CAN CORPORATE GOVERNANCE REFORMS INCREASE FIRMS' MARKET VALUES: EVIDENCE FROM INDIA

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ABSTRACT

There is an overall correlation between a country's level of investor protection and the strength of its capital markets, but limited research on which specific reforms affect firms' market values. We study here India's adoption in 2000 of reforms (Clause 49) which, among other things, required audit committees, a minimum number of independent directors, disclosure of executive compensation, and CEO/CFO certification of internal controls. The reforms were sponsored by the Confederation of Indian Industry (an organization of large Indian public firms). They applied initially to larger firms, and reached smaller public firms only after a several-year lag. This difference in effective dates offers a natural experiment: If investors consider the reforms to be valuable (or more valuable for larger firms), large firms' share prices should react positively to key adoption events, relative to small firms (which form a control group for other changes in the Indian economy). The May 1999 announcement by Indian securities regulators of plans to adopt what became Clause 49 boosted the prices of the large firms to which they were expected to apply by roughly 4-5% over a 3-day event window, relative to smaller public firms. Mid-sized firms had an intermediate reaction.

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I. INTRODUCTION

A substantial literature evaluates the effect of countries' overall corporate governance on share prices, stock market size, ownership concentration, and firm behavior.[1] Much less is known, especially in emerging markets, about how specific legal reforms affect firm values. In this paper we conduct an event study of the 2000 adoption by India's securities regulator (Securities and Exchange Board of India, or *SEBI*) of Clause 49 (an important set of corporate governance reforms).

The manner of adoption of Clause 49 lends itself to an event study. Clause 49 closely follows a 1998 proposed Code of Corporate Governance, sponsored by the Confederation of Indian Industry (*CII*, an organization of large Indian public firms). CII proposed that important aspects of the Code would apply only to larger firms. The actual reforms applied initially to larger firms, next to mid-sized firms, and reached smaller public firms only after a several-year lag.

The earlier application of Clause 49 to large firms offers a natural experiment: If investors consider the reforms to be valuable (or more valuable for larger firms), large firms' share prices should react positively to key adoption events, relative to small firms. The small firms offer a control group for other changes in the Indian economy. We identify one clean event date -- the May 7, 1999 announcement by SEBI of its plans to adopt what became Clause 49. The share prices of the large firms, to which the reforms were expected to apply, rose by roughly 4.5% over a 3-day (0,+2) event window, relative to smaller public firms. Mid-sized firms, for whom application of the reforms was initially unclear (and was later delayed by 2 years), had a positive but smaller reaction to this announcement, relative to small firms. Small firms, who were initially less likely to be affected by the reforms (and for whom application was later delayed by 5 years), also had positive returns over this event window, but these may have been due to factors other than the reforms. These results hold up under a variety of robustness tests. Overall, we report evidence consistent with the Clause 49 reforms increasing the market values of larger Indian public firms.

A number of the Clause 49 reforms are similar to those in the 2002 Sarbanes-Oxley Act in the U.S. (SOX). Appendix A summarizes Clause 49 and compares it to SOX. Some legal scholars have argued that SOX is regulatory overkill (for example, Romano, 2005; Ribstein, 2002, 2003). Litvak (2006) finds a negative reaction to key adoption events for cross-listed firms (to which SOX applies), relative to a control sample of non-cross-listed firms; this reaction is concentrated in firms with better disclosure and countries that likely to have better corporate governance (India had neither at the time). Our results, consistent with Litvak's, suggest that similar reforms may have different effects, depending on the institutional environment of the country which adopts them.

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[1] See, for example, La Porta, Lopes-de-Silanes and Shleifer (2006) and earlier papers by these authors; Durnev and Kim (2005); [others to come].

We begin in Part II by surveying the related literature. Part III describes the history of the adoption of Clause 49. Part IV describes the sample. Part V details our hypotheses and methodology. Part VI provides results. Part VII concludes.

II. RELATED LITERATURE

A. Studies of Specific Legal Reforms

This paper examines whether a package of mostly mandatory governance reforms affects firms' market value in India. The directly related literature is limited, especially in emerging markets. The LLSV series of papers and related literature provides evidence that a country's overall legal environment, and level of investor protection, correlate with outcomes in securities markets, including equity market size/GDP, number of IPOs, ownership concentration, and dividend policy.[2] However, this literature does not study the impact of specific legal reforms and cannot say much about causation, because omitted or general country factors (e.g., civil versus common law) could predict both legal environment and capital market outcomes. This literature thus leaves open the policy question of the desirability of particular reforms.

With regard to specific legal reforms, a few papers examine U.S. legislative actions, typically seeking to limit takeovers. Mitchell and Netter (1989) examine whether an aborted effort to restrict takeovers through tax-law changes contributed to the 1987 stock market crash. Karpoff and Malatesta (1995) study Pennsylvania's adoption of an extremely strong antitakeover law. Daines (200x) studies Massachusetts' adoption of an antitakeover law making staggered boards mandatory. All three find negative share price reactions to restrictions on takeover activity. However, these studies are of limited relevance outside the U.S., because most firms have controlling owners and hostile takeovers are essentially non-existent.

A few U.S. papers also examine the adoption of mandatory disclosure rules. Oyer, Greenstone and Vissing-Jorgensen (2005) report evidence that the 1964 extension of mandatory disclosure requirements to large NASDAQ firms predicts positive returns to firms that had not previously voluntarily met the disclosure requirements; Ferrell (2004) reports that this extension reduced share price volatility; Daines and Jones (2006) report that the initial adoption of the Securities Exchange Act of 1934 predicted a decline in bid-ask spreads for firms that had not previously been disclosing full financial information.

Outside the U.S., Black, Jang and Kim (2006) and Black, Kim, Jang and Park (2006) report evidence that the 2001 Korean governance reforms, which applied only to large public firms, predict higher market values for these firms compared to smaller public firms. Atanasov, Black, Ciccotello and Gyoshev (2007) report that 2002 Bulgarian reforms which restrict financial tunneling improve share prices, especially for firms with private controlling owners, which face higher tunneling risk than other firms. Nenova (2005) reports that Brazilian legal changes to weaken takeout rights on a change of control increase the value of control as a fraction of firm value; subsequent restoration of these rights reduced the value of control back to its original level.

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[2] See, for example, La Porta, Lopes-de-Silanes and Shleifer (2006); [other cites to come; review Durnev and Kim, Klapper and Love to see what they say about country effects; Doidge, Karolyi and Stulz (2004)].

Litvak (2006) studies market reaction to the adoption of SOX, and find a negative reaction of cross-listed companies subject to SOX, compared to control group of non-cross listed companies and cross-listed companies not subject to SOX, from the same country. This reaction is stronger for already high-disclosing firms, and weaker for faster growing firms.

Studies of specific governance reforms are scarce for two principal reasons. First, news about legislation often emerges gradually, making it hard to identify an event date or a relatively short event period (Bhagat and Romano, 2002, 2002a). Even if a limited event period can be found, there is often no control group of companies to which the law does *not* apply, or applies differentially. In our study, the delayed application of Clause 49 to smaller Indian firms provides the necessary control group.

B. **Related Research**

A related body of research studies the effect of decisions by firms in emerging markets to cross-list their shares on major world exchanges. Cross-listing generally predicts an increase in share price. An important driver of this increase appears to be compliance by cross-listed companies with stricter disclosure rules (e.g., Lang, Lins and Miller, 2003; Doidge, Karolyi and Stulz, 2004; Reese and Weisbach, 2003).

Several studies examine corporate governance in India generally. Three studies – World Bank (2005), Sarkar & Sarkar (2000), and Mohanty (2003) – examine how firm-level governance influences the behavior of institutional investors, or vice-versa. Mohanty (2003), who finds that institutional investors own a higher percentage of the shares of better-governed firms.

Bhattacharyya and Rao (2005) examine whether the adoption of Clause 49 led to a reduction in the share price volatility and returns of large firms (those required to comply by March 31, 2001). They compare volatility and returns during a one-year period after adoption (June 1, 2001 to May 31, 2002) to a similar period before adoption (June 1, 1998 to May 31, 1999). The logic is that Clause 49 requires greater disclosure and should reduce information asymmetry and thereby reduce the volatility of the firms to which it applies. Share prices would increase when risk drops, but expected returns would thereafter be lower. The authors find no difference in standard deviation of returns (volatility is lower post-adoption for all firms, whether subject to Clause 49 or not, by similar amounts), and mixed results for share price returns (returns are lower after adoption for the largest firms to which Clause 49 applies, but positive to a second set of smaller firms which are still subject to Clause 49.

This study is subject to methodological concerns. First, they rely on returns relative to a capitalization-weighted market index, which is dominated by the firms they study. They are thus studying, in effect, whether there is a difference in volatility or returns between an equal-weighted portfolio of large firms and a capitalization-weighted portfolio of large firms, rather than whether there is a difference between returns to large firms and other firms. Second, firm size could predict both volatility and returns for a number of reasons, of which Clause 49 is only one. (This concern applies to our paper as well, we address it by conducting robustness checks with size-based portfolios).[3]

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[3] The authors also study whether firm betas change after adoption of Clause 49. Their reasons for expecting a change in beta are unclear to us.

III. EVENT HISTORY & CORPORATE GOVERNANCE REFORM IN INDIA

A. Overview of Indian Corporate Governance

To provide context for our choice of event dates, we begin with a quick overview of corporate governance reform in India (for details, see Goswami, 2003; Chakrabarti, 2005; Khanna, 2007). Prior to the adoption of Clause 49, India was considered a laggard in corporate governance. From 1947 (independence) through 1991, the Indian government pursued socialist policies leading to the growth of the state owned sector. The state nationalized most banks, and became the principal provider of both debt and equity capital for privately controlled firms. The performance of the government agencies who provided capital to private firms was assessed based not on the productivity of the capital they invested but rather on the total amount of capital employed. This created little incentive for managers of private firms to voluntarily adopt good governance practices. At many firms government funds were basically stolen. Moreover, private providers of debt and equity capital faced serious obstacles to exercising oversight over managers due to long delays in both judicial proceedings and the bankruptcy process. Indian corporate governance, which was considered to be comparable to that of British firms at independence, deteriorated.

In 1991 the government faced a fiscal crisis. It responded by enacting a series of reforms including reduction in state-provided financing, bank privatization, and general liberalization of the economy. SEBI -- India's securities market regulator – was formed in 1992. By the mid-1990s, the Indian economy was growing steadily, and Indian firms began to seek capital to finance expansion into the market spaces created by liberalization and the growth of outsourcing.

The need for capital, amongst other things, led to forays into corporate governance reform. The first major step was CII's promulgation in 1998 of a voluntary Corporate Governance Code. The core provisions of the Code were expected to apply only to large Indian firms. A handful of major firms voluntarily adopted the CII principles,[4] but general opinion was that the voluntary approach was insufficient to persuade outside investors to invest in Indian firms.

A year later, SEBI announced the formation of the Kumarmangalam Birla Committee (KMBC), which was tasked with proposing reforms to enhance corporate governance. These reforms, implemented through stock exchange listing requirements, became Clause 49. Although other reforms followed this, the adoption of Clause 49 was viewed as a watershed event in Indian corporate governance.

The announcement of the creation and membership of the KMBC occurred on May 7, 1999. The committee's tentative recommendations were issued on September 30, 1999, only five months later -- a stunningly short period for India. The committee issued its final report on Jan. 26, 2000; its proposals were adopted by SEBI almost immediately, and became effective for large firms one year later, on March 31, 2001. The principal elements of Clause 49 are summarized in Appendix A. Firms that failed to meet these requirements can be delisted and by 2004 could also face potential financial penalties.[5]   The implementation of Clause 49 was staggered, with large firms (included in "Group A" on the

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[4] We identify these as early adopters later in the paper for robustness checks.

[5] Financial penalties were added in 2004. [Cite to Section 23 E of 2004 Act].

Bombay Stock Exchange (BSE)) required to comply first, followed by medium-sized firms, and then small firms.

B. Potential Event Dates

We examine the impact of Clause 49 on firms' market values by conducting an event study, treating the small firms as a control group. The key step is to identify relevant event dates. We collect information on potential event dates and confounding events through a detailed search of stories in three leading Indian newspapers (*Indian Express, Economic Times of India,* and *Asia Pulse*), plus the *Financial Times*, from January 1999 through February 2000.[6] We identify six relevant dates: May 7, 1999 (formation of the KMBC); June 11, 1999 (first news reports about KMBC plans); September 30, 1999 (draft KMBC report issued); October 14, 1999 (SEBI announces that it will promptly adopt the KMBC recommendations), January 26, 2000 (final KMBC report issued), and Feb. 21, 2000 (SEBI adopts Clause 49). The last two are inappropriate for an event study because they conveyed little new information to the market: The final KMBC report was similar to the draft report, and SEBI implementation was expected. We consider the suitability of the first four dates below. Table 1 summarizes these dates and the principal confounding events.

May 7, 1999 is the core event date for this study. It is when the Government announced its support for governance reforms to be implemented by SEBI, and SEBI announced the formation of the KMBC.[7] We found no prior stories discussing SEBI's plans, although a May 5, 1999 story reports that CII was lobbying SEBI to undertake governance reforms.[8] There are reasons for thinking that May 7 is the first date when investors had reason to expect corporate governance reform. There is also reason to believe that investors would have anticipated the likely contents of the reform, and would have expected that some reforms would apply only -- or perhaps earlier -- to large firms.

First, corporate governance reform efforts in India were largely triggered by CII's promulgation of its Corporate Governance Code in 1998, which CII then followed up by lobbying SEBI to implement mandatory reforms -- presumably consistent with the CII Code. CII support for the reforms both indicates their likely content and meant that adoption was probable. Much like the Business Roundtable in the U.S., major Indian firms were the interest group most likely to oppose corporate governance reform. Instead, CII had initiated the reform effort. Moreover, investors had reason to expect the KMBC proposals to be similar to the CII Code. This was because the CII Code was a natural starting place for the Committee's efforts; partly because both the Committee and SEBI would have reason to take the path of low resistance by proposing reforms that CII would

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[6] We searched from 1997 until 2003.

[7] *See Finance Ministry to Chalk Out Code for Corporate Governance*, INDIAN EXPRESS, May 7, 1999.

[8] Moreover, just two days before the May 7, 1999 event date the CII was known to be lobbying the government to take some action on corporate governance reform. *See* Abhinada Das, *CII to Urge SEBI, BSE to make Corporate Governance Must for Listings*, INDIAN EXPRESS, May 5, 1999.

It is noteworthy that this is rather exceptional in terms of how corporate governance reform usually comes about. Normally industry opposes such reform and reform normally occurs when this opposition is trumped by salient scandals that motivate legislators and regulators to respond in order to appease public sentiments. For example, Korean industry generally opposed their governance reform. FKI in Korea cite opposing reforms (get cites). In US the enactment of SOX (Khanna (2004), Romano (2005)).

support, partly because the May 7 stories were somewhat detailed in outlining likely reforms (which were consistent with the CII Code), and also because members of the Committee were influential members within CII. Thus, it seems reasonable to think that the market would have taken the May 7, 1999 announcement by the Government as an indication that corporate governance reform was likely to happen, to happen soon given the lack of significant opposition, and would take a form similar to the CII Code (as, in fact, it did).

Although the CII Code did not have a phased implementation schedule based on firm size, a number of its principal provisions applied only to companies with annual turnover of at least Rs. 1 billion (about $22 million), and one of the May 7 news stories suggests that CII thought that some rules should apply only to larger firms and that smaller firms should have more time to comply. The KMBC later recommended, and Clause 49 contains, a phased implementation schedule, with the smallest firms being given 3 years to comply, a deadline that was later extended by an additional two years. We believe that investors would reasonably expect, at May 7, 1999, some difference in rules, or else a different implementation schedule, between large and small firms, but might be uncertain about whether or when the rules would apply to mid-sized firms. Finally, there are no news stories on or near May 7, 1999 that suggest the presence of confounding events.

The KMBC held its first meeting on June 4, 1999. The next potential event date is June 10-11, 1999. These are the first dates on which we found news reports about the recommendations that the KMBC was expected to make.[9] However, June 10-11, 1999 is not a reliable event date because of confounding events. These dates were in the middle of sharp market drop, reflecting increased tension between India and Pakistan over Kashmir, with peace talks suspended upon the discovery of mutilated Indian corpses.[10] Indeed, there are reasons for thinking these confounding events would differentially affect large and small firms. Moreover, if we are correct in our assessment of how investors would have understood the May stories, there was little new information in the June stories. The details offered in these stories are consistent with the CII Code and the May stories.

The next potential event date is September 30, 1999, when the KMBC released its draft recommendations.[11] As expected, the recommendations were patterned closely on the CII Code. The rapid issuance of the KMBC draft confirmed to investors that reform was on a fast track. It also included KMBC's proposal for a phased implementation, with the roughly 200 Group A firms complying by 2001, followed by the mid-sized firms in 2002, and the small firms in 2003 (this date was later extended to 2005). The very smallest firms were exempted altogether. Appendix B contains the Clause 49 effective dates for different groups of firms.

However, this event date is also subject to confounding events. September 30, 1999 was in the middle of the 3-week voting period for national elections that would determine which coalition would govern India for the next five years and how fast liberalization would

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[9] *See* Vivek Law, *SEBI Weighs Plan to Bring FIs Under Takeover Code Ambit*, INDIAN EXPRESS, June 11, 1999; *See* Vivek Law, *SEBI May Make Audit Panels Compulsory for Companies,* INDIAN EXPRESS, June 11, 1999; Vivek Law, *Consolidation of Accounts May Be Made Mandatory*, INDIAN EXPRESS, June 10, 1999.

[10] *See India – Sensex Sheds 87 points*, FINANCIAL TIMES ASIA, June 12, 1999; *Sensex Fall*, FINANCIAL TIMES ASIA, June 9, 1999.

[11] *See* KMBC Draft Report (Sept. 30, 1999) [url to come]*, Institutional Investors not Have Nominees on Boards – SEBI*, INDIAN EXPRESS, September 30, 1999; *A Curate's Egg*, INDIAN EXPRESS, October 4, 1999.

progress.[12] Further, there are reasons for thinking that election uncertainty would differentially affect large and small firms. Moreover, if we are correct in our interpretation of the May 7, 1999 event date, the release of the draft report would have confirmed, but not significantly changed, investors' expectations about the regulation of large firms.

The fourth potential event date is October 14, 1999, when SEBI announced that it would promptly adopt the KMBC's recommendations.[13] This event date is again subject to confounding events. October 14, 1999 was in the midst of the coup in Pakistan that led to General Musharraf taking control of the government.[14] Again, there are reasons for thinking that increased uncertainty or tension in Indo-Pak relations would differentially affect large and small firms. Moreover, if we are correct in our interpretation of the May 7, 1999 and September 30, 1999 announcements, SEBI adoption was already expected, so confirmation may not have had much effect on firms' stock prices.

The fifth potential event date is January 26, 2000, when KMBC released its final report. The final report was virtually identical to the Sept. 30, 1999 draft report; thus, we do not believe that its release conveyed significant new information to the market.[15] SEBI's adoption of Clause 49, on Feb. 21, 2000, should also have been anticipated by investors.

In the end, a combination of important confounding events and uncertainty about how much new information was released leave us with only one reliable event date -- the initial Indian Government and SEBI announcement on May 7, 1999 of the formation of the KMBC, which signaled the likely adoption of corporate governance reforms patterned on the CII Code.

In unreported regressions we examine the other potential event dates in 1999 and find no consistent pattern, consistent with the most important news being the confounding events. We find no significant investor reactions on the final two dates, in early 2000.

IV. SAMPLE SELECTION & DESCRIPTION

India has over 9,000 nominally public firms, but many are public in form only and rarely trade. Our sample consists of firms listed on the BSE (India's oldest and largest stock market). The BSE divides firms into groups, roughly based on size. The principal groups are large (Group A) firms, mid-sized (Group B1) firms, and small (Group B2) firms. As discussed above, at the time of the initial announcement on May 7, 1999, investors had reason to expect the reforms to apply to large firms, had reason to expect weaker rules, or

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[12] *See Mumbai Diary: Poll Result Worries Hit Sentiment,* FINANCIAL TIMES, October 2, 1999; *India: Share Prices Weaken Further*, FINANCIAL TIMES, October 2, 1999; Amy Louise Kazmin, *Indian Elections in Final Phase,* FINANCIAL TIMES, October 4, 1999; *Stocks – BSE Closes 33 pts Lower*, ASIA PULSE, September 30, 1999.

[13] *See* Girish Chadha, *Birla Panel's Recommendations to be Implemented by Year-End*, FINANCIAL EXPRESS, October 14, 1999.

[14] *See Rally on Indian Stock Market Halted by Pakistan Coup*, AGENCE FRANCE PRESSE, October 13, 1999; Partha Pratim Sinha & Deepak Singh Tanwar, *Sinhaspeak Shaves 191 Points off Sensex*, INDIAN EXPRESS, October 15, 1999; K. Seshadri, *Turmoil Could Continue on Thursday; High Intra-day Opportunities Likely*, INDIAN EXPRESS, October 15, 1999; Partha Pratim Sinha, *Pakistani Coup Shears 25.5 Points off Sensex*, INDIAN EXPRESS, October 13, 1999; K. Seshadri, *Vajpayee Government Must Grab Opportunities*, INDIAN EXPRESS, October 16, 1999.

[15] *See* Nandita Datta, *SEBI Clears Net Trading, Birla Panel Report,* INDIAN EXPRESS, January 26, 2000.

delayed implementation, for small firms, and would be unsure about the effect of the reforms on mid-sized firms.

To test this expectation, we need proxies for firm size. We treat BSE groups A, B1, and B2 as proxies for large, mid-sized, and small firms, respectively. The actual Clause 49 implementation schedule corresponds fairly closely to these three BSE groups (see Appendix B). We limit our sample to firms that: (i) trade on both Thursday May 6 and Friday May 7, 1999 (so that we can measure the change in price on May 7); (ii) have daily returns or at least 30 days during an estimation period from May 8, 1998 through April 28, 1999, which we use to estimate the standard deviation of firm returns; and (iii) have share price information on the PROWESS database (PROWESS is the principal source of financial information for Indian firms, analogous to Compustat for U.S. firms).

We are left with a full sample of 791 firms -- 159 Group A firms (out of 198 listed Group A firms); 378 Group B1 firms (out of 724 listed Group B1 firms), and 254 Group B2 firms (out of 2,589 listed Group B2 firms). We also construct a small-firm share price index, as an equal weighted average of the 216 Group B2 firms which trade on at least 30 days during the estimation period. Data on share prices, categories (Group A, B1, or B2), and control variables comes principally from PROWESS. For 42 firms, PROWESS did not have industry classifications; we classified these firms based on information obtained from their websites.

We use the following control variables in robustness checks; we have data on all control variables for 746 firms (156 Group A, 361 Group B1, and 229 Group B2):

ln(assets): firm size in crores as of December 1998 (1 crore = 10M Rs., about $220,000])

busgroup: dummy variable which equals 1 if a firm is a member of a business group as of December 1998 (as identified in PROWESS)

growth: geometric average sales growth from 1997-2001, winsorized at 1% and 99%.

forown: foreign ownership as a fraction of shares not held by the largest (generally controlling) Indian shareholder or group, excluding shares held by a foreign joint venture partner, if any, as of December 1998.

inside: fractional ownership by the largest inside shareholder [check on how we handle JV partner shares]

industry: We divide the sample firms into 13 broad industry groups (See Table 2, Panel B for details)

Table 2, Panel A reports summary statistics for the principal variables we use in this study, for the firms with full control variables. A little more than half of these firms belong to a business group (402/791 = 51%); the mean inside ownership is 37%; while the mean foreign ownership is only 3% of the shares not held by insiders. Panel B provides industry breakdowns. Panel C provides correlation coefficients. As expected, group A firms are larger and have higher foreign ownership and lower inside ownership.

V. HYPOTHESIS AND METHODOLOGY

A. Overall Reaction to Clause 49

This paper uses the phased implementation of Clause 49 to investigate the expected effect of a change in corporate governance rules on firms' market value. If investors expect adoption of Clause 49 to improve governance and therefore either improve profitability, increase access to capital, or reduce risk (and thus cost of capital), the announcement of the reform plans that led to Clause 49 should increase share prices.

There are two reasons to expect the effect to be stronger for group A firms than group B2 firms, with group B1 firms likely to fall in the middle. The first is investor expectation of differential regulation based on firm size -- either that different rules will apply to large firms (as in the CII Code), or that implementation would be delayed for smaller firms (as actually happened). The second is that some governance reforms -- including requirements for a minimum proportion of independent directors, creation of an audit committee -- may be appropriate for larger firms, but not cost-justified for smaller firms. Thus, large firms might experience a larger price change even if investors had expected the same rules to be adopted for all firms, with the same effective date. Both explanations are possible. Empirically, we have limited ability to distinguish between them.

These explanations share a common feature, which is central to our study design: They predict different reactions for large firms, compared to small firms, and thus let us treat small firms as a control group in assessing the reactions of large firms to the announcement of governance reforms. The market price reaction of small firms during the event period will reflect a combination of the expected value to them of the governance reforms, and any other events that affected overall share prices during this period.   In fact, the share prices of small firms rise significantly during the event period, but we cannot untangle whether this reflects a positive reaction to the governance reforms, a positive reaction to other news, or perhaps a strongly positive reaction to reforms (other news), which outweighed a negative reaction to other news (reforms).

In reviewing news stories on events relevant to adoption of Clause 49, we found a general sense that the reforms were considered to be good for India as a whole, and no evidence of significant opposition from smaller firms. This is consistent with investors and firms believing that, while smaller firms might need more time to comply or benefit from somewhat relaxed rules, the reforms would have sufficient value, even for smaller firms, to justify their costs.

Our central hypothesis is then:

H1: Group A firms exhibit positive returns, compared to small firms, during the event period around May 7, 1999.

> A likely corollary is that mid-sized (Group B1) firms will have returns intermediate between those of large and small firms.

> A second likely corollary is that if we regress event period returns against a continuous measure of firm size, we will find a positive coefficient on firm size.

B. Regression Methodology

We use two principal approaches to assess the differential reaction of large, mid-sized, and small firms to the May 1999 announcement of SEBI's plans to adopt what became Clause 49. The first is a regression approach: we pool raw returns to all firms during the event period, and regress these returns on group dummies and other variables of interest.

We use dummy variables (groupA, groupB1, groupB2) to identify each firm's BSE group as of December 1998. We then compute each firm's daily raw return on day t as the log change in the firm's daily closing price from day (t-1) to day t:

$$r_{i,t} = \ln(price_{i,t}) - \ln(price_{i,t-1})$$

For small changes in price, the log change equals the fractional change in price. We can compute the return on day t only if a firm trades on both day t and day t-1. Table 2, Panel B provides information on trading frequency for firms in each group. We sum the daily returns to obtain an overall return over a multiday event period:

$$R_i = \sum_{t=0}^{n} r_{i,t}$$

Our sample is 791 firms (159 from Group A, 378 from Group B1, and 254 from Group B2) with returns on each day during the event window.

A typical regression is:

$$R_i = \alpha + \gamma_A * GroupA + \gamma_B * GroupB1 + \sum_{j} (\lambda_j * X_j) + \varepsilon_i$$

Here Group B2 is the omitted group. The mean return to these firms will be captured by the coefficient α on the constant term. X_j is a vector of control variables. Note that the Group B2 firms with returns during the event window will tend to be the larger Group B2 firms. Investors might expect these firms to also benefit from the governance reforms; if so, this would bias *against* our finding an additional return for large firms during the event period.

We also compute market-adjusted returns (MARs) for each firm using an equally weighted index of small (Group B2) firms as the "market" index. We call this the B2EW (Group B2, equally weighted) Index. We construct the B2EW Index using the **[[xxx]]** Group B2 firms which have returns on at least 30 days during the estimation period. On a typical trading day, we have returns for roughly 80-100 firms in the small-firm index; different firms may be included in the index on different trading days. Let $n_{B2, t}$ be the number of B2 firms with returns on day t. The index return $r_{m, t}$ is:

$$r_{m,t} = \frac{\sum_{i \in B2} r_{i,t}}{n_{B2,t}}$$

The market-adjusted return for each firm, during a k-day event period from day τ to day (τ+k-1) is the sum of daily market-adjusted returns during the event period:

$$MAR_i = \sum_{t=\tau}^{t=\tau+k-1} (r_{i,t} - r_{m,t})$$

Since the index return is a constant for all firms, coefficients and standard errors for the variables of interest will be the same whether we use raw returns or MARs; the only difference will be in the constant term.[16]

The event period is common to all firms in our sample. This creates the risk, indeed the likelihood, that the individual firm returns violate the usual regression assumption that each observation is independent of other observations. One source of dependence is that firms in the same industry or the same BSE group could move together. We therefore use industry-group clusters in all regressions. We return to the problem of cross-sectional correlation of returns below.

C. Event Study Methodology

Our second principal methodology is a variant on the event study using daily returns (Brown & Warner, 1985). We compute market adjusted returns and cumulative abnormal returns (CARs) for each firm and the standard deviation of market-adjusted returns and daily abnormal returns based on the usual market model, using the B2EW Index as the market index. We are interested in the impact of corporate governance reforms on large firms. We use this hand-constructed index because standard indices, such as the BSE200 index, are capitalization-weighted, and thus are essentially large-firm indices. Our hope is that the B2EW Index will capture other events occurring in India during the event period that affect all firms.[17]

We estimate the market model during a roughly one-year estimation period ending 6 trading days before the event period (May 8, 1998 to April 28, 1999):

$$r_{i,t} = \alpha_i + \beta_i * r_{m,t} + \varepsilon_{i,t}$$

The cumulative abnormal return over a k-day event period from τ to $(\tau+k-1)$ is:

$$CAR_i = \sum_{t=\tau}^{\tau+k-1} \varepsilon_{i,t}$$

To compute a test-statistic for the MARs, we compute a standardized MAR for each firm, which is distributed unit normal and forms a z-statistic for the firm's return during the *k*-day event period:

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[16] In robustness checks, we obtain similar regression results with cumulative abnormal returns CARs), measured relative to the B2EW index. We report regression results with raw returns or MARs rather than CARs because we are unsure of the economic interpretation of the β of a large firm relative to a small-firm index. We also obtain similar results using "jump" returns, in which we compute the return to each firm as the compound return over the event window, computed for a k-day event window as $[\ln(price_{i,\tau+k-1}) - \ln(price_{i,\tau-1})]$, and also use a jump market return.

[17] If we use the BSE200 index as the market index, the Group A firm returns will closely track this index. We would then predict that small firms will have negative MARs or CARs relative to the BSE200 index during the event period. We implement this approach in robustness checks, and obtain the expected results for large firms (negligible MARs and CARs) and small firms (significant negative MARs and **[[CARs]]**).

$$SMAR_i = \frac{MAR_i}{\sigma_i * \sqrt{k}}$$

Here σ_i is the standard deviation of the daily market-adjusted returns to firm i during the estimation period. We can then compute a portfolio z-statistic (due to Patell) for the Group A firms as:

$$z = \frac{\sum_{i=1}^{n_A} SMAR_i}{\sqrt{n_A}}$$

Here n_A is the number of group A firms. And similarly for Group B1 and Group B2 firms. We similarly compute a standardized CAR and associated portfolio z-statistic. **[to come; understand smaller sample size, explain it here]**

D. Cross-Sectional Dependence

Firms within a group (A, B1 or B2) may co-vary with each other. They may also be subject to common influences on price due to economic events during the window period other than the governance-reform event we are interested in studying. Some of these common influences will hopefully be captured by the market index and thus will not appear in market-adjusted returns. Industry-group clusters should also control for within-group or within-industry cross-sectional dependence. Still if, large firms tend to covary with each other (even within the same industry) more than with small firms, our regression standard errors will be biased downward (and our portfolio z-statistics will be biased upwards).

A common response is to compute portfolio returns (Brown & Warner, 1980, 1985). This controls for cross sectional dependence but can substantially reduce statistical power because the test statistic can no longer allow for differences across firms in the variance of daily returns. Thus, the portfolio approach can produce false negatives (failure to reject the null hypothesis). We implement the portfolio approach by treating group A firms as a single, equally weighted portfolio, and similarly for group B1 and group B2 firms. The standard error for each portfolio is based on the standard errors of the portfolio MARs or CARs during the estimation period. Standard errors increase, as expected, but the MAR and CAR returns to Group A firms remain significant (see Table 8).

VI. RESULTS & COMMENTARY

A. Main Results for Different Event Periods

Table 3 presents our basic regression results with firm-level raw returns. It reports regressions of firm-level returns over different event windows against groupA and groupB1 dummies, plus a constant term which captures the return to Group B2 firms.

Which event window we should use is not clear. One possibility is advance leakage of news. We find no evidence of leakage. In unreported regressions, we extend the event period to include several trading days before the May 7, 1999 announcement, and obtain results similar to those reported below. We therefore report results for event windows beginning on May 7.

How the proposed governance reforms would affect share values might not be immediately obvious to investors. Thus, it could take several days for the effect of the proposed reforms to be fully reflected in share prices. We are also unable to determine whether the May 7 announcement occurred during or after the trading day. We therefore present, in Table 3, results for a variety of event window periods, ranging from the event date (day 0) only to a (0, +4) window. The coefficient on the groupA dummy is significant for all window periods, and increases for the longer windows, reaching 7.4% for the (0,+4) window.

The significant positive returns to large firms on day +1 suggest that the (day 0) window is too short to fully capture the market reaction to the governance reform announcement. Our best judgment is that a (0,+2) window should be sufficient to give investors time to evaluate the reforms, especially because this window includes a weekend. In subsequent tables, we standardize on this event window.

Over the (0,+2) window, Group A firms gain about 4.5% in market value, relative to small firms. This return is both economically and statistically significant. The returns to mid-sized Group B1 firms are always positive, are significant except for the shortest (day 0) window, and smaller in magnitude than the returns to Group A firms. This provides initial support for our basic hypothesis.

There is no evidence of a negative investor reaction for smaller firms. The coefficient on the constant term, which captures the return to Group B2 firms, is positive for our principal (0,+2) window, although we cannot assess the extent to which this reflects reaction to the governance proposal or reaction to other market news.

In unreported regressions, we use two alternative size groupings of firms. The first grouping is based on the actual Clause 49 implementation schedule, which was announced in September 1999 – after our primary event date. The second is based on which firms CII believed should consider adopting the core provisions of its voluntary Code. Results are slightly stronger than those we report for the first set of groupings, and somewhat weaker for the CII-based groupings, but remain positive and significant for larger firms relative to smaller ones.

B. Treatment of Outlier Observations

Outlier observations (very high or low returns during the event period) are likely due primarily to firm-specific news, rather than the governance announcement. These observations could skew results, affect regression standard errors, or both. There are a variety of options for handling outliers -- including counting them fully, excluding them, winsorizing, or running robust regressions. In Table 4, we show results with several alternative approaches. Results are similar in all cases. In subsequent tables, we generally winsorize at the 5% and 95% levels.

C. Alternate Measures of Returns

As discussed above, regressions with raw returns and market-adjusted returns should produce identical results for the groupA and groupB1 dummies. Table 5 confirms this, and also shows that results are similar if we use CARs rather than MARs, relative to the B2EW Index (equally weighted index of Group B2 firms). For MARs, we use two different

versions of the "market" – one based on the B2EW Index and the other based on the BSE 200 Index. Only the constant term changes, as expected. As mentioned earlier we prefer MARs rather than CARs because we are unsure of the economic interpretation of the β of a large firm relative to a small-firm index in the CAR regressions. In the cross-sectional results which follow, we use MARs measured relative to the B2EW Index.

D. Control Variables

We next assess whether our results are sensitive to inclusion of various control variables and also whether these variables separately predict firms' reaction to the Clause 49 announcement.   Below we describe each control variable and our reasons for including them. In Table 6, we add these control variables one at a time to our base regression from Table 3 using the (0,+2) event window. The groupA dummy remains significant and similar in magnitude in all regressions. The groupB1 dummy also remains similar in magnitude, smaller than the groupA dummy, and significant in all regressions.

1. *Firm size.*

Firms could react differently to the governance announcement we study based on size -- indeed, our principal hypothesis is that large firms *will* react differently, either because they will be regulated more (or sooner), or because larger firms will benefit more from the governance rules. We use ln(assets) as our measure of firm size.

In Table 6, regression (2), we include the groupA and groupB1 dummies together with ln(assets).   Despite the fairly high (r = .57) correlation between ln(assets) and the groupA dummy, the groupA dummy remains positive and highly significant. This suggests that, even if there is other news during the event window that differentially affects large and small firms (which we cannot rule out), investors may be separately concluding that the governance reforms will positively affect the value of Group A firms.

Regression (2) supports our basic hypothesis. It remains possible that something else that is related to size, but unrelated to governance, is producing the observed positive returns to Group A firms. But it would take an odd confluence of events for other news (not important enough to be discussed in major Indian newspapers) to predict a positive return to larger firms that is not captured by our size control, yet *is* captured by the Group A dummy. [18]

2. *Growth Opportunities.*

Rapidly growing firms have greater need for outside capital, and thus may benefit more from governance reform than low-growth firms, because governance could enhance their access to capital, or reduce its cost. Our proxy for growth opportunities is geometric average annual sales growth over a four-year period around the event date, from 1997-2001. This growth measure is computed as:

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[18]   In robustness checks, we obtain similar results using ln(sales) and ln(market capitalization as size measures. We also find that in regressions where the only independent variables are ln(assets) and a constant term, ln(assets) is positive and significant.

$$growth = \left(\frac{sales2001}{sales1997} \right)^{1/4} - 1$$

Table 6, regression (3) adds growth (winsorized at 1% and 99%) as an additional control variable.[19] The growth measure is positive and significant, suggesting that rapidly growing firms benefited more strongly from Clause 49. (Compare Litvak (2006)'s study of the reaction of cross-listed firms to adoption of Sarbanes-Oxley, which also finds a more positive reaction for faster growing firms.) To further study the effect of growth, we ran additional regressions in which we interacted growth with the groupA and groupB1 dummies. The negative coefficient on the interaction between growth and GroupA dummy is consistent with the growth effect coming principally from mid-sized firms.[20]

3. Business group membership.

Many major Indian firms are members of business groups, known as Business Houses. Prior studies have suggested that being a member of a business group can influence performance and governance. Firms in a business group may be more diversified (Ferris, Kim & Kitsabunnarat, 2003), have better political connections and access to financing (Shin & Park, 1999), be more profitable (Khanna & Palepu, 1999), or more vulnerable to tunneling (Bertrand, Mehta & Mullainathan, 2003). Firms that are members of business groups could also react differently -- whether more positively or more negatively is unclear -- to governance reform. Table 6, regression (4) adds a busgroup dummy as an additional independent variable. This variable is small and insignificant in all specifications.

4. Inside Ownership.

A number of studies report evidence that the level of inside ownership can influence governance and performance (see, for example, Kumar, 2003, 2003a (India); Joh, 2003 (Korea)). The level of inside ownership could also affect a firm's reaction to new governance rules. The sign of any effect is unclear. On one hand, firms with high inside ownership may have greater need for outside monitoring. On the other hand, firms with high inside ownership may be less affected by some reforms, such as a minimum number of independent directors, because the firm's business strategy will still be determined by the controlling shareholder. We measure inside ownership as:

$$inside = \frac{\text{ownership by largest shareholder}}{\text{total shares (excluding shares held by foreign JV partner)}}$$

Table 6, regression (5) adds inside as an additional control variable. Inside ownership is small and insignificant in all specifications.[21]

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[19] In robustness checks, we obtain similar results using alternative periods for measuring growth and different winsorizing levels.

[20] In unreported regressions, the coefficient on an interaction between growth and groupB2 dummy is insignificant and negative, confirming that the mid-sized Group B1 firms are driving the positive coefficient on growth in regressions (3) and (8). **[Add r/e Tobin's q]**

[21] In robustness checks, we obtain similar results if we measure inside ownership as a fraction of all shares.

5. Foreign Ownership.

Prior research suggests that foreign shareholders may be more likely to invest in better governed firms (Sarkar & Sarkar, 1999; Aggrawal, Klapper & Wysocki, 2003; World Bank, 2005). The level of foreign ownership could also affect a firm's reaction to new governance rules; for example, foreign institutional shareholders may pay more attention to corporate governance than other investors. Foreign ownership of Indian firms is modest at the time of our study. The mean of foreign-own for all firms in our sample is 0.029.

We define "foreign-own" as (fraction of total shares held by non-Indian shareholders)/(fraction not held by the largest shareholder), excluding shares held by a foreign joint venture partner, if any, from both numerator and denominator. Table 6, regression (6) adds foreign-own as an additional control variable. Foreign ownership is insignificant in all specifications.[22]

6. Government Ownership.

The Indian Government controls 39 of the 791 firms in our sample **[[how many are group A and B1?]]**. Government ownership can influence both performance and governance, and thus could also investor reaction to new governance rules. We therefore define a govt-own dummy variable which equals 1 for government-controlled firms. See Table 6, regression (7). This variable is insignificant in all specifications.[23]

7. Industry.

The effects of corporate governance reform can depend on firm characteristics, such as industry. Prior studies suggest that industry can be associated with both governance and performance (Black et al, 2006, 2006a; Durnev & Kim, 2005; Gillan, Hartzell & Starks, 2003, Rajan & Zingales, 1998). In unreported regressions with industry dummies, most industries have insignificant coefficients. The exceptions are transportation (positive), construction (negative), and agriculture & manufacturing (positive).[24]

8. Early Adopters and Cross-Listed Firms.

Some firms had already adopted a number of Clause 49's provisions before May 7, 1999 in response to CII's voluntary code of corporate governance. We might expect these firms to have a milder reaction to the Clause 49 announcement. At the same time, reforms that improve overall Indian governance might benefit early adopters as well by increasing overall investor confidence in the Indian market (compare Doidge, Karolyi and Stulz, 2004). Goswami (2003) lists 8 firms in our sample as early adopters of the CII code, of which 7 are Group A firms. In Table 7, regression (1), we add a dummy variable for these early adopters; this variable is negative (as expected) but insignificant.

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[22] In robustness checks, we obtain similar results if we include shares held by joint venture partners, shares held by insiders, or both.

[23] Indian states control an additional **[xx]** of the sample firms **[[how many in which group?]]**. In unreported robustness checks, a dummy variable for ownership by a state is insignificant.

[24] In unreported regressions, we divide industries into those with high and low need for external capital based on Rajan & Zingales (1998). The coefficient on the high-capital-need group is insignificant.

As of May 1999, 34 Indian firms (28 in Group A, 6 in Group B1) were already cross-listed in foreign markets, mostly in Europe (29 in Europe, 5 in the U.S.). These firms may respond differently than the other Indian firms to the Clause 49 announcement, because they may already be complying with higher disclosure standards to meet the cross-listing requirements. We create a dummy variable for cross-listed firms and interact it with the groupA and groupB1 dummies (Table 7, regression (3)). This interaction is positive and significant for Group A firms, and positive for Group B1 firms (significance is difficult to assess because of small sample size).

E.   Cross-Sectional Dependence: Event Study Results

We address further in this section whether our results could reflect cross-sectional correlation among the returns to Group A firms. We partly address cross-sectional correlation in earlier tables by using industry-group clusters and, in Table 6, controlling for the most obvious sources of common returns across firms, notably size.[25] We approach the possibility of cross-sectional correlation in a different way in Table 8, by turning to event study methodology.

We report the mean raw, [MAR] and CAR returns for the firms in each group, plus test statistics computed in three ways in Table 9, Panel A. For each group we provide two test statistics that (fully or partially) assume cross-sectional independence, plus a portfolio-level test in which we address cross-sectional dependence by first forming portfolios of Group A, Group B1, and Group B2 firms, and conducting an event study of the returns to the portfolio. This portfolio approach is a standard way to address cross-sectional correlation. In the first approach, we report the *t*-statistic from a simple regression of the returns to the firms in each group against a constant term, using industry-group clusters. In the second, we report a standard event study *z*-statistic, computed as described in the methodology section, which assumes cross-sectional independence. Both sets of test statistics are strong, for both Group A and Group B1 firms.

In the final column, we report results from the portfolio approach. This approach fully addresses possible cross-sectional correlation, at the cost of weaker power. The *z*-statistics drop substantially, but the returns to Group A firms remain statistically significant, and the returns to Group B1 firms are sometimes marginally significant.

VII. Conclusion

We report evidence on investor reaction to the May 1999 announcement of India's plans to adopt the Clause 49 governance reforms, considered a watershed event in the evolution of Indian corporate governance. These reforms were patterned on a voluntary Corporate Governance Code issued the previous year by the Confederation of Indian Industry, and were supported by the CII. At the time of initial announcement of the government's reform plans, investors had good reason to understand the likely content of the reforms (they would be similar to the CII Code), and reason to expect that key reforms would apply only, or perhaps earlier, to large firms (as CII had proposed).

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[25] In unreported regressions we tried different narrower and broader industry group, and Rajan &Zingales (1998) industry groups, with similar results.

This confluence of events lets us assess investor reaction to the reform announcement, by measuring the share price returns to large firms, while using the returns to small firms to control for other new information that could affect overall share prices. We find that large firms gain 4.5% on average, relative to small firms, over a 3-trading-day event window beginning on the announcement date. This result is highly statistically significant and survives a variety of robustness checks.

We conclude that investors expected the Clause 49 reforms to benefit large firms, and likely also medium-sized firms. This suggests that some mandatory corporate governance reforms can increase share prices in an emerging market such as India.

[add r/e contrast to SOX reaction in the U.S.]

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Table 1. Key Dates for Adoption of Clause 49

Date	Events	Comment or Confounding Event
April 1998	CII releases Code of Corporate Governance	
May 7, 1999	Government announces support for governance reforms; SEBI announces formation of Kumarmangalam Birla Committee (KMBC) to propose these reforms.	Key event date for this study
June 11, 1999	First newspaper discussion of KMBC deliberations and likely proposals.	Unclear if significant. Confounded by breakdown in peace talks with Pakistan over Kashmir
Sept. 30, 1999	Draft KMBC Report released.	Unclear if significant for large firms. Confounded by Indian national elections.
Oct. 14, 1999	SEBI says it will promptly adopt KMBC recommendations.	Unclear if significant. Confounded by Musharraf coup in Pakistan
Jan. 26, 2000	Final KMBC Report released; effective date announced	No significant new information, no market reaction expected
Feb. 21, 2000	Clause 49 goes into effect	No significant new information, no market reaction expected

Table 2. Variable Definitions and Summary Statistics

Panel A. Summary Statistics

Summary statistics for 746 sample firms with full data on control variables. Group A, B1, and B2 designations are as determined by Bombay Stock Exchange. Share returns are computed as sums of ln(daily return). Foreign ownership excludes shares held by a foreign joint venture partner, if any. Inside ownership is the number of shares held by insiders (as coded by PROWESS) divided by the total number of shares excluding shares held by a foreign joint venture partner, if any.

Variable	N	Mean	Std. Dev.	No. of "1"s	Min	Max	Definition
return (0,+2)	791	0.045	0.075		-0.086	0.189	Ln(share price return over (0,+2) window period)
MAR (0,+2)	791	0.015	0.075		-0.116	0.159	Ln(share price return-return to B2EW index (equal weighted index of group B2 firms))
CAR(0,+2)							
B2EW							Ln(share price return to B2EW index). Index consists of group B2 firms with at least 30 returns during estimation period of May 6, 1998 - April 28, 1999.
groupA	791			159			Dummy variable (=1 for Group A Firms, 0 otherwise)
groupB1	791			378			Dummy variable (=1 for Group B1 Firms, 0 otherwise)
groupB2	791			254			Dummy variable (=1 for Group B2 Firms, 0 otherwise)
busgroup	791			402			Dummy variable (=1 if firm belongs to a Business Group, 0 otherwise)
govt-own	791			39			Dummy variable (=1 if firm controlled by Indian Government, 0 otherwise)
ln(assets)	771	5.444	1.712		0.0615	12.474	ln(book value of total assets in crore rupees (10^7 rupees))
growth	746	0.083	0.322		-1	1.053	Geometric average sales growth from 1997-2001, winsorized at 1 and 99%
foreign-own	770	0.029	0.068		0	0.621	Foreign ownership as fraction of free-float (excludes shares held by insiders and JV partners)
inside	770	0.372	0.243		0	0.993	Inside ownership as fraction of all shares

Panel B. Details on Trading frequency for sample firms

Summary statistics for trading frequency for firms in each group over the estimation period for our event study (May 6, 1998 - April 28, 1999 (238 trading days). Group A, B1, and B2 firms are as classified by the Bombay Stock Exchange at the beginning of this period.

| | Firms in Group | Firms in Sample | Trading Days During Estimation Period | | | | | | |
			mean	std. dev.	Min	5%	median	95%	Max
Group A	198	159	225	35.6	51	137	238	238	238
Group B1	724	378	186	54	34	69	205	238	238
Group B2	2,589	254	141	57.3	31	52	143	[[xx]]	238

Table 2, Panel B. Industry Breakdown.

Industry information for 791 sample firms. Group A, B1, and B2 designations are as determined by Bombay Stock Exchange.

Industry type	Total	Group A firms	Group B1 firms	Group B2 firms
Agriculture & Manufacturing	279	59	185	35
Chemical	110	28	71	11
Finance	37	19	15	3
Metals	37	12	21	4
computer	45	13	26	6
diversified	25	11	11	3
Trade	16	2	8	6
Transport	9	4	4	1
Services	8	2	6	0
Tourism	10	2	5	3
Energy	10	4	5	1
Telecom	4	2	1	1
construction	5	0	4	1
Realty	0	0	0	0
Consult	1	0	0	1
Unknown	17	1	16	0
Total firms	*791*	*159*	*378*	*254*

Table 2, Panel C. Pearson pairwise correlation coefficients. * and **boldface** = significant at 5% level. Sample size varies from 746 to 791.

	return (0,+2)	groupA	groupB1	group_b2	ln(assets)	busgroup	growth	inside	foreign-own
return (0,+2)	1								
groupA	**0.18***	1							
groupB1	-0.002	**-0.48***	1						
groupB2	-0.086	**-0.16***	**-0.31***	1					
ln(assets)	**0.15***	**0.57***	-0.02	-0.05	1				
busgroup	0.02	0.02	0.12	0.06	**0.25***	1			
growth	0.11	**0.16***	0.07	**-0.25***	0.02	-0.10	1		
inside	-0.04	**-0.26***	**0.15***	0.02	**-0.16***	**0.34***	-0.01	1	
foreign-own	0.11	**0.52***	**-0.20***	-0.10	**0.41***	**0.11**	**0.18***	**-0.16***	1
govt-own	0.02	**0.34***	**-0.15***	-0.05	**0.36***	**-0.22***	0.02	**-0.35***	0.10

Table 3. Raw Returns over Different Window Periods

Ordinary least squares regressions of raw returns over different event window periods against Group A and Group B1 dummy variables. The coefficient on the constant term captures the mean return to group B2 firms. *t*-statistics, based on White's heteroskedasticity-consistent standard errors with industry and group clusters, are shown in brackets. *, **, *** indicates significance at the 10%, 5%, 1% level, respectively. Significant results (at 5% level or better) are in **boldface**.

	1	2	3	4	5
dep. variable	Raw Returns over indicated window				
Window	day 0	(0, +1)	(0, +2)	(0, +3)	(0, +4)
groupA	**0.012*****	**0.041*****	**0.046*****	**0.048*****	**0.074*****
	[3.00]	**[6.05]**	**[5.84]**	**[4.44]**	**[6.04]**
groupB1	0.004	**0.022*****	**0.020*****	**0.022****	**0.032*****
	[1.34]	**[4.65]**	**[2.85]**	**[2.62]**	**[4.36]**
Constant	0.003	**0.009****	**0.028*****	0.000	-0.000
	[1.09]	**[2.48]**	**[5.83]**	[0.04]	[0.09]
Observations	791	791	791	765	766
R²	0.004	0.025	0.025	0.025	0.048

Table 4. Raw Returns with Different Levels of Trimming or Winsorizing of Returns

Ordinary least squares regressions of raw returns over (0, +2) window on Group A and Group B1 dummies, with different winsorizing and clustering choices. *t*-statistics, based on White's heteroskedasticity-consistent standard errors with industry and group clusters (clusters not available for robust regression), are shown in brackets. *, **, *** indicates significance at the 10%, 5%, 1% level, respectively; significant results (at 5% level or better) in **boldface**.

	1	2	3	4	5	6
Dep. Variable	Raw returns (0,+2)					
	all raw returns	winsorized-2% & 98%	winsorized-5% & 95%	Trimmed-2% & 98%	Trimmed ± 6%/day	robust regression
groupA	**0.046*****	**0.046*****	**0.045*****	**0.045*****	**0.051*****	**0.051*****
	[5.84]	**[6.19]**	**[6.47]**	**[6.57]**	**[7.61]**	**[6.39]**
groupB1	**0.020*****	**0.018*****	**0.018*****	**0.017*****	**0.019*****	**0.020*****
	[2.85]	**[3.04]**	**[3.04]**	**[3.17]**	**[5.04]**	**[3.16]**
Constant	**0.028*****	**0.028*****	**0.028*****	**0.027*****	**0.017*****	**0.021*****
	[5.83]	**[7.04]**	**[8.57]**	**[9.75]**	**[8.01]**	**[4.34]**
Observations	791	791	791	761	745	791
R²	0.044	0.038	0.044	0.045	0.064	0.049

Table 5: Comparing Raw Returns, MARs and CARs

Ordinary least squares regressions of raw,. market-adjusted (MAR) and cumulative abnormal (CAR) returns over (0, +2) event period, winsorized at 5% and 95%, against groupA and groupB1 dummy variables. MAR(BSE200) uses BSE200 index as market index; MAR(B2EW) uses an equal-weighted index of B2 firms as market index, and similarly for CAR. *t*-statistics, based on White's heteroskedasticity-consistent standard errors with industry and group clusters, are shown in brackets. *, **, *** indicates significance at the 10%, 5%, 1% level, respectively; significant results (at 5% level or better) in **boldface** (suppressed for constant term).

	1	2	3	4
dep. variable	Raw Returns	MAR(BSE200)	MAR(B2EW)	CAR(B2EW)
groupA	**0.045*****	**0.045*****	**0.045*****	**0.045*****
	[6.47]	**[6.47]**	**[6.47]**	**[5.55]**
groupB1	**0.017*****	**0.017*****	**0.017*****	**0.024****
	[3.29]	**[3.29]**	**[3.29]**	**[2.42]**
Constant	0.027	-0.033	-0.002	0.025
	[8.57]	[10.13]	[0.65]	[2.19]
Observations	791	791	791	481
R²	0.044	0.044	0.044	0.042

Table 6. Market-Adjusted Returns with Different Control Variables

Ordinary least squares regressions of market adjusted returns (MARs) over (0, +2) event window, winsorized at 5% and 95%, against groupA and groupB1 dummy variables, with other control variables as shown. MARs are computed relative to B2EW index (equal weighted index of Group B2 firms). *t*-statistics, based on White's heteroskedasticity-consistent standard errors with industry and group clusters, are shown in brackets. *, **, *** indicates significance at the 10%, 5%, 1% level, respectively. Significant results (at 5% level or better) in **boldface**.

Labels	1	2	3	4	5	6	7	8	9
dep. variable	Market Adjusted Returns over (0, +2)								
groupA	**0.045***	**0.035***	**0.040***	**0.044***	**0.044***	**0.041***	**0.046***	**0.048***	**0.048***
	[6.47]	**[3.39]**	**[5.33]**	**[6.54]**	**[5.38]**	**[5.58]**	**[5.62]**	**[5.88]**	**[5.90]**
groupB1	**0.017***	0.011*	**0.015***	**0.016***	**0.016***	0.016**	**0.016***	**0.015***	**0.015***
	[3.29]	[1.96]	**[2.85]**	**[3.26]**	**[2.99]**	**[2.83]**	**[3.01]**	**[2.78]**	**[2.50]**
ln(assets)		0.002							
		[0.81]							
growth			**0.017****					**0.021***	0.016
			[2.51]					**[3.04]**	[1.65]
busgroup				0.001					
				[0.11]					
inside					0.002				
					[0.16]				
foreign-own						0.020			
						[0.44]			
govt-own							-0.005		
							[0.40]		
groupA*growth								-0.048*	-0.043
								[1.85]	[1.61]
groupB1*growth									0.011
									[0.90]
constant	-0.002	-0.006	-0.001	-0.002	-0.001	-0.001	-0.001	-0.001	-0.001
	-[0.65]	-[0.60]	-[0.35]	-[0.39]	-[0.24]	-[0.21]	-[0.16]	-[0.32]	-[0.35]
Observations	791	771	746	787	770	770	770	746	746
R-squared	0.044	0.043	0.046	0.043	0.042	0.042	0.043	0.049	0.050

Table 7. MARs with Early Adopter and Cross Listing Dummies

Ordinary least squares regressions of market-adjusted returns (MARs) over (0, +2) event window, winsorized at 5% and 95%, computed relative to B2EW index (equal weighted index of Group B2 firms), against groupA and groupB1 dummies, with other control variables as shown. Regression (2) adds dummy variable for early adopters of the CII Code (=1 for 8 early adopters, 7 in Group A, 1 in group B1). Regressions (3) adds cross-listing dummy (=1 for 34 firms cross-listed in U.S. or Europe in May 1999, 28 in group A, 6 in group B1, 29 are GDRs (London, Luxembourg, or Frankfurt), 5 are ADRs (U.S.)). Regression (4) interacts the cross-listing dummy with groupA and groupB1 dummies, to show predicted effects of cross-listing for firms in each group. *t*-statistics, based on White's heteroskedasticity-consistent standard errors with industry and group clusters, are shown in brackets. *, **, *** indicates significance at the 10%, 5%, 1% level, respectively. Significant results (at 5% level or better) in **boldface**.

	1	2	3	4
groupA	**0.045***	**0.045***	**0.039***	**0.040***
	[6.47]	**[7.07]**	**[7.07]**	**[5.37]**
groupB1	**0.017***	**0.017***	**0.016***	**0.016***
	[3.29]	**[3.31]**	**[3.15]**	**[3.03]**
early adopter dummy		-0.014		
		[0.75]		
cross-list dummy			**0.035**	
			[2.57]	
cross-list*groupA				**0.029***
				[2.93]
cross-list*groupB1				0.057
				[1.31]
Constant	-0.002	-0.002	-0.002	-0.002
	-[0.65]	-[0.65]	-[0.65]	-[0.65]
Observations	791	791	791	791
R^2	0.044	0.044	0.052	0.053

Table 8. Event Period Returns

Panel A: Cumulative raw returns over (0, +2) event window for Group A, Group B1, and Group B2 firms. Firm-level results assume cross-sectional independence across firms. *t*-statistic is from ordinary least squares regression of the event-period return to the firms in each group on a constant term. z-statistics are from an event study of event period returns to each group.

Panel B: Similar to Panel A except dependent variable is cumulative market-adjusted return to the firms in each group over the (0,+2) event window, relative to B2EW Index.

Panel C: Cumulative abnormal returns over (0,+2) event window, for Group A, Group B1, and Group B2 firms, computed relative to the B2EW index ((equal weighted index of Group B2 firms). Sample is limited to firms with 30 daily returns available during estimation period (a return on day *t* requires a trade on day *t* and day *t*-1).

Standard errors for event study are estimated over May 6, 1998 - April 28, 1999 (ending 6 trading days before event window). Firm-level results are based on firm-level standard errors. Portfolio results are based on first forming a portfolio consisting of all firms in each group. *t*-statistics are based on White's heteroskedasticity-consistent standard errors with industry clusters **[need to confirm]**. *, **, *** indicates significance at the 10%, 5%, 1% level, respectively. Significant results (at 5% level or better) are in **boldface**.

Panel A: Raw Returns

Definition	No. of firms	Mean Raw Return	Firm-level results t-stat	Firm-level results z-stat	Portfolio results z-stat
Group A	155	0.072	**13.48***	**18.36***	**1.98**
Group B1	251	0.052	**9.01***	**12.29***	1.60
Group B2	76	0.024	1.51	**2.63***	0.56

Panel B: MARs (relative to B2EW index)

Definition	No. of firms	Mean Raw Return	Firm-level results t-stat	Firm-level results t-stat	Firm-level results z-stat	Portfolio results	Portfolio results
Industry clusters			No	Yes	n.a.		
Portfolios						Industry	Group
Group A	157	0.041	**7.94***	**5.70***	**11.13***		
Group B1	251	0.024	**4.10***	**3.91***	**6.70***		

Panel C: CARs (relative to B2EW index)

Definition	No. of firms	Mean CAR	Firm-level results t-stat	Firm-level results z-stat	Portfolio results z-stat
Group A	155	0.058	**10.86***	**16.32***	**2.17**
Group B1	251	0.037	**6.37***	**9.34***	1.84*

[to try, add industry clusters to regressions; see what changes with winsorizing, combine firms within each group into industry-based portfolios, these subportfolios then will make

up the Group A, B1, and B2 portfolios. Try with all industries in Table 1, depending on how that works, try grouping smaller industries together.]

APPENDIX A: DETAILS ON CLAUSE 49

Category	Clause 49	Sarbanes-Oxley
Independent Directors	Minimum 50% independent directors if Chairman is an executive or 33% if Chairman is a non-executive Definition: - not related to Board or one level below Board and audit partners must have no prior relationship with the Company for the last 3 years. • No explicit exemption for immaterial relationships • Financial institution nominees considered independent.	●
Board Requirements	Maximum of 10 directorships **[limit on committeeships and committee chair positions]** Minimum 4 meetings per year (maximum 3-month gap between meetings) Code of Conduct.	●
Audit Committee	Must exist Minimum 3 members (at least 2/3rds independent). All financial literate. At least one having accounting or financial management experience Minimum 4 meetings/year Role: review statutory and internal auditors, internal audit function	
Director Compensation	Disclosure of compensation of executive and non-executive directors Shareholder approval of director compensation	●
Disclosures	Related party transactions Accounting treatments and departures from Indian GAAP Risk management Proceeds from equity and debt offerings Compliance history details for last 3 years Corporate governance reports (and disclose adoption, if any, of mandatory and non-mandatory requirements)	●

Certification	CEU & CFO:
	
	  - financial statements
	
	  - effectiveness of internal controls
	
	  - legal transactions
	
	  - inform audit committee of any significant changes in the above.
	
	Auditor or Company Secretary:
	
	  - Compliance with corporate governance
		•

Subsidiary Companies	Independent directors - At least one independent director of Parent should be a director of each material non-listed Indian subsidiary. Significant transactions - report to Parent Board (along with subsidiary board's minutes).	•
Optional (Comply or Disclose)	Remuneration committee Whistleblower policy Independent directors lose independent status after 9 years on board Training of board members Evaluate performance of non-executive directors Various disclosures to shareholders	•

APPENDIX B: CLAUSE 49 IMPLEMENTATION SCHEDULE

Effective Date	Company Category	Comment
March 31, 2001	Companies in Group A of the BSE or in S&P CNX Nifty index as on January 1, 2000 (all CNX firms are in Group A).	
March 31, 2002	Companies, not in BSE Group A, with paid up share capital of at least 100 million Rs, or net worth of at least 250,000,000 Rs. at any time in the company's history.	**[Over 85%]** of the firms in this group are in BSE Group B1.
March 31, 2003 (later extended to April 1, 2005)	Other companies with paid up share capital of at least 30,000,000 Rs.	**[About 80%]** of the firms in this group are in BSE Group B2.
Time of listing	Companies seeking listing for the first time.	