. The average size of the firms (Column III, Panel B) has grown over the years from USD158.49 million to USD306.10 million, consistent with the findings of Dharmapala and Khanna (2013).

Column IV (Panel A) shows that approximately 37% of all the firms paid dividends during the study period. However this is driven by the treatment group firms of which 39% paid dividends, on average, compared to 24% for control firms. Column V (Panels A and B) shows the annualized average daily stock returns (*Return*) computed using the total daily return index for each firm. As expected in an emerging market, there is wide disparity in returns as evidenced by the high standard deviations. For the entire period, control firms have commanded a higher annual average return at nearly 60% and the treatment firms have offered annual return of 56% (Panel A). Though this level of return seems to be substantially high compared to developed economies, it is reasonable to expect these stock returns given that overall market index (S&P BSE SENSEX) increased by 5.6 times during the sample period.³⁰

The figures in Column VI of Panel A show that treatment firms' price-to-book ratio (1.59) on average is higher compared to the average figure (1.29) of control group firms. Similarly, this ratio has increased especially during 2004-2006 (Column VI, Panel B). Again, these figures are consistent with the positive wealth effect of Clause 49 as discussed in Dharmapala and Khanna (2013). With respect to daily stock turnover (Column VII, Panel A), treatment group firms exhibit considerably higher daily turnover compared to that of control groups in absolute term, despite the fact that control firms have witnessed higher growth rate in turnover in the post-enforcement period. Column VII (of Panel B) suggests a more pronounced increase in stock turnover during 2006-2007 compared to the previous years. Finally, the average values for *Leverage* (Column VIII, Panel A) is slightly lower for control

³⁰ S&P BSE Sensex increased from 3623 at the end of 2001 to 20287 at the end of 2007; see <http://www.bseindia.com/>. During the corresponding period, the Dow Jones Industrial Average increased from 10260 to 12800; see www.djindexes.com.

firms (3.2%) than for treatment firms (3.6%). Over time, it has gradually declined from a peak of 8% in 2002 to 2% in 2007 (Panel B).

Panel C shows the summary statistics for control group firms on either side of the enforcement date. *Return* (Column V), price-to-book (VI), and *Turnover* (VII) increased during the enforcement period compared to pre-enforcement phase. A similar comparison for treatment group in Panel D shows a significant increase in *FEO* (Column I), *Size* (Column III), *Return* (Column V), price-to-book ratio (Column VII), and *Turnover* (Column VII), during the enforcement years compared to initial years. This is an indication that profitability, growth prospects, and turnover of firms also increases, again among other factors, presumably due to the effect of the 2004 enforcement.

The control and treatment firms can also be compared pre- and post-enforcement period by comparing the figures presented in Panel C and Panel D. There is a significant difference in various dimensions between the two categories of firms and we address these challenges, econometrically and otherwise, in later sections.

4.2 FEO Trend for Treatment and Control Groups

Figure 2 reports the time trend in yearly average FEO for the treatment and control groups. As shown by the dashed line, the average FEO is lower for control firms relative to the treatment group during years 2001-2003.³¹ Clearly, both groups seem to generally move together with a parallel trend observed up until 2003. However, the average FEO for the treatment group witnesses a pronounced increase after 2004, with the control group remaining at similar levels. Thus, the introduction of stricter enforcements in 2004 for non-compliance of the corporate governance regulations appears to have a positive impact on the investment sentiment of foreign investors.

³¹ The difference is not statistically significant at conventional significance levels.

In the following section we run a number of DiD-based regressions to show that, at least in part, this disparity could be attributed to regulatory reform with the stricter penalty introduced in 2004.

.....**Insert Figure 2 here.....**

4.3 Univariate DiD

Before undertaking multivariate regression estimations, we present a simple univariate DiD effect as shown in Table 2. Panel A (Column 3) shows the difference in the average FEO figures of the treatment and control groups is 1.01% for the pre-reform period of 2001-2003. The same difference over the next three years (2004-2007) is 3.85% (Panel B, Column 3) and is statistically significant at 1% level. This suggests that compared to the control group the treatment group's FEO increased by 2.84% on average after the regulatory reform of 2004. Although, this DiD effect is large, it could be argued that other factors could have also contributed to this increase. We address this issue of alternative explanations and undertake a series of robustness checks in the following sections to isolate the impact of the regulatory reform.

.....**Insert Table 2 here.....**

4.4 Multivariate DiD Regressions

The general specification for assessing the impact of stricter sanctions for non-compliance with regulatory reforms introduced in the year 2004 on FEO (FEO_{jt}) is shown in Equation (2):

$$FEO_{jt} = \beta_1[Clause_t * Treat_j] + \beta_2 Clause_t + \beta_3 Treat_j + \gamma X_{jt-1} + \alpha_j + \Omega_t + \Gamma_j y + \varepsilon_{jt} \quad (2)$$

where $Clause_t$ is an indicator variable for years following 2003 when severe penalties were introduced for breaching Clause 49 (i.e. for years 2004-2007 and zero otherwise). $Treat_j$ is the dummy variable assuming the value of one for treatment firms (i.e. those firms where

Clause 49 is applicable) and zero otherwise. The interaction term ($Clause_t \times Treat_j$) is the DiD effect of the reform, which shows the magnitude by which firms in the treated group were influenced by the stricter sanctions compared to the control group. X_{jt-1} is a vector of firm-specific control variables, lagged by one period, as discussed in section 3. α_j represents firm fixed effects (which gets omitted as we time-demean the values within firms – see Wooldridge, 2010), Ω_t is year fixed effects³², and ε_{jt} is the error term. Following Dharmapala and Khanna (2013), we add one more control variable: firm-specific time trend of the dependent variable ($\dot{\gamma}_j y$). It could be the case that FEO in firms had been increasing prior to 2004 for reasons unrelated to the enforcement of regulatory sanctions and this trend might have continued on/after 2004, especially in treatment group firms which are presumably larger and more successful. To address this issue, we compute the average growth rate in FEO for each firm for pre-enforcement years (2001-2003) and interact this growth rate with the time variable (year). We include this interaction term ($\dot{\gamma}_j y$), in the regression model, as an additional control measure to remove the effect of underlying time trend in FEO. We report this variable as $GrFEO$ in our outputs.

In the DiD approach³³ specified in Equation (2) we expect FEO in treatment firms to increase at a higher degree than in control firms, even after controlling for a host of firm-specific variables and the underlying time trend in growth of FEO.³⁴ The results of the estimations running various forms of Equation (2) are shown in Table 3. In all regressions reported, the standard errors are robust to intra-firm clustering.

.....Insert Table 3 here.....

³² Subsequent Hausman tests show appropriateness of fixed effects over random effects in our models.

³³ This estimation technique basically relies on the difference between observed changes in treatment group firms before and after the cut-off date with that of control group firms.

³⁴ The inclusion of time trend ($\dot{\gamma}_j y$) in our model above is a very conservative approach - as controls for possible determinants of FEO are already in place - and will put a downward pressure on β_1 .

Column I shows the results without using any firm-level control variables apart from the time trend in FEO (*GrFEO*). As expected, the interaction term *Clause*Treat* is economically and statistically significant at the 1% level. The addition of other firm-specific control variables in step-wise manner (in columns II – VIII) does not materially change the statistical and economic significance of our key variable (*Clause*Treat*), remaining significant at the 1% level. Further, when we include the growth rate of the financial variables (in addition to the absolute values already included), the number of observations decrease, but the results (available on request from the authors) remain similar. In all columns, we control for any domestic macroeconomic and global risk aversion factors that might influence foreigners' decision to invest by allowing for separate intercepts for years (time fixed effects).³⁵ With respect to the magnitude of the economic effect, the change we observe, particularly in the optimally specified regression results of column VIII, is approximately 2.641%. This suggests that foreign investors increased their stake over the next three years following the reform in 2004 by this amount. This is lower than the univariate DiD effect of 2.84%, but is not unexpected, as the multivariate regression estimations diminish the bias associated with the exclusion of omitted variables. In the following sections we undertake further robustness checks to consider the sensitivity of the *Clause*Treat* estimate.

In terms of control variables, most of the variables enter the regression with expected sign. *Insider* is initially positive and changes to negative in its quadratic form, supporting the notion that insider ownership can be attractive to foreign investors to a certain extent but becomes unattractive once it crosses a threshold (Morck et al., 1988). The coefficient for *Size* is statistically significant, supporting the view that larger firms are more attractive to foreign

³⁵ Studies show that foreign investors in emerging markets are influenced by changes in pull (domestic) factors, such as inflation rate and economic growth rate, and push (global) factors, such as change in US Treasury Bill rates and global volatility measures (VIX) (Griffin et al., 2004; Ülkü, 2015). Since we use annual firm level panel data in our estimation, all of these factors are weighed-in by the inclusion of year dummies (time fixed effects). Post-estimation tests show that year dummies are jointly significant.

investors (Ammer et al., 2012). The variables for return (*Return*) and growth prospects (*Price-Book*) also carry expected signs, consistent with the existing literature. The level of long term debt (*Leverage*) has a negative coefficient, with statistical significance at 1% level, suggesting that investors prefer firms with lower level of debt.

4.5 Robustness Checks

In this section we run a series of robustness tests to ensure that the results reported so far are not capturing the effects of other alternative effects and are robust to sample selection bias.

4.5.1 *Industry and Systematic Shock Effects*

The empirical analysis so far in the previous section provides support to the notion that FEO has increased in firms that were subject to the enforcement of corporate governance rules. However, although the treatment group consists of firms from 139 different industry groups, the control group firms are from only 76 industry sectors. Therefore it is possible that the industries present only in the treatment group became more attractive to foreign investors after 2003 – for reasons/systematic shocks other than the enforcement of the rules – thus resulting in a positive and significant β_1 in the empirical findings.

To address this, we control for time-varying industry-specific macroeconomic shocks by replacing year fixed effects by industry-year fixed effects (similar to Vig, 2013). The results presented in Table 4 are qualitatively similar to our main findings in Table 3.

.....Insert Table 4 here.....

4.5.2 *Comparability of Treatment and Control Firms: Size and Industry Effect*

So far we have assumed that, other than being subjected differently to enforcement laws, the firms in control and treatment group are similar to each other in other dimensions. However, our univariate statistics clearly show that firm in the control group are much smaller in size. Further, differences exist along many dimensions between treatment and control firms (see

Appendix 3, Panel A). Thus, one can argue that the treatment firms would have attracted higher FEO after 2003 because of their larger size effect, and not necessarily due to enforcement of corporate governance. We address this concern by constructing a subsample of treatment and control firms that are more comparable in size; the approach we take to construct this subsample is discussed in the following paragraph.

We choose a sample of treatment firms that have net worth comparable to firms in the control group. To do this, we calculate the average net worth of control firms for the enforcement year 2004 and find that it stands at INR 42.04 million (USD 0.93 million).³⁶ We then rank the treatment firms according to their net worth in 2004 and select the set of smallest treatment firms so that the average net worth of these treatment firms is as close as possible to INR 42.04 million as identified above. This results in 579 treatment firms in the subsample with average net worth of INR 42.06 million. The mean market capitalization of these two sets of firms for 2004 is also very similar: USD 0.96 million for control firms versus USD 0.95 million for treatment firms. In terms of median values for market capitalization of these two sets of firms in this subsample, control firms score higher (USD 0.46 million) than treatment firms (USD 0.37 million). This approach uses the fact that the applicability of enforcement law between control and treatment firms is determined on the basis of past capital: two firms with similar net worth could be either treatment firm or control firm depending upon whether their paid-up capital exceeds the threshold of INR 30 million.³⁷

Additionally, we repeat this process with firms belonging to similar industries only; i.e. by retaining only those firms (from the initial sample) belonging to industries common to both

³⁶ This is based on the exchange rate of 45.32 INR/USD for 2004.

³⁷ For illustration purposes, consider a firm with a net worth of INR 45 million and Paid up capital of INR 24 million. By definition, this firm would be in our control group. However, by a simple accounting change of transferring INR 5 million from general reserve to equity, their paid up capital would have been 29 million thus qualifying them as a treatment firm. In our data, 1305 treatment firms (roughly 53%) do not meet the threshold for net worth but exceed the threshold for paid up capital only; 16 treatment firms do not meet the threshold of paid up capital but meet the threshold for net worth.

sets of (treatment and control) firms; this yields 389 control firms and 579 treatment firms. For ease of comparison, we present the differences between treatment and control firms of similar industries in Panel B of Appendix 3; and differences between treatment and control firms of similar size in Panel C of Appendix 3. As can be observed in Panel C, the differences between treatment and control have decreased in this sub-sample with average size of control and treatment firms of USD 2.22 million and 2.67 million respectively.

We re-run specification (2) using this reduced sample where the treatment and control firms are similar in size. The results, presented in Table 5, show that although the coefficient of (Clause*Treat) becomes weaker, it remains both economically and statistically significant. After accounting for time-varying industry-specific macroeconomic shocks in firms from same industries (column IV), the DiD effect of 0.691% is statistically significant at the 5% level. Most of the other control variables lose statistical significance. However, Size and Turnover retain their statistical significance across all the four models. These results mitigate the concern that firms in the control and treatment group are not comparable, particularly in relation to size.

We do an additional test based on Propensity Matching Score (PSM) in the spirit of Rosenbaum and Rubin (1983). We calculate the conditional probability of the firms falling under treatment firms based on *Size*, *Insider*, *Dividend*, and *Turnover* (as these four variables are consistently significant across our models). We match control firms to treatment firms based on this probability score in the first stage and re-run specification (2). The results shown in of Table 5 (Column V) shows qualitatively similar results to our baseline regression.

.....Insert Table 5 here.....

4.5.3 *Imposing a Different Enforcement Date and Attrition Bias*

Although our results show that in the post 2003 period there was greater increase in FEO in the treatment relative to the control group, it could be argued that that the DiD effect is simply capturing any recurring cyclical effect. Thus, we examine the possibility of false experiment.

The objective is to check if the same incremental effect in (Clause*Treat) can be observed if the enforcement year is falsely set to 2003. For this purpose, the year 2003 is assumed to be the start of the false enforcement year ClauseF and a false interaction of key variable (ClauseF*Treat) is created accordingly. We retain data only up to year 2004 and re-run specification (2) and provide the results in Table 6.

.....Insert Table 6 here.....

The estimate in Column I shows that the key interaction term (ClauseF*Treat) is statistically insignificant and economically small compared to previous results. To further check the coefficient of the interaction term just for year 2003 when the enforcement is falsely assumed to have taken place, we limit the data up to 2003 and re-run specification (2). As seen in column II, the coefficient of (ClauseF*Treat) now becomes economically less important as well as continuing to be statistically insignificant.

Finally, in column III, for comparison purpose, we provide results from the normal experiment (specification (2)) where the enforcement year is the actual year (2004) but limiting the sample up to the year 2004. Clause*Treat in column III is economically and statistically significant and the coefficient represents the incremental difference of FEO in year 2004 for treatment firms compared to control firms. This finding is consistent with the earlier results in this study. These regression results in Table 6 provide support that our results are not driven by any cyclical effect.

4.5.4 *First-differenced Regression Discontinuity*

As an additional test, the panel data structure in our sample allows us to examine any change in FEO during 2004 in the treatment firms using a first-differenced regression discontinuity (Lemieux and Milligan, 2008) which can be considered a more conservative estimate than normal regression discontinuity. This approach enables us to control for unobserved variables

that may have an impact on the firm's FEO. This test is similar in spirit to that of Dharmapala and Khanna (2013) and is specifically focussed on the year 2004 and on the effect around the threshold applicability of Clause 49. More specifically, this test involves conducting a regression analysis of the following form in equation (3):

$$\Delta FEO_{j,2004} = \beta_1 Treat + f[P_{2004}, N_j] + \gamma \Delta X_{j,2004} + \alpha_j + \varepsilon_{j,2004} \quad (3)$$

where $\Delta FEO_{j,2004} = FEO_{j,2004} - FEO_{j,2003}$, *Treat* is the dummy variable of one for firms if $P_{2004} \geq \text{INR } 3\text{M}$ or $N_j \geq \text{INR } 25\text{ M}$, otherwise zero, P_{2004} is the firm j 's paid-up capital in 2004, N_j is the maximum net worth of the firm j in the years 2001 to 2004, X_j is a column vector of firm-level control variables as discussed in section 3; and α_j indicates dummies for industries. The main identifying assumption of this approach is that $f[P_{2004}, N_j]$ is a smooth function of paid-up share capital and net worth, and controls for any continuous impact of paid-up capital and net worth on the change of firm's FEO in 2004. β_1 reflects the discontinuity in FEO for the treatment firms.

The results for specification (3) are shown in Table 7. The coefficient of 0.711 for the variable of interest *Treat* in Column I shows that the treatment effect is economically and statistically significant at the 1% level. Results in Column II (without industry dummy), Column III (firms in similar industries across treatment and control group) and Column IV (firms with comparable net worth in control and treatment firms) show qualitatively similar results. It is worth noting that this coefficient reflects the increase in the first difference FEO of treatment firms for the year 2004 only, and is thus generally comparable to the DiD estimate where we run our baseline regression only up to year 2004 (Column III of Table 6). There may also be concerns that Treat indicator is showing up as significant due to a nonlinear relationship between the dependent variable and the other explanatory variables. To mitigate this concern, we examine the graph (not shown) of the residuals against the fitted values from specification

(3) but without the Treat indicator, to check if there is any discernible non-linear pattern; however, no such pattern is observed. This provides further support for our main results so far.

.....**Insert Table 7 here.....**

4.5.5 *Cross-sectional Heterogeneity*

The relation between the enforcement regime of governance regulations and the investment decisions of foreign investors may be contingent on leverage, the level of insider ownership and other factors.³⁸ We examine this possibility by using ownership structure as a moderating factor. Specifically, we test whether FEO, in the post reform period, could be influenced by varying degree of insider ownership. We do so by segregating the treatment firms which have been more attractive to foreign investors, on the basis of their level of insider ownership. To achieve this, we divide treatment firms into three separate groups: treatment firms with strong insider ownership (whose average insider ownership over the study period is more than 50%), moderate insider ownership (whose insider ownership lies between 35% and 50%), and low insider ownership (whose insider ownership is lower than 35% during the study period). Using these three separate groups of treatment firms, we conduct regressions based on specification (2) and present the results in Table 8.

.....**Insert Table 8 here.....**

As seen in Table 8, the DiD effect is most pronounced in column I where treatment firms are strongly controlled by insiders (with more than 50% insider ownership); the DiD effect is slightly reduced when time-varying industry-specific shocks are controlled for (column II) but is still economically and statistically significant at the 1% level. However, the DiD effect gradually decreases with the decline in insider ownership and is insignificant

³⁸ We thank an anonymous referee for this suggestion.

(column VI) in firms with low insider control when *industry*year* fixed effects are introduced. The overall results show that foreign investors, in the post reform period, show preference for treatment firms with strong insider ownership (see Table 8, columns II, IV, and VI). This supports the notion that the foreign investors anticipate that the higher benefits of the reform are from firms with higher concentration of ownership by insiders. These firms face higher level of agency conflicts in the pre-reform period and such agency conflict is likely to be dissipated due to the stricter sanctions following the corporate governance reform.³⁹ As insiders are likely to engage in tunnelling activities (Johnson et al., 2000; Gilson, 2006) in the absence of appropriate governance mechanisms, firms with higher levels of insiders are likely to be impacted more by governance reforms. This is consistent with information asymmetry and monitoring costs associated with foreign investment (Akerlof, 1970; Leuz et al., 2010).

To further explore cross-sectional heterogeneity, we divide our entire sample based on the level of *PriceBook*, *Turnover*, and *Leverage*. For each of these three variables, we first take the average value for each firm and rank the firms based on this average; divide the sample in upper (with higher average) and lower halves, and run our baseline regression for each of these lower and upper halves separately. Out of these six additional examinations, five show positive and statistically significant DiD estimates, and the DiD estimate for the subsample containing lower level of P/B ratio is not significant, despite the P/B ratio increasing for both control and treatment firms in the post-sanction period (see Table 1, Panel C and D). This is possibly because of foreign investors are attracted towards growth firms, as opposed to value firms post reform (Dahlquist & Robertsson, 2001). Additionally, the DiD estimate shows a more pronounced impact at higher levels of Turnover. This is also consistent with the established literature showing that foreign investors' preference towards firms with higher market liquidity

³⁹ Using triple DiDiD regression based approach we find similar results for leverage as the moderating factor. The results are available from the authors.

and turnover (Dahlquist & Robertsson, 2001; Tesar & Werner, 1995). Although foreign investors are known to avoid investing in highly-leveraged firms (Kang & Stulz, 1997), our results show that the DiD effect is not subjective to Leverage. This could be because the Leverage measure (long term debt scaled by total equity) is around 3% for both control and treatment firms in the post-reform period (see Table 1 Panel C and D); and as such foreign investors could be indifferent towards the level of debt between low-leverage firms and high-leverage firms in the post-reform period in our study. We re-estimate this test based on the average for these three variables for pre-sanction period (2001-2003). All six subsamples show significant DiD effect, however, the effect is still subjective to the level of P/B and Turnover (the results are not shown for brevity but are available on request).

4.5.6 Additional Possible Explanations

If the year 2004 witnessed any other regulatory reform capable of influencing FEO differentially in treatment and control group firms, then the results discussed above would be misleading. In an extreme case, all such positive increases in FEO in treatment firms could be attributable to such reforms rather than the enforcement of Clause 49. Dharmapala and Khanna (2013) do an “extensive search of Indian newspapers and other news sources for other important events in 2004” and find no such event apart from one related to California Public Employees’ Retirement System (Calpers). In 2004 Calpers decided to include Indian equity market within its range of investable emerging markets. Until the preceding year, Calpers had ruled out investing in India. As such, it could be argued that the increase in FEO of treatment firms came about due to the associated herding effect of Calpers’ inclusion of Indian securities in their portfolio. In this context, we offer some explanations as to why Calpers’ investments would have little or no impact on the interpretation of the empirical results. First, it can be expected that Calpers did not invest in a large number of treatment firms in 2004 itself because

they had invested in only 77 Indian firms by 2006 (Dharmapala and Khanna, 2013). Such a small proportion of treatment firms would not change the overall results in a significant way. Second, any effect of herding is captured by our recent return control variable. Finally, the investment by Calpers itself shows that Calpers may have been attracted by the Clause-49 regulatory change and is consistent with our overall results. We further check newspapers, existing academic papers, and online resources, and we do not find any major regulation regarding capital reforms in India during 2004-2007 that could be reasonably linked to the DiD effect between treatment and control firms.

4.5.7 Possible Impact of Other Concurrent Reforms and Other Caveats

Concurrent reforms have been noted during the study period which could have had an impact on foreign ownership of Indian firms. One notable change is the passage of Jobs and Growth Tax Relief Reconciliation Act (JGTRRA) of 2003 in the U.S. that reduced the dividend tax rate for investors in a subset of countries including India. This arguably could have made large Indian firms more attractive to US investors. However, we would argue that any impact induced by JGTRRA would have been reduced with the exclusion of bigger firms in our analysis in section 4.5.2, assuming that any increase in US investment would have been mainly attracted towards larger firms. Additionally, the false experiment in the preceding section supports the notion that the year 2003 did not witness any significant differential increase in FEO of treatment firms. Though economic reforms are ongoing in India they embarked on major economic reforms from 1991 when its balance of payment problem severely threatened the economy (Ahluwalia, 2002). Any unequal impact these reforms may have had on treatment groups most probably would have subsided by 2004). Dharmapala and Khanna (2013) further note that there were no noteworthy changes in corporate governance laws in India from 2005 thus supporting the notion that any impact of corporate governance enforcement would be from

the year of enforcement (i.e. 2004).

It has also long been argued that the optimal level of enforcement depends on, among other things, nature of punishment like fines and imprisonment (Becker, 1968). Though heavier penalties were imposed in 2004, concerns have been raised as to how effective the application of additional penalties have been; in fact, there were no investigation proceedings under these relevant enforcements until September 2007 (Dharmapala and Khanna, 2013;) and this may cast doubt on the efficacy of the new regulations. However, Dharmapala and Khanna (2013) also point to the possibility that more severe sanctions may have signalled an increase in reputational sanctions. This is consistent with the idea that the threat of harsher and personal financial and criminal sanctions itself can lead to better compliance (Dutcher, 2009). Further, Balasubramanian et al. (2010) do find evidence that majority of the firms are in compliance of Clause 49 regulations after the introduction of section 23E in the year 2004. Another concern is tied to the possibility that firms may have endogenously chosen to be either in treatment or control firms. However, Dharmapala and Khanna (2013) find this very unlikely mainly because the enforcement was applicable to firms retrospectively and paid-up share capital of the firms have been found to be highly stable during the study period. Thus, it was impossible for firms to alter their share capital.

Finally, we compare our findings to Dharmapala and Khanna (2013). They find a generally positive association between Clause 49 reform and foreign institutional investment in India; but their results do not hold when firm-specific trends are added to the regression model. In this respect, our results differ from theirs for one key reason. Their definition of dependent variable of foreign ownership includes non-promoters (outsiders) and promoters (insiders) foreign portfolio investors. However, since promoters are founding members and considered insiders it could be argued that any improvement in corporate governance will influence the decision of outsiders rather than insiders. To further substantiate this argument

we present the yearly average ownership trend of promoters (insiders) and non-promoters (outsiders) in Appendix 4. This shows that promoters' ownership has been relatively stable compared to the significant upward trend observed in non-promoters' foreign ownership after the year 2004. Up until 2003 the trend between foreign insiders and outsiders are parallel but after 2004 we can see a sharp positive jump in foreign non-promoters' holding compared to almost no change in foreign promoters' holding. This is a clear indication that the 2004 event has significantly greater influence on foreign non-promoter (outside) investors compared to foreign promoter (insider) investors.

5. Conclusions

Do stricter sanctions of not complying with corporate governance regulations influence the ownership decisions of foreign investors in emerging markets? The economic argument suggests that regulatory reforms that mandate firms to observe corporate governance regulations through higher sanctions of non-compliance should have positive effect on the ownership of foreign investors. In this paper, we empirically examine whether the corporate governance regulatory reform that imposes stricter sanctions for non-compliance has any positive effect on increasing the firm ownership by foreign investors. We test this conjecture using a corporate governance regulatory reform in India, known as clause 49. The reform was enacted in the year 2000 but stricter penalties for non-compliance were introduced in the year 2004. However, this regulatory compliance was not mandatory for all listed firms, which allows us to create a treatment group (complying with clause 49) and a control group (not subject to 49). This natural experimental setting allows us to establish credible causal effect using the DiD method.

Using panel data set for more than 1,200 publicly listed firms for the period 2001 to 2007, the empirical results show that regulations imposing stricter sanctions for non-compliance do

have significant positive effect in attracting the interest of foreign investors. In terms of economic importance, the DiD specifications show approximately 2% increase in foreign non-promoter ownership (out of total non-promoter ownership) post the corporate governance regulatory reform of 2004 when stricter penalties for non-compliance were introduced. This quantitative effect holds even after running different alternative specifications in a range of robustness checks.

Our study implies that one of the policy measures of attracting foreign investors in emerging markets is to devise corporate governance regulations which increase the likelihood of their enforcement, i.e. by introducing harsher penalties for non-compliance. In the international context, parallels can be drawn from the reforms undertaken around the same time in South Africa - another emerging market with weak enforcement mechanism. After South Africa shed the apartheid regime in 1994, she went through a series of governance reforms and had emerged as a regional economic power by 2003 (Vaughn and Ryan, 2006). An interesting aspect of the South African reform is that Insider Trading Act of 1998 allowed authorities to take more stringent measures (criminal prosecution, civil liability and financial penalty) for breaching a governance code of conduct. The reforms in South Africa were introduced in tandem with forceful enforcement mechanisms. Taken together with the findings of this study, it seems more likely than not that governance rules coupled with stricter enforcement mechanism would be more attractive to foreign investors than just the adoption of regulations alone in emerging markets.

Finally, we outline areas for future research. Our analysis shows that foreign investors increase their holdings after governance reforms are strictly enforced. However, it would be insightful to know which set of codes are more attractive to foreign investors; i.e. do investors value transparency more or board independence or accountability? This could probably help towards understanding why there are still so many firms which never attracted any foreign

investment during the study period and beyond. Another potential avenue for future research is to empirically examine if the threat of monetary fines is more important than threat of criminal proceedings (to attract foreign investors); this follows from the existing literature that puts a greater emphasis on personal and monetary fines (e.g. Becker, 1968; Dutcher, 2009). It would also be interesting to see whether the foreign investments spurred by stricter sanction regime were long-term in nature or not. Examining the role of foreign promoters (who have some control over the firms they invest in) in attracting other foreign investors may also yield insightful results.

References

- Aggarwal R, Erel I, Ferreira M, Matos P (2011) Does governance travel around the world? Evidence from institutional investors. *J Financ Econ* 100:154–181. <https://doi.org/http://dx.doi.org/10.1016/j.jfineco.2010.10.018>
- Aggarwal R, Klapper L, Wysocki PD (2005) Portfolio preferences of foreign institutional investors. *J Bank Financ* 29:2919–2946. <https://doi.org/http://dx.doi.org/10.1016/j.jbankfin.2004.09.008>
- Ahluwalia MS (2002) Economic reforms in India since 1991: Has gradualism worked? *J Econ Perspect* 16:67–88
- Akerlof GA (1970) The market for “lemons”: Quality uncertainty and the market mechanism. *Q J Econ* 84:488–500
- Al-Faryan MAS, Dockery E (2021) Testing for efficiency in the Saudi stock market: does corporate governance change matter? *Rev Quant Finance Account* 57:61–90. <https://doi.org/10.1007/s11156-020-00939-0>
- Ammer J, Holland SB, Smith DC, Warnock FE (2012) U.S. international equity investment. *J Account Res* 50:1109–1139. <https://doi.org/10.1111/j.1475-679X.2012.00464.x>
- Armitage S, Hou W, Sarkar S, Talaubicar T (2017) Corporate governance challenges in emerging economies. *Corp Gov An Int Rev* 25:148–154. <https://doi.org/https://doi.org/10.1111/corg.12209>
- Atanasov VA, Black BS (2016) Shock-based causal inference in corporate finance and accounting research. *Crit Financ Rev* 5:207–304
- Bailey W, Chung YP, Kang J (1999) Foreign ownership restrictions and equity price premiums: What drives the demand for cross-border investments? *J Financ Quant Anal* 34:489–511
- Balasubramanian N, Black BS, Khanna V (2010) The relation between firm-level corporate governance and market value: A case study of India. *Emerg Mark Rev* 11:319–340. <https://doi.org/http://dx.doi.org/10.1016/j.ememar.2010.05.001>
- Becker GS (1968) Crime and punishment: An economic approach. *J Polit Econ* 76:169–217. <https://doi.org/10.1086/259394>
- Bekaert G, Harvey CR, Lundblad C (2005) Does financial liberalization spur growth? *J financ econ* 77:3–55. <https://doi.org/http://dx.doi.org/10.1016/j.jfineco.2004.05.007>
- Berglof E, Claessens S (2004) Enforcement and corporate governance. The World Bank
- Bertrand M, Mehta P, Mullainathan S (2002) Ferreting out tunneling: An application to Indian business groups. *Q J Econ* 117:121–148
- Bhattacharya U, Daouk H (2009) When no law is better than a good law. *Rev Financ* 13:577–627
- Black BS, Khanna VS (2007) Can corporate governance reforms increase firm market values? Event study evidence from India. *J Empir Leg Stud* 4:749–796.

<https://doi.org/10.1111/j.1740-1461.2007.00106.x>

Brennan MJ, Cao HH (1997) International portfolio investment flows. *J Finance* 52:1851–1880. <https://doi.org/10.2307/2329467>

Carrieri F, Chaib I, Errunza V (2013) Do implicit barriers matter for globalization? *Rev Financ Stud* 26:1694–1739

Chan K, Covrig V, Ng L (2009) Does home bias affect firm value? Evidence from holdings of mutual funds worldwide. *J Int Econ* 78:230–241. <https://doi.org/http://dx.doi.org/10.1016/j.jinteco.2009.04.006>

Chen Z, Huang Y, Kusnadi Y, John Wei KC (2017) The real effect of the initial enforcement of insider trading laws. *J Corp Financ* 45:687–709. <https://doi.org/https://doi.org/10.1016/j.jcorpfin.2017.06.006>

Chhibber PK, Majumdar SK (1999) Foreign ownership and profitability: Property rights, control, and the performance of firms in Indian industry. *J Law Econ* 42:209–238. <https://doi.org/10.1086/467423>

Choe H, Kho B-C, Stulz RM (2005) Do domestic investors have an edge? The trading experience of foreign investors in Korea. *Rev Financ Stud* 18:795–829. <https://doi.org/10.1093/rfs/hhi028>

Claessens S, Yurtoglu BB (2013) Corporate governance in emerging markets: A survey. *Emerg Mark Rev* 15:1–33. <https://doi.org/http://dx.doi.org/10.1016/j.ememar.2012.03.002>

Cooper I, Kaplanis E (1986) Costs to crossborder investment and international equity market equilibrium. In: Edwards J, Franks J, Mayer C, Schaefer S (eds) *Recent Developments in Corporate Finance*. Cambridge University Press, New York, pp 209–240

Dahlquist M, Robertsson G (2001) Direct foreign ownership, institutional investors, and firm characteristics. *J Financ Econ* 59:413–440. [https://doi.org/http://dx.doi.org/10.1016/S0304-405X\(00\)00092-1](https://doi.org/http://dx.doi.org/10.1016/S0304-405X(00)00092-1)

Dharmapala D, Khanna V (2013) Corporate governance, enforcement, and firm value: Evidence from India. *J Law, Econ Organ* 29:1056–1084

Ding S, Wu Z, Li Y, Jia C (2010) Executive compensation, supervisory board, and China's governance reform: a legal approach perspective. *Rev Quant Financ Account* 35:445–471. <https://doi.org/10.1007/s11156-010-0168-1>

Dutcher J (2009) Go directly to jail: White collar sentencing after the Sarbanes-Oxley Act. *Harv Law Rev* 122:1728–1749

Faccio M, Lang LHP, Young L (2001) Dividends and expropriation. *Am Econ Rev* 91:54–78

Fratzscher M (2011) Capital flows, push versus pull factors and the global financial crisis

French KR, Poterba JM (1991) Investor diversification and international equity markets. *Am Econ Rev* 81:222–226

Giannetti M, Simonov A (2006) Which investors fear expropriation? Evidence from investors' portfolio choices. *J Finance* 61:1507–1547

- Gilson RJ (2006) Controlling shareholders and corporate governance: Complicating the comparative taxonomy. *Harv Law Rev* 119:1641–1679
- Gopalan R, Nanda V, Seru A (2007) Affiliated firms and financial support: Evidence from Indian business groups. *J Financ Econ* 86:759–795. <https://doi.org/http://dx.doi.org/10.1016/j.jfineco.2006.09.008>
- Griffin JM, Nardari F, Stulz RM (2004) Are daily cross-border equity flows pushed or pulled? *Rev Econ Stat* 86:641–657. <https://doi.org/10.1162/0034653041811725>
- Henry PB (2000) Do stock market liberalizations cause investment booms? *J Financ Econ* 58:301–334. [https://doi.org/http://dx.doi.org/10.1016/S0304-405X\(00\)00073-8](https://doi.org/http://dx.doi.org/10.1016/S0304-405X(00)00073-8)
- Jensen MC (1986) Agency costs of free cash flow, corporate finance, and takeovers. *Am Econ Rev* 76:323–329
- Johnson S, La Porta R, Lopez-de-Silanes F, Shleifer A (2000) Tunneling. *Am Econ Rev* 90:22–27
- Kang J-K, Stulz R (1997) Why is there a home bias? An analysis of foreign portfolio equity ownership in Japan. *J Financ Econ* 46:3–28. [https://doi.org/http://dx.doi.org/10.1016/S0304-405X\(97\)00023-8](https://doi.org/http://dx.doi.org/10.1016/S0304-405X(97)00023-8)
- Khanna T, Palepu K (2000) Emerging market business groups, foreign intermediaries, and corporate governance. In: Morck RK (ed) *Concentrated Corporate Ownership*. The University of Chicago Press, Chicago
- Kim EH, Lu Y (2013) Corporate governance reforms around the world and cross-border acquisitions. *J Corp Financ* 22:236–253. <https://doi.org/https://doi.org/10.1016/j.jcorpfin.2013.05.005>
- Koirala S, Marshall A, Neupane S, Thapa C (2020) Corporate governance reform and risk-taking: Evidence from a quasi-natural experiment in an emerging market. *J Corp Financ* 61:101396. <https://doi.org/https://doi.org/10.1016/j.jcorpfin.2018.08.007>
- La Porta R, Lopez-De-Silanes F, Shleifer A (1999) Corporate ownership around the world. *J Finance* 54:471–517. <https://doi.org/10.1111/0022-1082.00115>
- La Porta R, Lopez-de-Silanes F, Shleifer A, Vishny R (2000) Investor protection and corporate governance. *J financ econ* 58:3–27. [https://doi.org/http://dx.doi.org/10.1016/S0304-405X\(00\)00065-9](https://doi.org/http://dx.doi.org/10.1016/S0304-405X(00)00065-9)
- Lau S, Ng L, Zhang B (2010) The world price of home bias. *J Financ Econ* 97:191–217
- Lemieux T, Milligan K (2008) Incentive effects of social assistance: A regression discontinuity approach. *J Econom* 142:807–828. <https://doi.org/http://dx.doi.org/10.1016/j.jeconom.2007.05.014>
- Leuz C, Lins K V, Warnock FE (2010) Do foreigners invest less in poorly governed firms? *Rev Financ Stud* 23:3245–3285. <https://doi.org/10.1093/rfs/hhn089.ra>
- Liang J-W, Lin M-F, Chin C-L (2012) Does foreign institutional ownership motivate firms in an emerging market to increase voluntary disclosure? Evidence from Taiwan. *Rev Quant Financ Account* 39:55–76. <https://doi.org/10.1007/s11156-011-0245-0>

- Mengoli S, Pazzaglia F, Sapienza E (2009) Effect of Governance Reforms on Corporate Ownership in Italy: Is It Still Pizza, Spaghetti, and Mandolino? *Corp Gov An Int Rev* 17:629–645. [https://doi.org/https://doi.org/10.1111/j.1467-8683.2009.00752.x](https://doi.org/10.1111/j.1467-8683.2009.00752.x)
- Miletkov MK, Poulsen AB, Babajide Wintoki M (2014) The role of corporate board structure in attracting foreign investors. *J Corp Financ* 29:143–157. [https://doi.org/http://dx.doi.org/10.1016/j.jcorpfin.2014.06.005](http://dx.doi.org/10.1016/j.jcorpfin.2014.06.005)
- Morck R, Shleifer A, Vishny RW (1988) Management ownership and market valuation: An empirical analysis. *J Financ Econ* 20:293–315. [https://doi.org/http://dx.doi.org/10.1016/0304-405X\(88\)90048-7](http://dx.doi.org/10.1016/0304-405X(88)90048-7)
- Nofsinger JR, Sias RW (1999) Herding and feedback trading by institutional and individual investors. *J Finance* 54:2263–2295. <https://doi.org/10.1111/0022-1082.00188>
- Rosenbaum PR, Rubin DB (1983) The Central Role of the Propensity Score in Observational Studies for Causal Effects. *Biometrika* 70:41–55. <https://doi.org/10.2307/2335942>
- Stulz R (1999) Globalization, corporate finance, and the cost of capital. *J Appl Corp Financ* 12:8–25
- Stulz RM (2005) The limits of financial globalization. *J Finance* 60:1595–1638. <https://doi.org/10.1111/j.1540-6261.2005.00775.x>
- Tesar L, Werner I (1995) Home bias and high turnover. *J Int Money Financ* 14:467–492
- Ülkü N (2015) The interaction between foreigners' trading and stock market returns in emerging Europe. *J Empir Financ* 33:243–262. [https://doi.org/http://dx.doi.org/10.1016/j.jempfin.2015.03.011](http://dx.doi.org/10.1016/j.jempfin.2015.03.011)
- Vaughn M, Ryan LV (2006) Corporate Governance in South Africa: a bellwether for the continent? *Corp Gov An Int Rev* 14:504–512. <https://doi.org/10.1111/j.1467-8683.2006.00533.x>
- Vig V (2013) Access to collateral and corporate debt structure: Evidence from a natural experiment. *J Finance* 68:881–928. <https://doi.org/10.1111/jofi.12020>
- Wooldridge J (2010) *Econometric Analysis of Cross Section and Panel Data*. MIT Press, Cambridge

Appendix 1: The number of observations dropped from the data and the reasons for such omission

Initial number of observations (2001-2007)	22,615
<i>Dropped</i>	
Without obs. on either side of enforcement	519
Cross listed	208
Negative net worth	4,418
Total number of observations dropped	5,145
Number of observations used	17,470

Appendix 2: Description of Variables Used in this Study

Variable	Description
FEO	Number of equity shares held by foreign non-promoters scaled by total shares held by non-promoters. Source: Prowess, CMIE
Clause	Dummy variable of 1 for years after 2003 (to coincide with the enforcement of Clause 49 law). Source: Dharmapala and Khanna (2013)
Treat	Dummy variable of 1 for firms that are subject to Clause 49 law. Source: Dharmapala and Khanna (2013)
Insider	Equity held by promoters as a share of total equity shares. Source: Prowess, CMIE
Insider ²	Squared form of <i>Insider</i> (<i>Insider</i> * <i>Insider</i>). Source: Own calculation; raw data from Prowess
Size	Balance sheet size of a firm (in USD million) taken in natural log form. Source: Prowess, CMIE
Dividend	Dummy variable of 1 for firms that paid dividend in a given year. Source: Prowess, CMIE.
Return	Annual stock returns in INR; includes dividends earned and any gain or loss to the investor arising out of capital actions of the firm. Source: Own calculation; raw data from Prowess
Price/Book	Ratio of market price of a share to book value of share. Prowess, CMIE.
Turnover	Annual stock turnover is the combined number of equity shares traded annually in BSE and NSE, scaled by total number of outstanding equity shares of the firm. Own calculation; raw data from Prowess
Leverage	Long term debt scaled by shareholders' equity. Own calculation; raw data from Prowess
GrFEO	Yearly growth rate of FEO to allow for time trend, taken as natural log of (FEO / FEO of previous year) interacted with time period (year). Own calculation; raw data from Prowess

Appendix 3: Summary Statistics of Control and Treatment Groups: Similar Industry and Net worth

This table presents the mean and number of observations of all variables used in this study, compared by treatment and control group firms from different samples (Panel A, Panel B, and Panel C) and showing statistical differences between the two groups. Panel A is for the overall sample. Panel B reports results for firms in similar industry and Panel C exhibits differences between treatment and control firms having similar net worth, as discussed in section 4.5.2. FEO is the number of equity shares held by foreign non-promoters scaled by total number of equity shares held by all non-promoters. Insider is the number of equity shares held by promoters as a share of total number of equity shares. Size is the total assets from balance sheet of firms in million USD. Dividend is a yearly dummy variable of 1 for firms that paid dividend during that year, zero otherwise. Return is the annual stock return for investors. Price/Book is market price of equity divided by book. Turnover is the number of equity shares traded in a year scaled by the total number of equity shares of firms. Leverage is long term debt divided by total equity. Statistical significance is reported against 10% (*), 5% (**) and 1% (***)) significance levels

Panel A: All firms in the sample

	Control	Treatment	Difference	Std. Error	No. of Observations
<i>Number of Firms</i>	393	2438			
FEO	0.55	3.21	-2.66***	0.20	17470
Insider	54.38	48.64	5.75***	0.47	17470
Size	2.20	238.28	-236.07***	50.72	16538
Dividend	0.24	0.39	-0.15***	0.01	17470
Return	60.54	56.31	4.23	9.85	14209
Price-Book	1.29	1.59	-0.30*	0.16	14071
Turnover	0.12	1.17	-1.05	1.85	14209
Leverage	0.03	0.04	-0.00	0.03	13838

Panel B: Firms from similar industries

	Control	Treatment	Difference	Std. Error	No. of Observations
<i>Number of Firms</i>	389	1932			
FEO	0.56	2.49	-1.93***	0.17	14249
Insider	54.55	47.98	6.57***	0.49	14249
Size	2.22	54.00	-51.78***	5.07	13455
Dividend	0.24	0.34	-0.10***	0.01	14249
Return	59.76	57.66	2.10	10.98	11241
Price-Book	1.28	1.57	-0.29*	0.16	11115
Turnover	0.12	1.32	-1.20	2.12	11241
Leverage	0.03	0.03	0.01	0.01	10902

Panel C: Firms having similar net worth

	Control	Treatment	Difference	Std. Error	No. of Observations
<i>Number of Firms</i>	389	579			
FEO	0.56	0.30	0.26***	0.07	5845
Insider	54.55	42.49	12.06***	0.59	5845
Size	2.22	2.67	-0.45***	0.11	5468
Dividend	0.24	0.06	0.18***	0.01	5845
Return	59.76	55.80	3.95	8.02	3586
Price-Book	1.28	1.75	-0.47*	0.28	3500
Turnover	0.12	0.25	-0.13***	0.02	3586
Leverage	0.03	0.03	0.00	0.01	3801

Appendix 4: Yearly average foreign ownership of foreign insiders and foreign outsiders

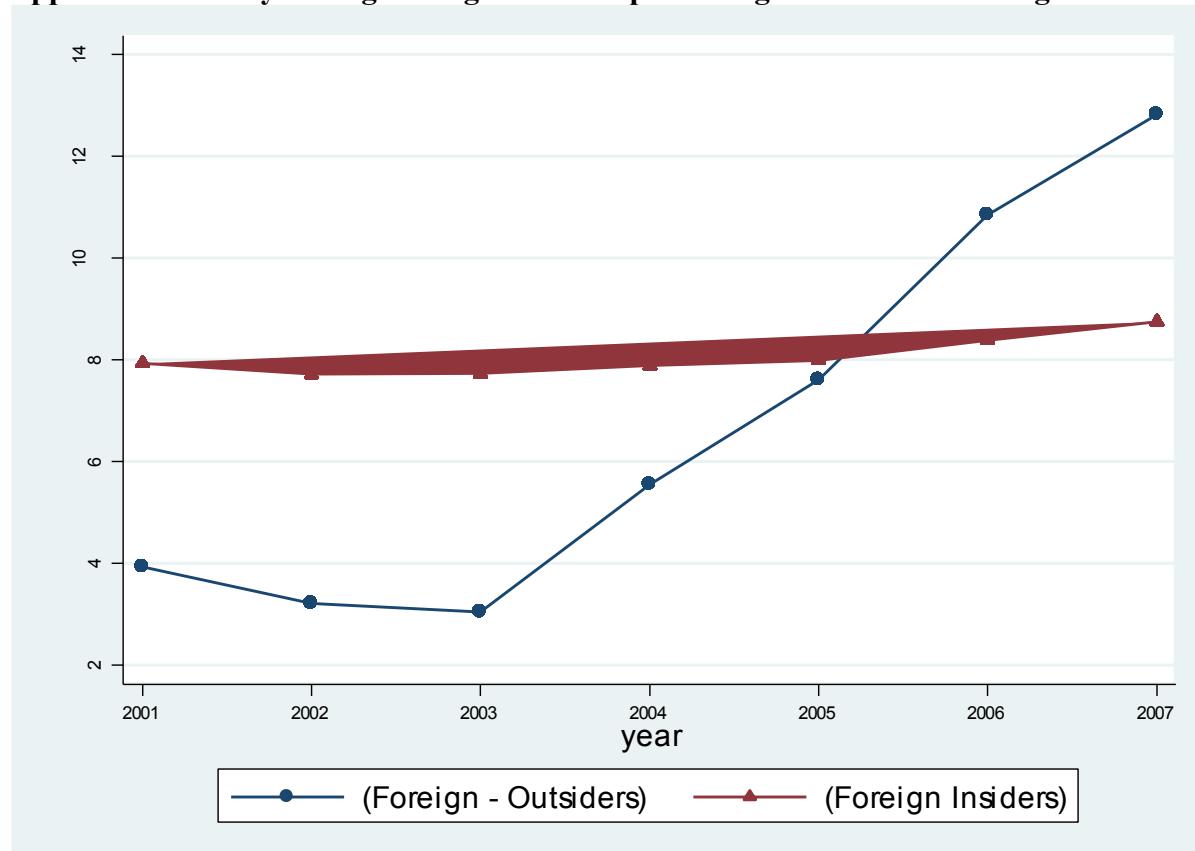


Table 1: Group and Year Summary Statistics

This table presents the summary statistics (Mean, Median, Standard Deviation and Number of observations) of all variables used in this study. Panel A presents the statistics by treatment, control and overall groups while Panel B reports the year wise statistics. FEO is the number of equity shares held by foreign non-promoters scaled by total number of equity shares held by all non-promoters. Insider is the number of equity shares held by promoters as a share of total number of equity shares. Insider² is quadratic form of Insider. Size is the total assets from balance sheet of firms in million USD. Dividend is a yearly dummy variable of 1 for firms that paid dividend during that year, zero otherwise. Return is the annual stock return for investors. Price/Book is market price of equity divided by book. Turnover is the number of equity shares traded in a year scaled by the total number of equity shares of firms. Leverage is long-term debt divided by total equity.

Panel A: Summary statistics by control and treatment groups

Group	Statistics	FEO	Insider	Size (USD	Dividend	Return	Price/Book	Turnover	Leverage
		(%)	(%)	million)	(0-1)	(%)	(times)	(%)	
	I	II	III	IV	V	VI	VII	VIII	
Control (393 firms)	No. of obs.	2306	2306	2141	2306	1059	1023	1059	1336
	Mean	0.55	54.38	2.20	0.24	60.54	1.29	0.12	0.032
	Median	0	54.87	0.99	0	16.11	0.66	0.01	0.009
	Std. Dev	2.56	25.62	3.18	0.43	187.38	2.15	0.33	0.15
Treatment (2438 firms)	No. of obs.	15164	15164	14397	15164	13150	13048	13150	12502
	Mean	3.21	48.64	238.28	0.39	56.31	1.59	1.17	0.036
	Median	0	49.73	10.63	0	12.39	0.69	0.14	0.012
	Std. Dev	9.46	20.33	2346.70	0.49	316.21	5.23	60.33	0.92
All firms	No. of obs.	17470	17470	16538	17470	14209	14071	14209	13838
	Mean	2.86	49.40	207.71	0.37	56.62	1.57	1.09	0.036
	Median	0	50.17	7.44	0	12.52	0.69	0.12	0.011
	Std. Dev	8.91	21.19	2190.96	0.48	308.46	5.07	58.03	0.88

Panel B: Year wise summary statistics

Year	Statistics	FEO (%) I	Insider (%) II	Size (USD million) III	Dividend (0-1) IV	Return (%) V	Price/Book (times) VI	Turnover (%) VII	Leverage VIII
2001	No. of obs.	2128	2128	1953	2128	1850	1810	1850	1755
	Mean	1.81	48.65	158.49	0.41	-12.52	1.51	0.33	0.05
	Median	0.00	49.17	8.45	0.00	-36.24	0.57	0.04	0.01
	Std. Dev	6.21	20.96	1558.82	0.49	174.56	4.41	1.91	0.74
2002	No. of obs.	2532	2532	2225	2532	2021	1962	2021	1929
	Mean	1.35	49.35	146.91	0.33	-8.25	0.83	0.34	0.08
	Median	0.00	49.89	6.59	0.00	-22.75	0.39	0.02	0.01
	Std. Dev	5.57	20.98	1609.90	0.47	110.17	1.61	2.47	2.22
2003	No. of obs.	2673	2673	2550	2673	2064	2042	2064	2126
	Mean	1.27	50.24	159.87	0.31	51.91	0.88	0.58	0.03
	Median	0.00	50.82	5.68	0.00	12.26	0.43	0.04	0.01
	Std. Dev	5.31	21.18	1701.84	0.46	533.67	2.45	4.53	0.16
2004	No. of obs.	2581	2581	2499	2581	2027	2025	2027	2059
	Mean	2.33	50.52	176.29	0.33	139.97	1.09	0.62	0.03
	Median	0.00	50.95	6.25	0.00	94.00	0.52	0.11	0.01
	Std. Dev	7.81	21.26	1888.70	0.47	439.03	2.95	2.79	0.18
2005	No. of obs.	2539	2539	2446	2539	2051	2045	2051	2006
	Mean	3.25	50.21	216.20	0.37	82.68	1.44	0.57	0.03
	Median	0.00	50.83	7.76	0.00	39.78	0.73	0.21	0.01
	Std. Dev	9.36	21.21	2240.72	0.48	214.32	4.25	1.04	0.13
2006	No. of obs.	2437	2437	2359	2437	2081	2078	2081	1943
	Mean	4.72	48.79	277.50	0.42	99.12	2.64	1.10	0.02
	Median	0.00	49.59	9.48	0.00	44.00	1.42	0.60	0.01
	Std. Dev	11.46	21.24	2738.95	0.49	223.76	9.63	1.55	0.11
2007	No. of obs.	2580	2580	2506	2580	2115	2109	2115	2020
	Mean	5.26	47.85	306.10	0.42	36.74	2.53	3.92	0.02
	Median	0.00	49.17	8.89	0.00	1.82	1.33	0.32	0.01
	Std. Dev	12.65	21.35	3000.97	0.49	164.50	5.11	150.29	0.04

Panel C: Summary statistics for Control firms – Pre (2001-2003) vs post (2004-2007) period

Year	Statistics	FEO (%) I	Insider (%) II	Size (USD million) III	Dividend (0-1) IV	Return (%) V	Price/Book (times) VI	Turnover (%) VII	Leverage VIII
2001-03	No. of obs.	967	967	828	967	431	398	431	561
	Mean	0.58	54.13	2.26	0.25	11.47	0.84	0.03	0.04
	Median	0.00	53.82	1.16	0.00	-7.69	0.51	0.00	0.01
	Std. Dev	3.18	25.49	3.22	0.43	113.67	1.08	0.10	0.21
2004-07	No. of obs.	1339	1339	1313	1339	628	625	628	775
	Mean	0.54	54.57	2.17	0.24	94.22	1.58	0.19	0.03
	Median	0.00	55.90	0.84	0.00	38.65	0.82	0.03	0.01
	Std. Dev	1.99	25.72	3.16	0.43	218.16	2.57	0.40	0.07

Panel D: Summary statistics for Treatment firms – Pre (2001-2003) vs post (2004-2007) period

Year	Statistics	FEO (%) I	Insider (%) II	Size (USD million) III	Dividend (0-1) IV	Return (%) V	Price/Book (times) VI	Turnover (%) VII	Leverage VIII
2001-03	No. of obs.	6366	6366	5900	6366	5504	5416	5504	5249
	Mean	1.59	48.76	176.65	0.36	11.33	1.08	0.45	0.05
	Median	0.00	49.76	9.44	0.00	-17.82	0.44	0.04	0.01
	Std. Dev	5.95	20.21	1740.40	0.48	348.43	3.12	3.34	1.41
2004-07	No. of obs.	8798	8798	8497	8798	7646	7632	7646	7253
	Mean	4.39	48.55	281.07	0.41	88.69	1.96	1.69	0.03
	Median	0.00	49.70	11.60	0.00	38.39	0.95	0.31	0.01
	Std. Dev	11.20	20.42	2687.70	0.49	286.49	6.29	79.06	0.13

Table 2: Univariate Difference-in-Differences (DiD)

This table shows the DiD results for the treatment and control groups. Treatment group firms are the ones subjected to clause 49 and its enforcement and firms in the control group do not comply. FEO is the number of equity shares held by foreign non-promoters scaled by total number of equity shares held by all non-promoters. Panel A reports the average FEO for both groups over the period of 2001-2003 and Panel B presents the average FEO over the period of 2004-2007.

Panel A:	Year 2001 - 2003			
Group	No. of observations	Mean FEO (%)	Std. Err.	t-statistics
Control	967	0.58	0.102	
Treatment	6366	1.59	0.075	
Difference		1.01	0.195	5.18

Panel B:	Year 2004 - 2007			
Group	No. of observations	Mean FEO (%)	Std. Err.	t-statistics
Control	1339	0.54	0.540	
Treatment	8798	4.39	0.119	
Difference		3.85	0.306	12.56
DiD		2.84		

Table 3: Regression of Enforcement of Corporate Governance on Foreign Equity Ownership (FEO)

This table shows the results from regression of FEO on independent and control variables as specified in specification 2 of the main text. Dependent variable is *FEO* which is the number of equity shares held by foreign non-promoters scaled by total number of equity shares held by all non-promoters. *Treat* is a dummy variable of 1 for firms subject to Clause 49, otherwise 0. *Clause* is a dummy variable of 1 for years 2004 and beyond when Clause 49 was strictly enforced. *Insider* is the number of equity shares held by promoters as a share of total number of equity shares. *Insider*² is quadratic form of *Insider*. *Size* is the total assets from balance sheet of firms, included in natural logarithm form of million USD. *Dividend* is a yearly dummy variable of 1 for firms that paid dividend during that year, zero otherwise. *Return* is the annual stock return for investors. *Price/Book* is market price of equity divided by book value of equity. *Turnover* is the number of equity shares traded in a year scaled by the total number of equity shares of firms. *Leverage* is long term debt divided by total equity. *GrFEO* is the yearly growth rate in *FEO* for firms. All continuous control variables are lagged by one year. Data are yearly and from 2001 to 2007. All estimates are reported with the standard errors corrected at firm level. Statistical significance is reported against 10% (*), 5% (**) and 1% (***) significance levels with *t*-statistics shown in brackets.

	I	II	III	IV	V	VI	VII	VIII
Clause*Treat	2.647*** (14.59)	2.656*** (14.19)	2.451*** (12.77)	2.440*** (12.71)	2.851*** (8.75)	2.849*** (8.62)	2.849*** (8.62)	2.724*** (10.74)
Insider		0.136*** (5.35)	0.133*** (5.03)	0.131*** (4.94)	0.166*** (5.15)	0.162*** (5.04)	0.162*** (5.03)	0.167*** (4.19)
Insider ²		-0.002*** (-6.70)	-0.002*** (-6.35)	-0.002*** (-6.28)	-0.003*** (-6.39)	-0.003*** (-6.33)	-0.003*** (-6.32)	-0.003*** (-5.66)
Size			3.534*** (10.61)	3.489*** (10.55)	3.993*** (10.30)	4.012*** (10.37)	4.015*** (10.37)	4.634*** (10.57)
Dividend				0.419 (1.57)	0.215 (0.75)	0.192 (0.67)	0.195 (0.68)	-0.0314 (-0.10)
Return					0.0004** (2.15)	0.0003** (2.09)	0.0003** (2.09)	0.0004** (2.15)
Price/Book						0.087** (2.31)	0.087** (2.31)	0.075** (2.09)
Turnover							0.002*** (6.89)	0.002*** (7.23)
Leverage								-0.045*** (-4.51)
GrFEO	YES	YES	YES	YES	YES	YES	YES	YES
Firm Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
Constant	-47.25** (-2.07)	-47.00** (-2.07)	-61.48*** (-3.18)	-61.54*** (-3.19)	-73.44*** (-3.23)	-73.71*** (-3.24)	-73.27*** (-3.24)	-80.46*** (-3.30)
Adj. R ²	0.096	0.110	0.158	0.159	0.178	0.181	0.181	0.197
No. of obs.	17470	17470	16538	16538	13576	13535	13535	11871

Table 4: Regression of Enforcement of Corporate Governance on Foreign Equity Ownership (FEO): Industry-Year Fixed Effects

This table shows results from regression of FEO on independent and control variables as specified in specification 2 in the main text but with the year fixed effects replaced by Industry-year fixed effects. Dependent variable is *FEO* which is the number of equity shares held by foreign non-promoters scaled by total number of equity shares held by all non-promoters. *Treat* is a dummy variable of 1 for firms subject to Clause 49, otherwise 0. *Clause* is a dummy variable of 1 for years 2004 and beyond when Clause 49 was strictly enforced. *Insider* is the number of equity shares held by promoters as a share of total number of equity shares. *Insider*² is quadratic form of *Insider*. *Size* is the total assets from balance sheet of firms, included in natural logarithm form of million USD. *Dividend* is a yearly dummy variable of 1 for firms that paid dividend during that year, zero otherwise. *Return* is the annual stock return for investors. *Price/Book* is market price of equity divided by book value of equity. *Turnover* is the number of equity shares traded in a year scaled by the total number of equity shares of firms. *Leverage* is long term debt divided by total equity. *GrFEO* is the yearly growth rate in *FEO* for firms. All continuous control variables are lagged by one year. Data is yearly and is from 2001 to 2007. All estimates are reported with the standard errors corrected at firm level. Statistical significance is reported against 10% (*), 5% (**) and 1% (***) significance levels with *t*-statistics shown in brackets.

	I	II	III	IV	V	VI	VII	VIII
Clause*Treat	1.523*** (7.79)	1.533*** (7.71)	1.588*** (7.24)	1.579*** (7.20)	2.233*** (4.93)	2.261*** (5.54)	2.257*** (5.54)	2.197*** (5.46)
Insider		0.106*** (3.82)	0.112*** (3.88)	0.110*** (3.80)	0.142*** (6.98)	0.140*** (3.93)	0.140*** (3.92)	0.151*** (3.38)
Insider ²		-0.002*** (-5.49)	-0.002*** (-5.51)	-0.002*** (-5.45)	-0.002*** (-10.42)	-0.002*** (-5.58)	-0.002*** (-5.57)	-0.003*** (-5.09)
Size			3.181*** (9.45)	3.121*** (9.40)	3.705*** (21.48)	3.726*** (9.47)	3.727*** (9.47)	4.506*** (10.18)
Dividend				0.597** (2.14)	0.436** (2.04)	0.415 (1.40)	0.419 (1.41)	0.221 (0.71)
Return					0.0003 (1.60)	0.0003* (1.67)	0.0003* (1.67)	0.0003 (1.63)
Price/Book						0.076** (2.28)	0.076** (2.28)	0.061** (2.14)
Turnover							0.002*** (5.43)	0.002*** (2.88)
Leverage								-0.033** (-2.33)
GrFEO	YES	YES	YES	YES	YES	YES	YES	YES
Firm Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
Year * Industry Fixed	YES	YES	YES	YES	YES	YES	YES	YES
Adj. R ²	0.637	0.642	0.662	0.662	0.667	0.664	0.664	0.672
No. of obs.	17230	17230	16288	16288	13213	13177	13177	11484

Table 5: Regression of Enforcement of Corporate Governance on Foreign Equity Ownership (FEO): Comparable Treatment and Control Groups

This table shows the results from regression of FEO on independent and control variables as specified in specification 2 for comparable treatment and control firms. Dependent variable is *FEO* which is the number of equity shares held by foreign non-promoters scaled by total number of equity shares held by all non-promoters. *Treat* is a dummy variable of 1 for firms subject to Clause 49, otherwise 0. *Clause* is a dummy variable of 1 for years 2004 and beyond when Clause 49 was strictly enforced. *Insider* is the number of equity shares held by promoters as a share of total number of equity shares. *Insider*² is quadratic form of *Insider*. *Size* is the total assets from balance sheet of firms, included in natural logarithm form of million USD. *Dividend* is a yearly dummy variable of 1 for firms that paid dividend during that year, zero otherwise. *Return* is the annual stock return for investors. *Price/Book* is market price of equity divided by book value of equity. *Turnover* is the number of equity shares traded in a year scaled by the total number of equity shares of firms. *Leverage* is long term debt divided by total equity. *GrFEO* is the yearly growth rate in *FEO* for firms. All continuous control variables are lagged by one year. Data is yearly and is from 2001 to 2007. All estimates are reported with the standard errors corrected at firm level. Statistical significance is reported against 10% (*), 5% (**), and 1% (***), significance levels with *t*-statistics shown in brackets.

	I Firm and Year Fixed All Industry	II Firm and Year Fixed Similar Industry	III Firm and Industry*Year Fixed All Industry	IV Firm and Industry*Year Fixed Similar Industry	V Based on Propensity Score Matching
Clause*Treat	0.449** (2.22)	0.597** (2.00)	0.597** (2.00)	0.691** (2.10)	1.225*** (6.33)
Insider	-0.034 (-1.50)	-0.010 (-0.48)	-0.010 (-0.48)	-0.025 (-1.16)	0.0836*** (2.59)
<i>Insider</i> ²	0.000166 (0.75)	-0.000 (-0.80)	-0.000 (-0.80)	0.000 (0.65)	-0.00167*** (-4.08)
Size	1.308*** (2.86)	1.321*** (2.98)	1.321*** (2.98)	0.802*** (2.92)	3.408*** (8.39)
Dividend	0.579 (1.52)	0.655 (1.62)	0.655 (1.62)	0.491 (1.45)	0.478* (1.79)
Return	0.001 (1.05)	0.001 (1.03)	0.001 (1.03)	0.000 (0.95)	0.000338* (1.81)
Price/Book	0.006 (0.56)	0.009 (1.08)	0.009 (1.08)	0.003 (0.34)	0.0733** (2.06)
Turnover	0.336* (1.81)	0.363* (1.78)	0.363* (1.78)	0.443** (2.23)	0.165 (0.70)
Leverage	-0.059*** (-9.14)	0.324 (0.97)	0.324 (0.97)	0.852 (0.97)	-0.0604*** (-4.46)
GrFEO	YES	YES	YES	YES	YES
Firm Fixed Effects	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	NO	NO	YES
Year*Industry Fixed	NO	NO	YES	YES	NO
Adj. R ²	0.063	0.071	0.353	0.322	0.132
No. of obs.	2700	2531	2373	2324	9888

Table 6: Regression of Enforcement of Corporate Governance on Foreign Equity Ownership (FEO): Addressing Possibility of False Experiment

This table shows the regression results from regression of FEO on independent and control variables (as specified in specification 2) addressing the possibility of false experiment. Column I and II show results from false experiment and Column III shows regular results for comparison. Dependent variable is *FEO* which is the number of equity shares held by foreign non-promoters scaled by total number of equity shares held by all non-promoters. *Treat* is a dummy variable of 1 for firms subject to Clause 49, otherwise 0. *ClauseF* is a dummy variable of 1 for years 2003 and beyond. *Clause* is a dummy variable of 1 for years 2004 and beyond when Clause 49 was strictly enforced. *Insider* is the number of equity shares held by promoters as a share of total number of equity shares. *Insider*² is quadratic form of *Insider*. *Size* is the total assets from balance sheet of firms, included in natural logarithm form of million USD. *Dividend* is a yearly dummy variable of 1 for firms that paid dividend during that year, zero otherwise. *Return* is the annual stock return for investors. *Price/Book* is market price of equity divided by book value of equity. *Turnover* is the number of equity shares traded in a year scaled by the total number of equity shares of firms. *Leverage* is long term debt divided by total equity. *GrFEO* is the yearly growth rate in *FEO* for firms. All continuous control variables are lagged by one year. Data is yearly and is from 2001 to 2007. All estimates are reported with the standard errors corrected at firm level. Statistical significance is reported against 10% (*), 5% (**) and 1% (***) significance levels with *t*-statistics shown in brackets.

	I False experiment: Year<=2004	II False experiment: Year<=2003	III Normal: Year <=2004
ClauseF*Treat	0.262 (1.24)	-0.132 (-0.49)	
Clause*Treat			0.863*** (5.05)
Insider	0.134*** (4.02)	0.051* (1.75)	0.134*** (4.01)
Insider ²	-0.002*** (-4.62)	-0.001* (-1.84)	-0.002*** (-4.60)
Size	1.586*** (4.37)	0.415* (1.75)	1.580*** (4.35)
Dividend	0.250 (1.26)	-0.135 (-0.77)	0.238 (1.20)
Return	0.000 (1.60)	0.000* (1.66)	0.000 (1.61)
Price/Book	0.047 (1.35)	0.002 (0.06)	0.047 (1.35)
Turnover	0.129 (1.42)	-0.063 (-0.61)	0.129 (1.42)
Leverage	-0.011 (-0.59)	-0.003 (-0.19)	-0.011 (-0.59)
GrFEO	YES	YES	YES
Firm Fixed Effects	YES	YES	YES
Year Fixed Effects	YES	YES	YES
Constant	-108.400*** (-4.95)	-4.250 (-0.92)	-108.200*** (-4.95)
Adj. R ²	0.100	0.011	0.101
No. of obs.	6643	4934	6643

Table 7: Regression Discontinuity

This table shows the results for first-differenced regression discontinuity (specification 3). Column I and II show results from the entire sample; Column III shows results for firms in similar industries between control and treatment firms; Column IV shows results for comparable firms in control and treatment firms as described in section 4.5.2 of the text. Dependent variable is *FEO* which is the number of equity shares held by foreign non-promoters scaled by total number of equity shares held by all non-promoters. *Treat* is a dummy variable of 1 for firms subject to Clause 49, otherwise 0. *Paid up capital* is the paid up capital in INR million for firms in 2004. *Net worth* is the maximum net worth of firms in INR million during 2001 to 2004. *Insider* is the number of equity shares held by promoters as a share of total number of equity shares. *Insider*² is quadratic form of *Insider*. *Size* is the total assets from balance sheet of firms, included in natural logarithm form of million USD. *Dividend* is a yearly dummy variable of 1 for firms that paid dividend during that year, zero otherwise. *Return* is the annual stock return for investors. *Price/Book* is market price of equity divided by book value of equity. *Turnover* is the number of equity shares traded in a year scaled by the total number of equity shares of firms. *Leverage* is long term debt divided by total equity. All dependent, independent and control variables, except *Paid up Capital* and *Net worth*, are taken as the change in the values in 2004 with respect to year 2003. Standard errors are corrected for heteroskedasticity using White-Huber sandwich estimator. Statistical significance is reported against 10% (*), 5% (**) and 1% (***) significance levels with *t*-statistics shown in brackets.

	I	II	III	IV
Clause 49 Group	0.711*** (3.43)	0.299** (2.24)	0.217** (2.63)	0.239* (1.70)
Paid-up Capital	-0.000 (-0.09)	-0.000 (-1.31)	-0.000*** (-4.30)	0.002 (0.97)
Net worth	0.000*** (2.72)	0.000*** (3.16)	0.000*** (6.02)	0.000 (0.78)
Insider	0.104 (1.35)	0.112 (1.37)	0.0364 (0.60)	-0.0422 (-1.53)
Insider ²	-0.002** (-2.27)	-0.002** (-2.18)	-0.001 (-1.62)	0.0008* (1.67)
Size	2.414*** (2.72)	2.009*** (3.07)	2.024** (2.31)	0.545** (2.15)
Dividend	0.538 (1.25)	0.533 (1.21)	0.906* (1.78)	0.171 (0.94)
Returns	0.0002 (1.13)	0.0001 (1.48)	0.0000 (0.41)	0.0008 (0.83)
Price-Book	0.624** (2.25)	0.601 (1.65)	0.627* (1.95)	0.153 (0.85)
Turnover	0.420* (1.67)	0.304 (0.70)	0.128 (0.45)	0.523 (0.60)
Leverage	-0.371 (-1.16)	0.0222 (0.06)	-1.162 (-1.10)	-0.560 (-1.37)
Industry Fixed	Yes	No	No	No
Adjusted R ²	0.119	0.231	0.136	0.109
Number of obs.	1502	1485	1133	304

Table 8: Regression: Treatment firms with different levels of insider ownership

This table shows the results from regression of FEO on independent and control variables as specified in specification 2 of the main text. Treatment firms are divided into three separate groups based on the level of insider ownership. Dependent variable is *FEO* which is the number of equity shares held by foreign non-promoters scaled by total number of equity shares held by all non-promoters. *Treat* is a dummy variable of 1 for firms subject to Clause 49, otherwise 0. *Clause* is a dummy variable of 1 for years 2004 and beyond when Clause 49 was strictly enforced. *Insider* is the number of equity shares held by promoters as a share of total number of equity shares. *Insider²* is quadratic form of *Insider*. *Size* is the total assets from balance sheet of firms, included in natural logarithm form of million USD. *Dividend* is a yearly dummy variable of 1 for firms that paid dividend during that year, zero otherwise. *Return* is the annual stock return for investors. *Price/Book* is market price of equity divided by book value of equity. *Turnover* is the number of equity shares traded in a year scaled by the total number of equity shares of firms. *Leverage* is long term debt divided by total equity. *GrFEO* is the yearly growth rate in *FEO* for firms. All continuous control variables are lagged by one year. Data are yearly and from 2001 to 2007. All estimates are reported with the standard errors corrected at firm level. Statistical significance is reported against 10% (*), 5% (**) and 1% (***) significance levels with *t*-statistics shown in brackets.

	I Full Insider Control	II Full Insider Control	III Moderate Control	IV Moderate Control	V Low Insider Control	VI Low Insider Control
Clause*Treat	2.925*** (7.93)	2.225*** (3.60)	2.888*** (5.34)	1.315* (1.84)	1.958*** (3.51)	0.193 (0.24)
Insider	0.273*** (2.95)	0.083 (0.78)	0.052 (0.57)	0.046 (0.48)	0.180*** (2.70)	0.192** (2.32)
Insider ²	-0.004*** (-4.00)	-0.002** (-1.98)	-0.002 (-1.24)	-0.002 (-1.24)	-0.003*** (-2.86)	-0.003** (-2.50)
Size	4.281*** (6.57)	4.455*** (6.93)	5.453*** (6.92)	5.157*** (5.77)	4.450*** (4.89)	3.609*** (3.67)
Dividend	-0.634 (-1.63)	-0.221 (-0.52)	0.226 (0.38)	-0.107 (-0.16)	0.665 (0.90)	2.256** (2.25)
Return	0.001 (1.50)	0.001** (2.25)	0.002** (2.12)	0.002* (1.68)	0.002 (1.60)	0.000 (0.41)
Price/Book	0.037 (1.62)	0.034 (1.55)	0.673*** (3.02)	0.486** (1.98)	0.339** (2.56)	0.225 (1.62)
Turnover	0.278 (0.83)	0.261 (0.66)	-0.033 (-0.48)	-0.053 (-0.87)	-0.0001 (-0.07)	-0.094 (-1.44)
Leverage	-0.047*** (-5.07)	-0.023 (-1.41)	-0.090** (-2.23)	-0.144*** (-3.49)	-0.014 (-0.00)	1.730 (0.35)
GrFEO	YES	YES	YES	YES	YES	YES
Firm Fixed Effects	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	NO	YES	NO	YES	NO
Year*Industry Fixed	NO	YES	NO	YES	NO	YES
Adj. R ²	0.195	0.669	0.232	0.546	0.210	0.749
No. of obs.	6078	5798	3453	3171	2340	2017

Figure 1: History of Clause 49

The figure provides a timeline for the implementation of the Clause by each group. The figure of one crore refers to 10 million.

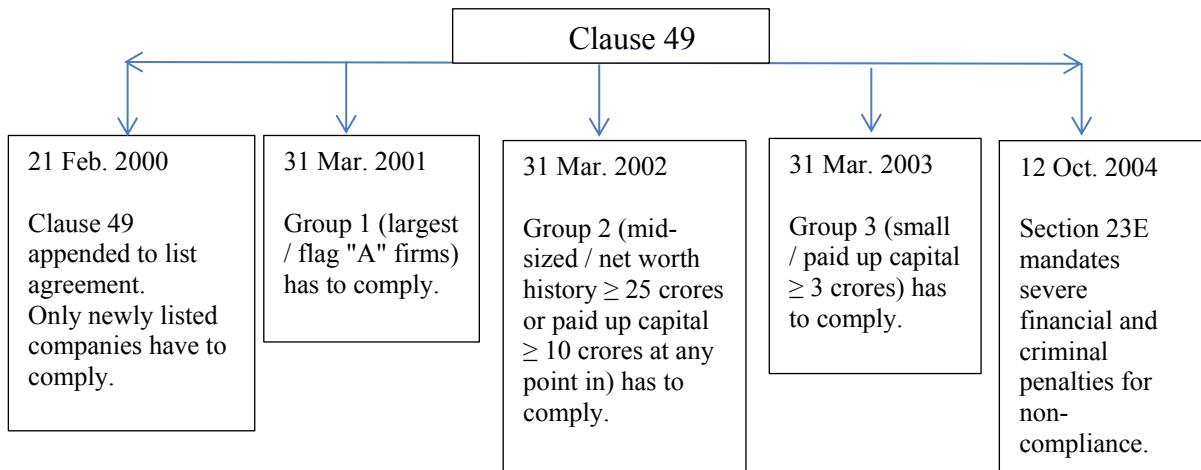


Figure 2: Comparative Yearly average FEO of Treatment and Control Groups for Years 2001-2007
 FEO is the percentage of equity shares held by foreign non-promoters relative to total shares held by all non-promoters. Treatment firms are subject to Clause 49 and its enforcement while Control firms are not. 2004 pertains to the start of the stricter enforcement of Clause 49.

