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Economic consequences of deregulation: Evidence from the removal of voting cap in Indian banks

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ABSTRACT

We examine the effect of the 2005 Banking Regulation Amendment Bill and the 2011 Banking Laws Amendment Bill proposals for removal of the 10 percent voting rights cap in Indian Banks. The 2011 Banking Laws Bill was first introduced in 2005, but lapsed with the dissolution of the 14th Lok Sabha. The Bill was passed in December 2012 and raised the voting cap in private sector banks from 10 to 26 percent. We present evidence that the removal of the voting cap enhances the value of votes of bank stocks by reducing the wedge between cash-flow and control rights, thus increasing monitoring and the probability of takeover. Post-deregulation analysis reveals that the passage of the Bill was followed by increasing blockholders' number and percentage of shares held in larger and government banks. Furthermore, a stronger negative relationship between banks' profitability and size, as well as share of non-performing loans is observed. This study makes an important contribution to the growing literature on the valuation impact and efficiency gains of liberalization of ownership restrictions in emerging markets, as well as the rich literature on corporate governance and control relating to the value of voting privilege in companies with disparate voting rights.

1. Introduction

The recent financial crises, the rapid globalization of the financial markets, and the "harmonization" and "convergence" of accounting rules have heightened interest in the economic value of regulation (Healey and Palepu, 2001; Leuz and Wysocki, 2008). Despite voluminous research on the consequences of regulatory developments, however, the evidence on this issue remains inconclusive.[4] Further, in contrast to the vast literature on the economic impact of new regulation, the research on economic consequences of deregulation is limited and focused primarily on the U.S. market. Recent studies on deregulation include Jayaratne and Strahan (1998), Beck et al. (2010) and Francis et al. (2014), all of which focus on the consequences of bank deregulation in the U.S. Jayaratne and Strahan (1998) found that the removal of branching restrictions resulted in improvements in the efficiency of the banking system. Beck et al. (2010) found that removing restrictions on intrastate branching led to higher incomes in the lower part of income distribution. Francis et al. (2014) reported that banking deregulation led to financially constrained non-banking firms holding lower liquid assets, which relieved their credit constraints.

We contribute to this literature with analysis of an important deregulation in the Indian banking sector – removal (relaxation) of the voting cap that until 2012 had significantly curtailed bank shareholders' voting rights. A voting cap limits the number of votes a shareholder can cast to a fixed number or percentage of outstanding shares, irrespective of the number or percentage of shares

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[4] The lack of consensus on the economic impact of regulation can be attributed to two major reasons: (1) difficulty in separating a treatment effect from a selection effect due to absence of appropriate control groups; and (2) failure to control for overall market movements, information environment and other contemporaneous events because the regulation often affected all exchange-traded firms so there was no natural comparison group.

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she owns. That is, all shares held in excess of the cap lose their votes. Consequently, a voting cap drives a wedge between cash-flow rights and voting rights (Burkart and Lee, 2008). Until 2012, the voting cap for shareholders in private Indian banks was set to 10 percent, while the cap was 1 percent for state banks. As such, a blockholder in a private bank with 50 percent ownership has only 16.7 percent voting control, and a blockholder with a 74 percent ownership has only 28 percent voting control, making a takeover virtually impossible.[5] The wedge is even more severe for government banks, where the voting cap was set to only 1 percent. We contend that since a voting cap acts as a defensive mechanism against takeover attempts, removal of the cap exposes the firm to the disciplining forces of the market for corporate control. In the case of government banks where the government's ownership is at least 51 percent, the proposal to lift the cap from 1 to 10 percent does not affect the threat of takeover. However, the increased threat of takeover of private banks enhances competition in the banking sector and forces government banks to improve performance. In essence, the increased monitoring, and threat of takeover and competition reduce agency cost and should induce positive stock revaluation.

To test the above proposition, we focus on the stock price effects surrounding the proposed 2005 Banking Regulation Bill to remove the voting cap in private banks and increase the voting cap in government banks to 10 percent, and that of the 2011 Banking Laws Amendment Bill, which increased the voting cap from 10 to 26 percent for private banks and did not make any changes to the existing 1 percent cap for government banks. Our tests, based on a portfolio of 41 publicly-traded banks including 24 government banks and 17 private banks, reveal significant valuation gains by private banks surrounding the 2005 Bill. On the other hand, the 2011 Bill elicited significant negative impact on government banks.

Next, cross-sectional analyses reveal that valuation gains around the 2005 announcement are positively related to the wedge between cash-flow and control rights, the proportion of non-performing loans to total assets, and negatively related to profitability of old private banks. This evidence is consistent with the notion that the removal of the voting cap increases banks' vulnerability to takeovers. Similarly, the 2012 announcement's negative effect on government banks is directly related to the wedge between cash-flow and voting rights for these banks. In addition, insider and foreign ownership are negatively related to the effects of the 2012 announcement. Our post-Bill analysis reveals that the deregulation did not result in any increase in foreign or insider ownership, but, rather, an increase in blockholders' ownership in government-controlled banks. Furthermore, post-deregulation, we observe a stronger negative relation between ROA and size, as well as share of non-performing loans.

Our study has important implications for the growing literature on the economic consequences of deregulation, as well as that of differential ownership rights on firm value. First, most mechanisms for disproportional ownership, including shares with differential voting rights, pyramidal structures, and cross-holdings, are management-initiated and approved by shareholders. As such, the extant evidence on the reaction to dual-class recapitalizations and unifications, and antitakeover provisions suffers from potential endogeneity (Adams and Ferreira, 2008). In contrast, the deregulation of the voting cap is an exogenous shock, and represents a natural experiment that mitigates the endogeneity concerns prevalent in prior research. Second, by limiting the voting control of large shareholders, a voting cap renders a takeover attempt virtually impossible and impedes effective monitoring of management (Burkart and Lee, 2008). Consequently, Indian banks faced no serious takeover threat, and their stock carried little value attributable to voting rights and shareholders' power to force a change in control. In essence, voting caps are equivalent to managerial entrenchment mechanisms such as poison pills and antitakeover amendments to corporate charters that firms often adopt to discourage hostile takeover attempts. Therefore, our findings are relevant also to the literature on the impact of antitakeover provisions.

Finally, voting caps exist in many countries across the world. Deminor (2005) reports that the three most frequent deviations from the one-share-one-vote principle are voting ceilings, multiple voting rights, and ownership ceilings, and that voting ceilings are in force in 10 percent of all companies analyzed. Indeed, the role of voting caps as a defense mechanism has been the focus in recent policy debates in several European countries. Goergen et al. (2005) report a gradual convergence towards the abolishment of voting caps, with an intent to stimulate the takeover market.[6] However, the authors note that banning voting caps in countries with concentrated ownership makes it difficult to control accumulation of power by large shareholders.[7] Interestingly, despite the prevalence of voting caps, an exhaustive search of the literature yielded but scant evidence on the impact of voting caps on firm value. Our evidence of shareholders' favorable reaction to proposed lifting of voting caps in the Indian banking sector provides important rationale to future policymakers contemplating removal of voting caps.

The rest of the paper proceeds as follows. In the next section, we provide a chronology of events leading to the introduction of the bill to remove the voting cap. In Section 3, we discuss the relevant literature. In Section 4, we present the model and develop our hypotheses. Our data and methodology are presented in Section 5 and Section 6, respectively. In Section 7, we discuss the stock price reaction to the 2005 and 2011 Bills, and the determinants of the observed valuation effects. In Section 8, we analyze the changes in bank ownership, size and profitability after passage of the 2011 Bill. Section 9 concludes the paper.

2. Evolution of the Indian banking sector

2.1. Nationalization and privatization

Here, we present a brief overview on the development of the Indian banking sector, specifically from the perspective of the market for corporate control.[8] Modern banking started in India with the setting up of three Presidency Banks – the Bank of Bengal in 1806, the Bank of Bombay in 1840, and the Bank of Madras in

[5] With 10 percent voting cap, a blockholder owning 50 percent of total shares outstanding has effective voting power of 10/(10+50) or 16.7 percent, and the effective voting power with 74 percent ownership is 10/(10+26) or 27.8 percent. A 74 percent ownership is critical because the liberalization enacted in 2004 allows foreign direct investors a maximum 74 percent ownership in Indian private banks. Clearly, even at such high ownership level, voting control is not attainable.

[6] On August 17, 2011, following complaints from analysts that voting limits have led to the failure of the takeover market, the Portuguese Government scrapped limits on shareholder voting during takeover bids for listed companies. The Government said, "The end of the voting limits in the case of takeover bids makes the market function in a more fluid way, favors investment, boosts liquidity, and improves company governance. The voting limits are defensive means… and are typically designed to favor incumbent shareholders during hostile bids" (Laxmidas, 2011).

[7] Indeed, voting caps are often defended as necessary to protect strategic companies and industries from takeover by opportunistic raiders motivated by control benefits. In May 2013, the Spanish Parliament passed an act restoring the entitlement of listed companies to include voting caps in their by-laws, while also providing that this defensive measure will not apply when a takeover bid is launched. The move was "…to respond to an unreasonable market that leaves Spanish champions in a very vulnerable position… and to prevent third-party investors from taking advantage… to take over the company" Ferré (2013).

[8] The literature on the history and evolution of the banking system in India is too numerous to cite. Shirai (2002), Banerjee et al. (2004) and Gauba (2012) provide excellent reviews of this topic.

1843 – to facilitate the borrowings of the government and the maintenance of credit. These Presidency banks were later amalgamated in January 1921 into the Imperial bank of India. By that time, a number of joint-stock company banks were also established after the acceptance of limited liability in 1860.[9] However, in the absence of any regulatory framework, these private banks used their resources as they wanted, and, as a result, bank failures due to bad loans and exploitation of the poor were frequent. The Reserve Bank of India (RBI) was formed in 1935 to regulate these banks, followed by the passage of the Banking Companies Act in 1949. Next, in the First Five Year Plan in 1951, the development of rural India and mobilization of the financial resources for strategically important sectors was given the highest priority. [10] To implement this plan, the State Bank of India (SBI) was constituted in July 1955 by taking over the Imperial Bank of India, and integrating it with the former state-owned banks.[11]

In another critical move, the Government of India (GOI) nationalized 14 banks in 1969 and 6 more in 1980, leaving only 10 percent of bank branches in private hands. During 1969–1991, the number of banks increased slightly, but many banks remained unprofitable, inefficient, and unsound owing to poor lending strategies and lack of risk management under government control. One of the major factors that contributed to deteriorating bank performance was lack of competition. In 1991, following the Narasimham Committee's recommendations for liberalization, the GOI launched comprehensive reforms which included restructuring of public sector banks (PSBs), and interest rate and entry deregulation. However, unlike former planned economies, such as Hungary and Poland, the Indian Government decided against drastic privatization of PSBs, and chose a gradual approach toward restructuring PSBs by enhancing competition through entry deregulation of foreign and domestic banks, in accordance with the Narasimham Committee's view that PSBs could improve efficiency without changing ownership if competition were enhanced (Ahluwalia, 2002). Support for this view draws also from evidence in extant literature that the entry of well-capitalized new private sector and foreign banks improves the quality of banking services, and efficiency of management (Levine, 1996; Walter and Gray, 1983; Gelb and Sagari, 1990). Moreover, foreign banks can reduce restructuring costs by providing new capital, especially when the domestic banking sector is facing a credit crisis and lack of capital.

The GOI undertook two initiatives to enhance competition in the banking sector. First, in 1993, the RBI issued guidelines for the establishment of new private banks, and approved six new private banks in 1994.[12] As of December 2001, there were eight new private banks, and the number increased to 31 over the next several years. Twenty-six new foreign banks have also opened branches in India since the reforms, in addition to the 18 that existed before. An important provision in the RBI guidelines was to set a cap of 1 percent of total voting rights held by an individual shareholder as stipulated in the Banking Regulation Act of 1949. This was amended in 1994 to raise the voting cap to 10 percent for private banks. Second, the GOI decided to privatize PSBs by issuing new common stock. The notion was that increased transparency and accountability to investors, and the competition from the private sector banks for market share would force PSBs to streamline their operations and improve performance. SBI became the first public sector bank to access the capital market. Among the other 19 nationalized banks, seven made progress on partial privatization.[13] However, pace of privatization has been slow and gaps remained between the capital required to restructure the weak nationalized banks and the amount of capital available from the securities market. The limited success of privatization is attributable to several factors, the most critical being the government's refusal to allow the transformation of their ownership and control of PSBs, depressed market for new issues, and continued poor performance and weak balance sheets of several nationalized banks. As a result, investors showed little interest in these banks.

2.2. Competition in Indian banking: role of foreign banks

In contrast to the experience with privatization of banks in the Central and Eastern European countries, participation by foreign direct investors (FDIs) in the new stock offerings of Indian banks was very low. As such, the rapidly-growing domestic private banks such as ICICI Bank represented the main threat for takeovers which was expected to be the catalyst for increased competition forcing improved performance and efficiency of banks.[14] However, the new private banks were constrained in their takeover attempts by lack of capital needed for restructuring ailing targets and also meet the higher capital standards set by the IMF, and restrictive takeover rules and voting caps.[15] For these banks, opening new branches was a more attractive option for expansion.

Foreign banks, on the other hand, faced restriction on the number of branches they could open. Specifically, as per India's commitment to the World Trade Organization (WTO), the number of licenses for foreign banks is capped at 12 per year. As such, for these banks, access to capital, combined with the branch licensing constraints, make acquisitions a more attractive option to consolidate their presence in a short period of time. Until the early 1990s, however, foreign ownership was not allowed in Indian banks.[16] The new private banks were the first to be allowed to sell up to 20 percent of total capital to foreign investors. The new regulation distinguished between foreign institutional investors (FII) and foreign direct investors (FDI). By definition, FDIs participated in new issues

[9] These include Allahabad bank in 1865 and Punjab National Bank in 1894. The Swadeshi movement gave rise to a few other banks including Bank of India, Central Bank of India, Bank of Baroda, Canara bank, and Indian Bank.

[10] Indian commercial banks had till then confined their operations to the urban sector and were not equipped to respond to the emergent needs of economic regeneration of the rural areas. Rather, loans extended by colonial banks were biased toward working capital for trade and large firms (Joshi and Little, 1996).

[11] The SBI banks consist of eight independently capitalized banks: seven associate banks and SBI itself. SBI is the largest commercial bank in India in terms of assets, deposits, branches, and employees, and has 13 head offices each governed by a board of directors under the supervision of a central board.

[12] The guidelines required a new bank to (1) maintain minimum paid-up capital of Rs1 billion; (2) list its shares on stock exchanges; (3) fulfill the priority-sector lending requirement; (4) postpone setting up a subsidiary or mutual fund until three years after its establishment; and (5) use modern facilities to provide good customer service.

[13] The 1994 Amendment of the Banking Act allowed banks to raise private equity up to 49 percent of paid-up capital. SBI raised Rs22 billion through equity issues and Rs10 billion through bond issues. As a result of privatization, RBI's equity share of the SBI declined from 98.2 percent to 66.3 percent and later to 59.7 percent. Among other SBI banks, five have been partially privatized. Oriental Bank of Commerce was the first bank to lower its government ownership to 66.5 percent. Dena Bank, Bank of Baroda and Corporation Bank lowered their government ownership to 66.2 percent and 68.3 percent, respectively. Bank of India lowered its government ownership to 76 percent in 1997 and in 2000 Andhra Bank reduced its government ownership to 67 percent.

[14] We are grateful to an anonymous referee for providing this critical insight on the process of liberalization of the Indian banking sector.

[15] For example, any transfer of shares in a banking company that exceeds 5 percent of the paid-up capital of the bank requires acknowledgement by the RBI before the registration of the transfer. While seeking acknowledgement from the RBI, the bank has to give a declaration that the proposed transferee is not likely to acquire, either singly or along with the companies and concerns in the group, a controlling interest in the bank.

[16] Whether foreign banks should be allowed to participate in the economic development of an emerging nation, and their appropriate role, is an issue that has generated a lot of interest. Claessens and Van Horen (2012) provide a comprehensive review of the literature on this topic. Overall, the extant research indicates that the impact of foreign banks has been mixed – foreign presence leads to lower cost of financial intermediation, lower profitability, and lower loan-loss provision (Sturm and Williams, 2004; Lensink et al., 2008).

and had control motives; FIIs bought shares from the secondary market and were interested mainly in cash-flow returns. In February 2002, FDIs were allowed to own up to 49 percent of capital in private banks. In March 2004, an amendment allowed 74 percent ownership of capital by FDIs.

2.3. Voting cap legislation

Despite the 74 percent ownership allowed to foreign banks, a potent deterrent to a takeover attempt was the 10 percent voting cap.[17] While foreign banks could provide the capital, the cap shut them out because even with the maximum allowed ownership of 74 percent, they could control no more than 28 percent of the votes, making a hostile takeover impossible. As such, investors interested in influencing decision-making and takeover avoided investing in Indian banks.[18]

In response to public outcry and pressure from foreign investors, the RBI and the central government contemplated removal of the voting cap. On September 11, 2002, the RBI urged that the Banking Regulations Act be amended to abolish the voting cap. On April 21, 2003, a bill to delete section 12(2) of the Banking Regulation Act, 1949, relating to voting rights was introduced to a standing committee. On February 28, 2005, the Finance Ministry proposed lifting the 10 percent cap on voting rights, and on May 5, 2005, the Union Cabinet introduced a Bill to the Parliament to abolish the 10 percent cap in Indian private banks. For PSBs, the recommended increase in voting rights was only from 1 percent to 10 percent, at par with voting rights in SBI. To investors, this initiative served as a signal that the removal of the voting cap was imminent.

On December 13, 2005, The Parliamentary Standing Committee approved the removal of the voting cap on shares of private banks. However, the Bill was not voted on, and it finally lapsed with the dissolution of the 14th Lok Sabha in 2009. Nevertheless, pressure on the government to pass the bill continued.[19] In 2011, the bill was reintroduced and on March 29, the bill was referred to the Standing Committee on Finance. On December 13, the Committee's report incorporated almost all the recommendations proposed in 2005, except for the critical amendment to increase the voting limit from 10 percent to 26 percent for private banks, and to 10 percent for PSBs. On April 26, 2012, the Cabinet cleared the 2011 Banking Laws (Amendment) Bill. The Lok Sabha passed the bill on December 18, and two days later the upper house of the Parliament ratified it. We present the chronology of events in Table 1.

[17] The rationale for the cap was to prevent owner-managers from abuse through credit concentration and credit diversion, and control by entities that were not aligned with the strategic mission of the Indian government. Section 12(2) of the 1949 Banking Regulation Act states that "no person holding shares in a banking company shall, in respect of any shares held by him, exercise voting rights on poll in excess of ten percent of the total voting rights of all the shareholders of the banking company." The only exceptions were the Government of India, which was the majority owner in nationalized banks, and the RBI.

[18] In December 2006, Dr. Rupa Rege Nitsure, Chief Economist, Bank of Baroda wrote, "The experience in the first phase (following the provision to allow 74 percent ownership by foreign banks) so far is not very encouraging as the 10 percent limit on the voting rights of foreign investors in private banks is acting as a major barrier."

[19] Dr. Rupa Nitsure, Chief Economist, Bank of Baroda, wrote, "…unless the 'voting rights' are made proportional to the foreign banks' shareholding, India will not be able to incentivize foreign banks to take over its weaker banks." Mr. Pawan Kumar Bansal, Minister of State for Finance, wrote, "nobody would invest as much as 74 percent… and be content with only 10 percent of the voting right. It's only when the boards are able to have the voting right according to their holding that the boards may be able to make a decision. About the merger of the banks,... I think that will be necessary for them." However, the government was unsure they could muster the majority in the Lok Sabha for passing the bill because of strong opposition to the bill by bank unions.

3. Background literature

Our central focus is the source and measurement of the voting premium on common stock. Although the price of a common stock includes the value of voting rights, the value of votes cannot be directly observed. Zingales (1995) posits that when an event alters the distribution of voting rights and, in turn, the probability of a contested acquisition, a fraction of the control benefits is reflected in the stock price as a voting premium. Zingales argues that voting premium is directly related to the private benefits of control, and inversely related to the proportion of voting shares outstanding. Consistent with this notion, Zingales finds that for companies with dual-class stocks, the voting premium is a negative function of firm size (proxy for probability of acquisition), and a positive function of the largest shareholder's cash salary (proxy for private benefits of control).

To measure voting premium, several studies focus on dual-class recapitalizations which concentrate voting rights in the hands of superior voting shareholders, and are potential deterrents to change in control. As such, dual-class recapitalizations should elicit negative stock price reaction. Partch (1987) finds no significant reaction to dual-class recapitalizations, Jarrell and Poulsen (1988) report significantly negative returns, while Dimitrov and Jain (2006) find mildly positive reaction. Gompers et al. (2010) find that the proportion of votes controlled by dual-class shareholders adversely affects Tobin's q. Further evidence on the value of votes draws from dual-class unifications. Hauser and Lauterbach (2004) study unifications in Israeli firms and estimate the price of 1 percent of voting stock to be about 0.2 percent of the firm's equity. Dittmann and Ulbricht (2008) and Bigelli et al. (2011) find that dual-class unifications induce increases in firm value. Overall, received evidence on the impact of dual-class recapitalizations and unifications on firm value is mixed. Similarly, Adams and Ferreira (2008) characterize the extant evidence on the wealth effect of other corporate decisions that affect the probability of takeover, such as adoption of takeover defense mechanisms and antitakeover amendments, as inconclusive, as well.

Besides being inconclusive, the findings of the above studies are difficult to interpret because of potential endogeneity, as changes in ownership structure are often triggered by firm-specific factors (Bauguess et al., 2012). The studies focusing on changes in takeover environment induced by regulatory and legal reform circumvent this problem. For example, Bertrand and Mullainathan (2003) analyze the impact of anti-takeover laws on the threat and likelihood of takeovers. Giroud and Mueller (2010) examine the effect of a moratorium that prevents certain transactions by large shareholders for a period of time after they acquire their stakes, rendering hostile takeovers almost impossible, and weakening corporate governance. The authors find the effect of this change to be less adverse in competitive industries. Ghosh and Petrova (2013) examine changes in the market for corporate control induced by the passage of the Interstate Banking and Branching Efficiency Act of 1994 and the Financial Service Modernization Act of 1999. They find that, subsequent to deregulation, the propensity to engage in value-destroying acquisitions is significantly related to governance indexes. Our study on the impact of voting caps contributes to this growing literature.

4. Model and hypotheses

A voting cap or ceiling stipulates that a shareholder cannot cast votes in excess of a specified number or percentage of the total number of shares outstanding. Burkart and Lee (2008) argue that, by limiting the percentage of shares that can be voted, a voting cap prevents dissident shareholders from accumulating sufficient

Table 1
Chronology of events leading to the increase of the shareholder voting cap in Indian banks.

Date	Press report
Timeline for 2005 Banking Regulation (Amendment) Bill	
Sept. 11, 2002	The RBI wrote to the Government to amend the Banking Regulations Act to abolish the 10 percent voting cap.
April 21, 2003	Bill to delete section 12(2) of the Banking Regulation Act, 1949, relating to voting rights introduced and referred to a standing committee and also reported upon by the committee.
May 5, 2005	Government to allow proportionate voting rights in banks – The Union Cabinet approved the introduction of a bill to amend the Banking Regulation Act, 1949, to lift the 10 percent voting rights cap in Indian banks, and make voting rights commensurate with ownership.
May 13, 2005	The Banking Regulation (Amendment) Bill, 2005, introduced in the Lok Sabha
Dec. 13, 2005	The Parliamentary Standing Committee recommended the removal of the 10 percent voting right cap on shareholders of private banks. The move, however, would not alter voting right in the Government-owned banks.
May 18, 2009	The Banking Regulation (Amendment) Bill, 2005, lapsed with the dissolution of the 14th Lok Sabha.
Timeline for 2011–2012 Banking Laws (Amendment) Bill	
Mar. 22, 2011	Introduction of The 2011 Banking Laws (Amendment) Bill in the Lok Sabha
Mar. 29, 2011	The Bill is referred to the Standing Committee on Finance.
Dec. 13, 2011	The Standing Committee issued its report. The provisions of the Bill "incorporate almost all recommendations proposed by the Standing Committee" on the 2005 Bill. The Committee recommended that the voting limit be increased from 10 percent to 26 percent for shareholders in private banks in order "to maintain balance between concentration of economic control and corporate democracy."
Apr. 26, 2012	The Cabinet cleared the revised 2011 Banking Laws (Amendment) Bill with higher voting rights for shareholders in private banks (26 percent).
Dec. 18, 2012	The seven-year wait for amending the Banking Regulation Act ended as the Lok Sabha passed the much-debated Banking Bill.
Dec. 20, 2012	The upper house of Parliament cleared the Bill, two days after the Lok Sabha, the lower house, gave the legislation its nod.

Table 1 presents the chronology of events leading to the increase of the shareholder voting cap in Indian private banks. The more important dates, for which we conduct an event study analysis, are in bold. Note that no abnormal price reaction on the rest of the dates is detected, but we include them in the description of the chronology to obtain a complete picture of the long process leading to the enactment of the 2011 Bill.

voting power to initiate a takeover threat.[20] Reduced voting power also jeopardizes large shareholders' ability and incentive to monitor and discipline incumbent management. These two effects of voting caps adversely impact value. In addition, it is worth noting that the abolition of a voting cap through deregulation has important differences with explicit mechanisms that are imposed to protect management, such as differential voting rights, pyramidal structures, cross-holdings, and antitakeover provisions (ATPs). First, it circumvents the endogeneity problem of firm-level ownership structure decisions. Second, concentrated control through disproportionate ownership and ATPs can be beneficial depending on the governance structure of individual firms, the regulatory and legal environments and the state of economic development in a country. In contrast, as Burkart and Lee (2008) observe, except in cases where voting restrictions are intended to protect strategic and priority sectors from foreign intervention, voting caps generally hurt share value by protecting entrenched management from hostile takeovers and shareholder activism. As such, removal of voting caps should enhance shareholder wealth by increasing the probability of a contested acquisition and a change in control.

In Zingales' (1995) model, superior voting shares (SVS) sell at a premium over restricted voting shares (RVS) by the value of vote, reflecting the probability that a control contest can be successfully initiated. Specifically, the value of the superior voting privilege is determined by the magnitude of the private benefits of control, and the proportion of shares owned by the majority with SVS. Similarly, Nenova (2003) asserts that if variable cash-flow rights of SVS and RVS are equal, the market value of a marginal vote equals the expected discounted equilibrium value of a vote at the time of a control contest. In our setting, all shares carry the same cash-flow rights but when subject to cap, the value of votes is depressed given the impossibility of a takeover. Following Zingales, we contend that if the value of vote is determined by the probability that a change in control is feasible, then the value of a vote should rise at the announcement of the removal of the voting cap that changes the distribution of voting rights and facilitates a takeover.

We develop a model where the value of vote derives from two sources: the proportion of shares subject to the voting cap and the expected gains following a takeover. Let P_1 (P_2) be the stock price before (after) the removal of the voting cap, and N_1 (N_2) be the number of shares held by domestic (foreign) q shareholders, respectively. Let y represent the voting cap. Let D (F) denote the fraction of shares owned by domestic (foreign) investors, respectively, that are not subject to the voting cap, such that $(DN_1 + FN_2)$ is the total number of shares not subject to the voting cap. Denoting value of equity and the total number of votes as E and V, respectively, it follows that:

$$\begin{aligned} E(\text{before}) &= \text{value of equity before the relaxation} \\ &= P_1(N_1 + N_2) = P_1 N \\ E(\text{after}) &= \text{value of equity after the relaxation} \\ &= P_2(N_1 + N_2) = P_2 N \\ V(\text{before}) &= \text{Total votes before the relaxation of the voting cap} \\ &= [(DN_1 + FN_2) + y(N - (DN_1 + FN_2))] \\ &= [(1-y)(DN_1 + FN_2) + yN] \end{aligned} \quad (1)$$

The second term in Eq. (1) represents the voting rights attached to shares subject to the voting cap. If no shares are subject to the voting cap, D=F=1, and V(before)=(N_1+N_2)=N. Assuming that the voting cap is completely removed so that voting rights are fully restored, the total number of votes after the removal of cap is V (after)=N. Let us define as PVR_c the change in the value of voting rights after removal of the voting cap:

$$\begin{aligned} PVR_c &= \frac{\text{Gain in equity value after removal of voting cap}}{\text{Increase in number of votes}} \\ &= \frac{E(after) - E(before)}{V(after) - V(before)} = \frac{(P_2 - P_1)(N)}{N - [yN + (1-y)(DN_1 + FN_2)]} \\ &= \frac{(P_2 - P_1)}{(1-y)[1 - (DN_1 + FN_2)/N]} \end{aligned} \quad (2)$$

To interpret Eq. (2), note that although removal of the voting cap does not change ownership distribution, it alters the distribu-

[20] Goergen et al. (2005) argue that voting restrictions represent important anti-takeover devices that discourage potential bidders from making an offer. Therefore, their abolishment in some European countries, such as those of French legal origin, and the EU accession countries, is motivated by regulators keen to stimulate the takeover market.

tion of voting rights and restores voting power, which attracts investors that are interested in control. As such, we posit that the removal of voting cap increases the probability of a contested acquisition, and enhances the value of vote and equity. Since the denominator in (2) is positive, the change in the value of voting rights is positive if $P_2 > P_1$, which leads to our first hypothesis:

Hypothesis 1. *The proposal to lift the 10 percent voting cap increases the probability of a control contest and induces positive revaluation of banking stocks that face increased takeover threat, with the effect being higher for banks where the threat is higher.*

Hypothesis 1 asserts that the valuation effect captures the likelihood of takeover. Given that takeover threat is a function of ownership structure and performance, Hypothesis 1 implies that the proposal to lift the 10 percent voting cap would have a differential effect for government, old private and new private banks, due to their differences in the likelihood of becoming takeover targets. Previous research shows that, in general, private banks are more profitable than public sector banks, with the possible exception of SBI. [21] In addition, since old private banks are smaller and less efficient, we expect them to be more vulnerable to takeover threat and their valuation gain to be higher than that for new private banks. For government banks where the government maintains at least 51 percent stake, the threat of takeover is zero. Therefore, Hypothesis 1 implies no valuation effect for government banks and higher valuation effect for old private banks compared to new private banks. However, if the increased takeover threat makes the banking sector more competitive, government banks will be forced to improve performance, which may induce value gains.

Since we posit that old private banks are smaller and with worse financial performance than new private banks, and would be more vulnerable to takeover if the voting cap is removed, we also construct a direct test whether variation of size and performance (ROA) within the group of old private banks is associated with increased takeover probability by interacting the old private banks dummy variable with size/financial performance. We predict that these interaction variables will explain away the positive expected effect for old private banks.

Note that Hypothesis 1 is developed on the premise of dominance of Type I or stylized principal-agent problems. Type II or principal-principal agency problems may also have bearing, and, in the context of such problems, the impact of the proposal to lift the voting cap would be different, if promoters or majority shareholders have controlling interests in Indian banks, as their entrenchment will be enhanced by the removal of the cap. To test this effect, we collect data on blockholder ownership prior to and after the proposal. We discuss this issue in more detail when we develop the test methodology.

The valuation gain at the relaxation of the voting cap is calculated as follows:

$$R_i = \frac{(P_2 - P_1)}{P_1} = \frac{PVR_c(1-y)[1-(DN_1 + FN_2)/N]}{P_1} \quad (3)$$

y represents the voting cap, so (1−y) measures the loss of voting power of shareholders subject to the cap. (1−y) $[1-(DN_1+FN_2)/N]$ represents the wedge between voting rights and cash-flow rights. The smaller the value of y and the larger the proportion of shareholders subject to the cap, the wider is the wedge. A wider wedge implies greater impact of redistribution of voting rights, and a higher acquisition probability after the abolition of the voting cap, and consequently a higher valuation effect at announcement of removal of the voting cap. Eq. (3) also implies that the larger the number of shares not subject to the cap ($[(DN_1 + FN_2)/(N)]$), the smaller is the impact of the redistribution of voting rights, and the smaller is the consequent valuation effect. If $[(DN_1 + FN_2)/(N)] = 1$, there is no redistribution of voting power after the cap is removed, and Eq. (3) implies no valuation change. However, it does not increase the threat of takeover control-motivated investors who avoided holding the stock because of the cap would consider ownership positions after the cap is removed, which would enhance acquisition likelihood and value. Eq. (3) leads to Hypothesis 2:

Hypothesis 2. *The valuation effect associated with the removal of the voting cap is positively related to the wedge between voting rights and cash-flow rights and positively related to the proportion of shares subject to the cap.*

Hypothesis 2 asserts that the valuation effect of removal of voting cap is a positive function of the wedge between control rights and cash-flow rights (*Wedge*), and the proportion of ownership subject to voting cap (*Shares Subject to Cap*). Note that the 2005 proposal called for complete removal of the cap for private banks, while lifting of the cap from 1 to 10 percent only for government banks. Therefore, although a partial lifting of the cap would result in reduction in the wedge for government banks, it does not increase the threat of takeover for these banks. However, abolishment of the cap (for private banks) enhances competition in the banking sector. Furthermore, the decrease in wedge for government banks, although not as large as with private banks, increases monitoring by large non-promoter shareholders. Therefore, we expect weaker positive effect of the proposal for wedge and shares subject to cap for government banks. We capture the differential effect of wedge and shares subject to cap for government vs. private banks, by replacing *Wedge* with *Wedge*Gov* and *Wedge*Priv* in our empirical models. We posit that *Wedge*Priv* will be associated with a higher positive coefficient on the announcement of the 2005 proposal and a negative coefficient reflecting the disappointment of the market on the news in 2012 that the original 1 percent cap was not changed for government banks, whereas it was partially lifted for private banks.

5. Data

The forty-one banks included in the study are listed is Table 2. Twenty-four banks are majority owned by the government, with at least 51 percent government ownership. Seventeen banks are privately owned, nine of which were formed under the old rules in the 1940s, and the other eight are formed under the new 1993 RBI guidelines.[22] Since our analyses require stock price data, we exclude non-traded banks.

5.1. Financial and performance statistics

Banks' selected financial and performance data for the period 2004–2013 are presented in Table 3, Panel A. Total assets are reported in billions of rupees.[23] All other numbers are expressed as percentages or ratios. Total assets of banks have increased from

[21] However, Brooks (2003) reports that ownership is not a key determinant of efficiency and profitability of Indian banks. Bhaumik and Dimova (2004) find that although private banks and foreign banks were more efficient than public sector banks initially after deregulation, ownership had no impact on performance after the late nineties. In contrast, Sanyal and Shankar (2011) find that over the period 1996-2004, private banks are more productive than public banks, and the result is driven by new private banks. The literature on the impact of ownership structure and competition on the productivity and performance of Indian banks is extensive (Das and Ghosh, 2006; Sensarma, 2008; Zhao et al., 2010; Sahoo and Mishra, 2012; Casu et al., 2013; Fujii et al., 2014). Despite the extensive research, there is no consensus on the issue.

[22] Our sample includes 41 banks. However, the sample size in the analyses varies by year, depending on availability of data.

[23] The exchange rate between US$ and Indian rupee fluctuated between INR 50-60 per dollar over the last ten years.

Table 2
Indian banks included in analysis.

Private banks (17)	Government banks (24)
New private banks	
Axis Bank Ltd.[a]	Allahabad Bank
Development Credit Bank Ltd.	Andhra Bank
Centurion Bank Of Punjab Ltd.	Bank Of Baroda
HDFC Bank Ltd.	Bank Of India
ICICI Bank Ltd.	Bank Of Maharashtra
Indusind Bank Ltd.	Canara Bank
Kotak Mahindra Bank Ltd.	Central Bank Of India
Yes Bank Ltd.	Corporation Bank
	Dena Bank
Old private banks	IDBI Bank Ltd.
City Union Bank Ltd.	Indian Bank
Dhanlaxmi Bank Ltd.	Indian Overseas Bank
Federal Bank Ltd.	Oriental Bank Of Commerce
ING Vysya Bank Ltd.	Punjab & Sind Bank
Jammu & Kashmir Bank Ltd.	Punjab National Bank
Karnataka Bank Ltd.	State Bank Of Bikaner & Jaipur
Karur Vysya Bank Ltd.	State Bank Of India
Lakshmi Vilas Bank Ltd.	State Bank Of Mysore
South Indian Bank Ltd.	State Bank Of Travancore
	Syndicate Bank
	Uco Bank
	Union Bank Of India
	United Bank Of India
	Vijaya Bank

Table 2 presents the list of Indian banks included in the analysis. The classification of banks is based on the RBI's classification of Indian banks. The RBI's classification is based on ownership and the nature of operation. The main criterion for RBI classification as a private bank is that the bank should be a public limited company with shares listed on a stock exchange. New private banks were created pursuant to the January 1993 RBI guidelines regarding the formation and functioning of private sector banks. Old private banks were created in the 1940s to extend banking services to underserved areas. Government banks are government-controlled banks, even though since 1995 these banks have sold shares to the public and those shares are freely traded. IDBI Bank, Indian Bank, State Bank of Mysore, United Bank of India, Lakshmi Vilas Bank, YES bank & Development Credit Bank only included in the announcement returns analysis of the effect of the 2011 Bill, since they were not listed in 2005.

[a] Previously UTI Bank.

2004 to 2013 – a trend consistent with the recent growth of the Indian economy. The data reveal impressive growth of bank assets in each of the years of the study. The share of deposits to bank assets has remained relatively stable at around 80 percent. ROA has been relatively stable at around 1 percent. ROE shows an increasing trend reflecting the substantial increase in leverage during the period examined – from about 12–13 percent in 2004–2005 to close to 50 percent in 2013. Asset quality and liquidity ratios reflect increasing use of loans to reduce the burden of non-performing assets.

In Panel B, we examine the summary statistics by bank type. For all years, government banks are larger than private banks, and the new privates are larger than the old privates. Pennathur et al. (2012) also report that over the period 2001–2009, public sector banks are, on average, much larger than private sector banks and foreign banks. Using data from 2001–2007, Bhaumik et al. (2011) report similar patterns, with the additional finding that the new private banks are much larger than the old private banks.[24] Deposits as a percent of assets is comparable between public sector banks and old private banks, but lower for new private banks, and comparable to corresponding numbers reported by Pennathur et al. (2012). This pattern is indicative of the business models of different bank types. Instead of the old privates' traditional model of retail banking, new privates are oriented to business from the commercial sector, and focus on loans to and revenues from the business sector. Growth in assets for new privates outpaced that of the old privates and government banks in most years. In terms of performance, ROA is superior for new privates. The extant evidence on this issue is mixed. Das and Ghosh (2009) report that over 1992–2004, efficiency scores of PSBs are significantly higher than Indian private and foreign banks. Das and Kumbhakar (2012) also report that efficiency of state-owned banks surpassed that of private banks, which the authors attribute to these banks' effective response to the new challenges of competition. Our results are similar to Sanyal and Shankar (2011) who report that Indian private bank productivity is 63 percent higher than that of public banks, with the new private banks leading the charge with 83 percent higher productivity than public banks. Our data also show that ROE is inferior for new privates, which can be attributed to high accumulation of assets by these banks during this period.

Leverage ratio drops significantly for old privates, an indication of their preference for equity to acquire assets. On average, operating costs as a percentage of assets is the highest for new private banks, relatively lower for old private banks and lowest for government banks. This pattern resonates with Ray and Das (2010) who examined the cost and profit efficiency of Indian banks over 1997–2003 and concluded that state-owned banks performed better than private and foreign banks. Indeed, the authors detected a rightward shift of efficiency of Indian banks over the years, driven mainly by state banks. Loan-to-asset ratios for all bank groups indicate that banks have become aggressive in their loan portfolios. The data also reveal that old private and government banks have higher percentage of net non-performing assets than new private banks. After 2007, the percentage of non-performing assets of both old and new private banks improved due to the implementation of BASEL norms. Malyadri and Sirisha (2011), Khompi (2013) and Mahajan (2014) report similar pattern over the years 2004–2011. Their data show a steady drop in NPAs over the recent years. To reconcile the seemingly conflicting (concurrent) patterns of high (low) operating costs and low (high) non-performing assets for new (old) private banks, note that because of private banks' heavy investment during the study period, operational efficiency may be a misleading measure of performance.

5.2. Ownership structure

The ownership structure is presented in Panels A and B of Table 4. We provide public ownership, insider ownership and foreign ownership for each year for the banking sector (Panel A) and by bank groups (Panel B) for each year. We include only retail ownership in public ownership.[25] In the Indian context, promoters represent the original owners/shareholders, who incorporated the bank and continued as management with substantial control. The relation between a promoter and a company must be deemed to be fiduciary from the day planning for floating the company started.[26] Consistent with related literature, we identify the promoter as an insider and measure insider ownership as the total number of shares owned by promoters. The normal separation between owners and managers is not applicable in the Indian

[24] The literature on the performance, efficiency, and NPA of the Indian banks is vast. We cite only a few of the most recent studies on this topic.

[25] Ownership by domestic financial institutions and corporations are not included in any category, so the ownership numbers do not add up to 100 percent. However, it does not alter any of our results and interpretations because our subsequent analyses focus on the impact of insider and foreign ownership.

[26] A director/officer of the issuer company is not considered a promoter if he is acting as such merely in a professional capacity. Control includes the right to appoint the majority of the directors or to control the management or policy decisions exercisable by a person or persons acting individually or in concert, directly or indirectly, including by virtue of their shareholding or management rights or shareholding agreements or voting agreements or in any other manner.

Table 3
Financial characteristics of Indian banks.

Panel A – Panel A provides mean values and standard deviation of financial variables of Indian banks during 2004–2013. Standard deviation is in italics below the mean values. Data are obtained directly from the annual statements of individual banks from the website of the bank and the RBI.

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
	Bank characteristics									
Total assets Rs. billion	439.00	546.36	604.16	747.06	932.25	1143.43	1336.89	1617.78	1863.86	2163.14
	668.34	*762.46*	*857.08*	*1020.64*	*1266.41*	*1609.23*	*1760.04*	*2064.98*	*2289.47*	*2659.97*
Deposits as percentage of assets	83.58	82.52	82.20	81.92	82.29	82.91	83.23	82.57	81.69	81.66
	6.88	*12.33*	*10.44*	*11.60*	*7.84*	*8.15*	*7.40*	*7.69*	*8.05*	*7.86*
	Managerial quality									
Growth in total assets (%)	20.35	28.22	22.01	29.01	27.17	21.30	21.53	24.00	17.44	17.38
	12.04	*82.54*	*35.42*	*27.01*	*10.99*	*11.40*	*11.15*	*12.70*	*6.42*	*7.83*
ROA (%)	1.18	0.67	0.73	0.84	0.91	0.88	0.88	0.94	0.89	0.86
	0.44	*0.88*	*0.62*	*0.30*	*0.30*	*0.49*	*0.48*	*0.34*	*0.44*	*0.41*
ROE (%)	2.84	1.79	2.01	2.43	2.96	3.64	4.30	4.83	5.03	5.32
	2.28	*2.15*	*2.12*	*2.11*	*2.57*	*3.43*	*4.00*	*4.25*	*4.63*	*5.19*
Operating cost to total assets (%)	2.16	2.18	2.14	1.86	1.74	1.74	1.65	1.71	1.67	1.62
	0.48	*0.59*	*0.58*	*0.48*	*0.53*	*0.66*	*0.52*	*0.47*	*0.52*	*0.45*
	Asset quality and liquidity									
Loan to assets (%)	44.92	48.43	55.55	58.31	58.50	59.20	59.55	61.16	62.43	62.05
	7.97	*9.23*	*4.78*	*4.51*	*3.58*	*3.52*	*3.48*	*3.35*	*3.74*	*4.40*
Leverage ratio (%)	13.03	12.07	14.61	18.90	22.06	24.19	27.69	34.74	40.64	47.10
	18.27	*29.65*	*17.96*	*23.97*	*27.77*	*29.21*	*31.21*	*39.55*	*42.59*	*49.75*
Gross NPA to total assets (%)	3.45	2.87	2.28	1.59	1.21	1.18	1.26	1.44	1.18	1.77
	1.65	*1.52*	*1.35*	*0.59*	*0.47*	*0.48*	*0.63*	*0.72*	*0.54*	*0.90*
Net NPA to total assets (%)	1.03	1.15	0.75	0.60	0.49	0.52	0.59	0.74	0.50	0.98
	1.12	*0.80*	*0.45*	*0.31*	*0.30*	*0.30*	*0.44*	*0.45*	*0.28*	*0.63*

Panel B – Panel B provides mean values of financial variables of Indian banks by bank type during 2004–2013. The classification of banks is based on the RBI's classification of Indian banks, based on ownership and the nature of operation. The main criterion for RBI classification as a private bank is that the bank should be a public limited company with shares listed on a stock exchange. New private banks were created pursuant to the January 1993 RBI guidelines regarding the formation and functioning of private sector banks. Old private banks were created in the 1940s to extend banking services to underserved areas. Government banks are government-controlled banks, even though since 1995 these banks have sold shares to the public and their shares are freely traded. Government is considered an insider in government-controlled banks. Data are obtained directly from the annual statements of individual banks from the website of the bank and the RBI. The number of banks in each subsample represents total unique banks over the period examined. The number of banks by subcategory vary slightly by year.

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
	Government banks ($N = 24$)=									
Total assets Rs. billion	584	698	790	956	1188	1494	1767	2128	2425	2798
Deposits as % of assets	84.62	82.75	82.68	84.38	83.49	84.91	85.56	84.74	84.51	84.38
Growth in total assets (%)	18.66	37.01	14.40	23.25	25.27	22.68	20.96	20.23	15.20	15.93
ROA (%)	1.16	0.86	0.77	0.86	0.88	0.87	0.88	0.85	0.76	0.65
ROE (%)	2.62	2.43	2.27	2.82	3.46	4.29	5.12	5.54	5.27	5.32
Operating cost to assets (%)	2.28	2.19	2.07	1.76	1.54	1.49	1.43	1.54	1.44	1.39
Loan to assets (%)	44.15	48.67	55.22	59.16	59.76	60.82	60.78	62.63	64.11	63.96
Leverage ratio (%)	11.26	11.72	18.02	22.65	28.36	29.39	34.08	42.95	46.25	53.09
Gross NPA to assets (%)	3.71	2.89	2.26	1.60	1.22	1.08	1.22	1.74	1.27	2.15
Net NPA to assets (%)	0.95	0.99	0.71	0.57	0.48	0.45	0.60	0.95	0.63	1.29
	New private banks ($N = 8$)=									
Total assets Rs. billion	375	597	586	809	1027	1136	1260	1556	1861	2207
Deposits as percentage of assets	74.48	74.63	75.05	74.21	73.56	71.19	71.44	70.73	68.00	68.46
Growth in total assets (%)	30.81	18.94	57.09	61.48	37.42	14.38	22.87	31.24	21.91	24.33
ROA (%)	1.18	0.31	0.51	0.73	0.89	0.68	0.91	1.21	1.34	1.43
ROE (%)	1.43	0.71	1.00	1.49	1.89	2.21	2.82	3.83	4.93	6.02
Operating cost to assets (%)	1.99	2.38	2.52	2.28	2.47	2.69	2.32	2.21	2.22	2.19
Loan to assets (%)	41.59	38.10	53.38	53.37	53.95	55.85	56.45	57.23	57.67	56.57
Leverage ratio (%)	18.37	10.67	14.47	22.51	22.52	27.27	28.76	36.76	51.86	60.93
Gross NPA to assets (%)	1.72	2.08	2.11	1.38	1.13	1.56	1.39	0.52	1.09	0.94
Net NPA to assets (%)	0.33	1.08	0.76	0.73	0.62	0.85	0.59	0.19	0.30	0.25
	Old private banks ($N = 9$)=									
Total assets Rs. billion	95	107	123	143	177	213	250	307	368	433
Deposits as percentage of assets	86.86	87.18	86.49	81.35	85.88	86.69	86.17	86.00	84.81	84.69
Growth in total assets (%)	19.05	10.96	15.00	19.10	24.25	23.00	22.02	28.41	19.92	15.88
ROA (%)	1.25	0.44	0.79	0.89	0.99	1.05	0.88	0.96	0.89	0.97
ROE (%)	4.27	1.21	2.21	2.22	2.58	3.03	3.25	3.72	4.48	5.46
Operating cost to assets (%)	1.95	2.00	2.02	1.81	1.69	1.68	1.70	1.78	1.83	1.79
Loan to assets (%)	49.18	54.68	58.11	59.88	58.67	57.47	58.68	60.28	61.68	61.24
Leverage ratio (%)	13.42	11.92	6.76	6.94	6.28	7.91	9.84	11.27	16.97	20.39
Gross NPA to assets (%)	3.98	3.37	2.52	1.94	1.40	1.34	1.38	1.11	1.09	1.38
Net NPA to assets (%)	1.71	1.60	0.92	0.62	0.44	0.54	0.61	0.43	0.32	0.70

Table 4
Ownership structure of Indian banks.

Panel A – Panel A provides mean values and standard deviation of ownership composition of Indian banks during 2004–2013. Standard deviations are in italics below the mean values.

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Public ownership (%)	10.83	11.67	21.73	19.26	16.93	17.80	16.72	15.75	15.37	15.15
	9.98	*10.00*	*20.73*	*17.62*	*15.52*	*15.02*	*15.23*	*15.71*	*15.41*	*15.25*
Insider ownership (%)	62.41	56.25	40.22	49.91	52.61	52.06	53.05	57.27	56.55	45.83
	18.77	*23.87*	*30.34*	*25.40*	*24.40*	*24.33*	*24.11*	*22.88*	*22.62*	*31.23*
Foreign investment (%)	9.40	11.50	15.18	19.13	19.99	16.06	17.46	18.44	17.93	18.81
	14.48	*13.97*	*14.69*	*16.43*	*16.35*	*14.74*	*14.95*	*15.64*	*16.67*	*17.39*
Wedge (%)	5.92	6.93	7.46	8.09	7.28	7.27	7.50	6.62	8.18	5.77
	10.24	*9.68*	*9.42*	*9.63*	*8.55*	*8.14*	*7.87*	*7.31*	*7.78*	*5.99*
Shares sub to cap (%)	9.16	11.01	10.76	11.14	10.19	10.29	10.52	8.93	10.31	7.21
	15.64	*16.01*	*14.07*	*14.10*	*12.89*	*12.48*	*11.74*	*9.95*	*10.06*	*7.04*

Panel B – Panel B provides mean values of ownership composition of Indian banks by bank type during 2004–2013.

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
	Government banks (*N* = 24)									
Public ownership (%)	7.43	9.16	12.47	11.27	10.24	11.30	10.01	8.58	8.42	8.29
Insider ownership (%)	69.06	67.25	62.15	64.26	64.24	64.42	66.45	67.50	67.02	68.28
Foreign investment (%)	4.96	7.64	9.95	11.01	10.57	6.88	8.45	8.75	7.15	7.36
Wedge (%)	2.72	4.24	5.47	6.52	6.63	6.86	7.69	6.74	9.59	8.82
Shares sub to cap (%)	2.85	4.54	5.68	6.73	7.00	7.45	8.27	7.36	10.30	9.61
	New private banks (*N* = 8)									
Public ownership (%)	22.11	24.68	11.84	13.11	11.61	13.99	12.99	13.29	12.42	12.31
Insider ownership (%)	46.34	41.83	24.11	26.30	30.74	29.63	27.78	26.78	26.60	18.34
Foreign investment (%)	25.31	25.78	28.05	37.82	36.99	30.65	34.66	37.18	36.65	39.77
Wedge (%)	16.42	17.10	15.79	14.96	14.35	13.42	12.44	10.57	10.45	2.60
Shares sub to cap (%)	29.28	34.24	30.07	27.81	27.21	26.28	25.29	19.14	17.59	6.89
	Old private banks (*N* = 9)									
Public ownership (%)	10.40	9.55	48.89	42.68	37.40	36.63	36.78	36.80	36.21	35.66
Insider ownership (%)	26.73	14.81	6.52	19.09	14.51	14.53	16.79	22.52	22.65	7.35
Foreign investment (%)	10.66	12.30	19.14	26.26	31.90	29.18	28.10	29.71	32.14	33.06
Wedge (%)	10.42	10.46	10.69	8.47	4.02	4.01	4.00	3.95	4.01	1.17
Shares sub to cap (%)	17.09	17.13	15.69	11.80	5.69	5.68	5.67	5.62	5.67	2.83

Panel C – Panel C provides mean values of wedge and number of shareholders, facing voting cap restrictions (with positive wedge), by investor types – insiders (promoters) vs. outsiders (non-promoters) – during 2004–2013. We present these statistics for the total sample and by bank classification.

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
	All (*N* = 41)									
Wedge by insiders (%)	3.44	3.12	3.10	3.52	2.66	2.54	2.39	2.26	2.16	0.54
Wedge by outsiders (%)	2.48	3.82	4.37	4.56	4.63	4.73	5.11	4.36	6.03	5.24
Number of insiders with wedge	0.17	0.17	0.17	0.20	0.17	0.17	0.17	0.17	0.15	0.07
Number of outsiders with wedge	1.17	1.63	2.10	2.56	2.54	2.32	2.37	2.22	2.22	2.02
	Government banks (*N* = 24)									
Wedge by insiders (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wedge by outsiders (%)	2.72	4.24	5.47	6.52	6.63	6.86	7.69	6.74	9.59	8.82
Number of Insiders with wedge	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Number of outsiders with wedge	1.75	2.42	3.33	4.21	4.17	3.79	3.88	3.75	3.75	3.42
	New private banks (*N* = 8)									
Wedge by insiders (%)	12.87	11.00	10.89	10.58	9.96	9.26	8.89	8.14	8.04	2.15
Wedge by outsiders (%)	3.55	6.10	4.90	4.38	4.39	4.16	3.55	2.43	2.41	0.45
Number of insiders with wedge	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.57	0.29
Number of outsiders with wedge	0.57	1.00	0.71	0.57	0.57	0.57	0.57	0.14	0.14	0.14
	Old private banks (*N* = 9)									
Wedge by insiders (%)	8.47	8.46	8.45	8.47	4.02	4.01	4.00	3.95	4.01	1.17
Wedge by outsiders (%)	1.95	2.00	2.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Number of insiders with wedge	0.33	0.33	0.33	0.33	0.17	0.17	0.17	0.17	0.17	0.17
Number of outsiders with wedge	0.33	0.33	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Table 4 provides statistics for ownership structure and breakdown of wedge by ownership type for Indian banks during 2004–2013. Data are obtained from the annual statements of individual banks from the website of the bank and the RBI. Foreign ownership includes ownership by foreign direct investors (FDI) and foreign institutional investors (FII). FDI is equal to zero for all banks, except for two new private banks, Axis Bank (12.4 percent in 2005) and Yes Bank (5.05–5.56 percent during 2005–2009). The classification of banks is based on the RBI's classification of Indian banks, based on ownership and the nature of operation. We identify insiders (promoters) as the original owners/shareholders who incorporated the bank and are involved in the bank's management. Government is considered an insider in government-controlled banks. The number of banks in each subsample represents total unique banks over the period examined. The number of banks by subcategory vary slightly by year.

context because insider owners also serve as managers. For government banks, managers are government employees deputed in that role by the government.

In Panel A, we find a generally increasing trend in public (retail) ownership and a simultaneous decrease in insider ownership. In Panel B, we observe that, for government banks, the distribution of public and insider ownership is fairly stable over the study period. However, public ownership drops for new privates, and increases significantly for old privates. Insider ownership drops for both types of private banks. The increase (decrease) in public own-

ership makes the old (new) private banks more (less) vulnerable to takeover threat. The decrease in insider ownership has a similar effect. Analysis of data on individual banks reveals that, in only one bank (Kotak Mahindra Bank Ltd., a family-owned bank), individual shareholders have more than 50 percent ownership.[27] For other banks, blockholder ownership varies between 5 and 35 percent. As such, the data reveal no serious entrenchment of insiders and foreign investors in private banks.[28] In government banks, the proposed lifting of the voting cap from 1 to 10 percent for non-government owners should attract investors and reduce government's control. However, since government retains at least 51 percent ownership with no voting cap, the effect of relaxing the voting cap is expected to be minimal. This conjecture is borne out by the steady pattern of insider ownership of government banks.

Foreign ownership includes both foreign direct investors (FDI, promoters) who purchase primary shares at the initial offering and foreign institutional investors (FII) who acquire the shares in the secondary market. We aggregate this data, since FDI is equal to zero for all banks, except for two new private banks, Axis bank (12.4 percent in 2005) and Yes Bank (5.05–5.56 percent during 2005–2009). Therefore foreign ownership during the years immediately prior the 2005 proposal and 2012 Bill was only represented by FII. The aggregate data (Panel A) show that foreign ownership has doubled during the study period, and we find from Panel B that it increased significantly for both old private and new private banks with the upward trend being driven by increased ownership by FIIs. We conjecture that because of the voting cap, foreign owners were motivated mainly by cash-flow returns, with little interest in governance because of lack of control benefits. As such, despite the deregulation allowing FDI up to 74 percent ownership of outstanding shares, foreign banks avoided ownership positions in Indian banks. Indeed, no foreign investor held more than 35 percent of the shares outstanding in any bank.[29] Finally, the stagnant growth in foreign ownership of government banks is attributable to FDIs not being permitted in these banks.

Overall, several patterns are discernible from the ownership structure of banks over the sample period. First, insiders are the most dominant group in state-controlled banks, which corroborates previous evidence that, despite attempts at privatization, investors showed limited interest in these banks, mainly because of the government's refusal to give up control. Second, old private banks experienced increased public ownership and lower insider ownership, which increases their vulnerability to takeover threat, and implies that the removal of the voting cap should have a strong impact on these banks. Third, the low public ownership of new private banks suggests that they are less likely to be takeover targets.

5.3. Wedge between cash-flow rights and voting rights

In panels A and B of Table 4 we also report the average wedge and shares subject to cap for each year by bank type. We define *Wedge* as the difference between cash-flow (ownership) and voting rights.[30] In private banks, for each shareholder with ownership exceeding 10 percent, we calculate wedge as the difference between ownership percentage and 10. The sum of the wedge for all individual shareholders represents the total wedge for each bank (*Wedge*). For SBI where the voting cap is 10 percent, we calculate wedge following the same procedure as private banks. For other government banks, we collect ownership data for all investors with more than 1 percent ownership and calculate individual shareholder wedge as (ownership percentage − 1), and the total wedge for each bank is calculated as the sum of the wedge for all individual shareholders. From Panel A, we observe that total wedge increases from 2004 through 2007, then decreases from 2008 through 2011, and increases again in 2012. The lower value of wedge in 2013 reflects the higher voting cap of 26 percent for private banks. In Panel B, we present the evolution of *Wedge* for each year during the study period by ownership type. We note that, in 2004, the average *Wedge* was 2.7, 10.4 and 16.4 percent for government, new private and old private banks, respectively. In 2011, the *Wedge* was 6.7, 4.0 and 10.6 percent for government, new private and old private banks, respectively. Over this period, wedge increased steadily for government banks, while both old and new private banks show the opposite trend, although for new privates, the big drop is in 2012, which is due to the new deregulation. For old privates, the lower wedge, in conjunction with increasing public ownership, is indicative of ownership becoming more diffused.

We calculate *Shares Subject to Cap* as the total shareholding greater than 10 (1) percent for private banks and SBI (government). The statistics in Panel A illustrate that the average *Shares Subject to Cap* for all banks follow the same trend as the *Wedge*. Turning to the evolution of *Shares Subject to Cap* over time by bank type, we observe that *Shares Subject to Cap* in 2004 were 2.9, 29.3 and 17.1 percent for government, new and old private banks, respectively. In 2011, the corresponding numbers were 7.4, 19.1 and 5.6, respectively. *Shares Subject to Cap* show a large drop in 2013 for new privates, while the drop for old privates is more gradual. These statistics corroborate our previous observation that ownership becomes more diffused in later years. For government banks, the higher wedge in recent years suggests that shareholders possibly increased their ownership in anticipation of the voting cap being lifted to 10 percent.

Finally, in Panel C of Table 4, we present summary statistics for the mean values of wedge and number of shareholders with positive wedge by investor types – insiders (promoters) vs. outsiders (non-promoters) during 2004–2013. We identify insiders (promoters) as the original owners/shareholders who incorporated the bank and are involved in the bank's management. Government is considered an insider in government-controlled banks. We present wedge statistics for the total sample and by bank classification. Several patterns emerge from the data. Insiders' wedge reduced over time, and was nearly eliminated with the implementation of the higher voting cap in 2013, whereas the wedge of outsiders increased through 2012 and the increase of voting cap was not successful in reducing the gap between voting and cash-flow rights. A more careful examination of wedge by bank types shows that wedge by outsiders is the highest for government banks, which also drives the statistics for the entire sample. The high level of outsiders' wedge for state-controlled banks is expected as the voting cap in these banks is much lower – 1 percent (vs. 10 percent for private banks) over 2004–2012. This data clearly amplify

[27] We gathered the data on ownership distribution of each individual bank for each year over the study period. However, since full listing of the data runs into several pages, we do not include this data in the paper in the interest of space. The data can be obtained from the authors on request.

[28] One potential concern with interpretation of our findings is the impact of cross-holdings by corporate entities. Our careful review of shareholdings by corporates for a given private bank reveals that the number of entities holding shares in our sample banks after 2010 ranges between 1 to 3, and combined holding of all corporate entities in any particular bank does not exceed 10 percent. Therefore, even assuming all the entities to be cross-held, corporate entities could not use cross holdings to circumvent the voting rights constraint, and use it as a mechanism for control. As such, cross holdings do not affect the interpretation of our results.

[29] In 2003, only three private banks had holdings by FDIs. One of these ownership positions was divested by 2005.

[30] The impact of wedge between cash-flow rights and voting rights on firm value is the subject of extensive research. Lin et al. (2011a), (2011b) and Gompers et al. (2010) find that wedge between cash-flow and voting rights is detrimental to shareholder value, and that an event that minimizes the wedge induces valuation gains.

the need for the increasing of the voting cap in privatized state-controlled banks. It appears that raising of the cap from 1 to 10 percent would have most likely eliminated this wedge.

New private banks have a relatively large wedge for insiders and smaller wedge for outsiders. Insiders' wedge decreases over time from approximately 13 to 8 percent, while wedge for outsiders does not show a steady pattern except for its reduction during 2011–2012. Finally, in old private banks, wedge by insiders decreases over time from approximately 8.5 to 4 percent, while post-2007 the wedge for outsiders drops to zero. The results from Panel C are important as they show that the raising of the cap from 10 to 26 percent affected mostly wedge by insiders. Given that insider ownership in 2012 was approximately 25 percent (in the year of deregulation), raising the cap increased the alignment between managerial and ownership incentives through increased control by minority managers-owners.

6. Methodology

To measure the valuation effect of the voting cap regulation, we collect stock returns for Indian banks from the Center for Monitoring Indian Economy (CMIE). We estimate abnormal returns as the difference between the return on the equally-weighted portfolio of subject firms and predicted returns from the market model, using the Bombay Stock Exchange value weighted index (SENSEX) as a proxy for the market. A limitation of using the market model in this case is that events are clustered on a single date, which creates cross-sectional heteroscedasticity and dependence among residuals. To correct for this bias, we use the portfolio approach, which accounts for heteroscedasticity and correlations. Therefore, our test statistics account for cross-sectional heteroscedasticity and dependence among residuals. The announcement day is designated day 0, the estimation period is the 100-day interval (−120, −21), and the event period is the interval (−20, +20) surrounding day 0. Firms with insufficient data during the estimation and/or event periods were excluded. Similar to other studies on the economic consequences of regulatory changes, it is difficult to precisely determine when the news was first received by the market. Therefore, we examine several intervals [(−1, 0), and (−1, +1)] surrounding day 0.[31]

Our main variables of interest are the indicator variables for new and old private banks, *New Private* and *Old Private, Wedge*, and *Shares Subject to Cap*.

6.1. Cross-sectional regression models

Based on Hypotheses 1 and 2, we develop the following baseline regression model where the dependent variable is the cumulative abnormal return over the interval (−1, 0), surrounding the announcement of the voting cap removal.

$$\mathrm{CAR_i} = \alpha_i + \beta_1 OldPrivate_i + \beta_2 NewPrivate_i + \beta_3 Wedge_i + \epsilon_i \quad (4)$$

In the above model, CAR is a function of bank type and wedge. We control for old private and new private banks as indicator variables. The omitted bank type *Government* represents the control group. Based on Hypothesis 1, we expect the coefficient on both private bank variables (*New Private* and *Old Private*) to be positive and significant. Further, given the evidence that the performance of new private banks in terms of cost efficiency and total factor productivity (TFP) is the best in industry (Sensarma, 2008; Pennathur et al., 2012), the takeover threat for new private banks is positive, but lower than the threat for old private banks. As such, we expect the magnitude and significance of the coefficient of *New Private* to be lower than that of *Old Private*. Hypothesis 2 posits that the valuation effect of voting cap removal is positively related to the wedge between voting rights and cash-flow rights. Hence, we predict a positive coefficient for *Wedge*. We measure *Wedge* as of the end of the fiscal year prior to the announcement of the voting cap removal.

Next, we expand our base specification by including ownership and control variables, based on previous studies and as discussed in the previous section. Anecdotal evidence indicates that one of the main goals of liberalization in the banking sector is to induce foreign banks to take ownership positions in Indian banks. The domestic banks were burdened by restrictive takeover rules, and also constrained by lack of capital needed to restructure ailing targets and meet the higher capital standards set by the IMF. In contrast, foreign banks have better access to capital and the incentive for direct investment since the regulatory change allowing 74 percent ownership in private banks. In addition, domestic investors benefit from foreign banks' presence due to their active monitoring and governance.[32] Our data indicate that the foreign ownership of Indian banks during the two announcement periods under study is only by foreign institutional investors (FII) that are motivated by cash-flow returns, not control. Their ownership may induce better performance as poor performance will trigger these investors to disinvest, with potentially adverse effects on shareholders' wealth. Under this scenario, foreign ownership makes banks less vulnerable to takeovers.[33]

Previous research shows that insiders' incentives play an important role in the likelihood of acquisition. For example, Hadlock et al. (1999) find that firms with high managerial ownership are associated with lower acquisition likelihood, which they attribute to entrenched managers' propensity to block acquisitions that threaten their careers. The entrenchment hypothesis predicts *Insider Ownership* to be negatively related to the valuation effect associated with the voting cap removal.

We include several control variables that have been found to be associated with firm and bank valuation. An extensive body of literature explores the impact of firm-specific characteristics on the performance and efficiency of Indian banks. Based on previous studies, we include size (natural logarithm of total assets), return on assets (*ROA*), ratio of debt to debt plus equity and reserves (*Leverage*), and the ratio of non-performing loans to total assets (*NPL/TA*). Noting that poorly performing banks are more likely takeover targets, we predict negative effect for *ROA*. If high leverage is due to low cash-flow, it is a sign of weakness which predicts a positive effect for *Leverage*. Das and Ghosh (2009) report that banks in the smallest size class are the least profit-efficient. Ray and Das (2010) come to similar conclusions. Relatedly, Pennathur et al. (2012) show that increase in bank size leads to a decrease in the variability of bank risk. This evidence implies a negative sign for size. Smaller banks are easier targets also because of the lower investment required. Conversely, if economies of scale is a motive for the acquisition, a positive sign is consistent with the premise that larger banks are more attractive targets. Ghosh et al. (2008) find a significantly negative effect for asset size. However, empirical evidence on this issue is mixed. Finally, Das and Ghosh (2009) identify non-performing loan (NPL) ratio as a significant factor that adversely influences the differential efficiency of

[31] We also examine other intervals [(10, 1), (0, +10), and (−5, +5)], but do not report the results for brevity.

[32] Clarke et al. (2005) conclude that efficiency gains from privatization are greater when foreign banks are allowed to participate in the privatization process, and the government does not restrict competition.

[33] We distinguish between holdings for the two types of foreign investors, but do not find significant differences. Therefore, we only report results for aggregate foreign ownership.

banks. Fujii et al. (2014) also find that NPL is a main factor contributing to bank inefficiency. In a similar vein, Pennathur et al. (2012) find that public sector banks with high loan loss provisions (a proxy for loan quality) pursue income diversification to reduce the risk of failure. Accordingly, we predict that high percentage of non-performing assets is likely to make a bank more vulnerable to takeover, which predicts a positive sign for (*NPL/TA*).

All control variables are measured as of the end of the fiscal year prior to the announcement of the voting cap removal. To the extent that the significance of the old private indicator variable is driven by differences in size, performance and efficiency, including these additional controls should diminish the impact of this variable.

$$\begin{aligned} CAR_i = {} & \alpha_i + \beta_1 Old\,Private_i + \beta_2 New\,Private_i + \beta_3 Wedge_i \\ & + \beta_4 Size_i + \beta_5 ROA_i + \beta_6 NPL/TA_i \\ & + \beta_7 Leverage_i + \beta_8 InsiderOwn_i + \beta_9 ForeignOwn_i + \epsilon_i \end{aligned} \quad (5)$$

In our third model we further include interaction terms between *Wedge* and ownership type (government vs. private) and interaction terms between *Old Private, Size* and *ROA*. Based on our discussion of Hypothesis 2, we predict that the wedge effect will be stronger for private banks for two reasons. First, the threat of takeover for private banks is positive, while this threat is zero for government banks, given that the government maintains majority ownership. However, the relaxation of the voting cap for government banks is still associated with increased monitoring from existing shareholders with large wedge in ownership. Second, recall that the 2005 proposal called to relax the cap to only 10 percent for government-controlled banks. The interactions between type of ownership and wedge aim to capture the differential effect of the Bill on private and government banks. We hypothesize that, in 2005, the effect is stronger for *Wedge*Private*.[34]

$$\begin{aligned} CAR_i = {} & \alpha_i + \beta_1 Old\,Private_i + \beta_2 New\,Private_i + \gamma_1 Wedge_{i^*} Gov_i \\ & + \gamma_2 Wedge_{i^*} Priv_i + \beta_4 Size_i + \beta_5 ROA_i + \beta_6 NPL/TA_i \\ & + \beta_7 Leverage_i + \beta_8 InsiderOwn_i + \beta_9 ForeignOwn_i \\ & + \beta_{10} OldPrivate_i{}^* Size_i + \beta_{11} OldPrivate_i{}^* ROA_i + \epsilon_i \end{aligned} \quad (6)$$

Hypothesis 2 states that the valuation effect associated with the removal of the cap is positively related to the proportion of shares subject to the cap. Since *Shares Subject to Cap* is correlated with *Wedge*, we exclude *Wedge* when we control for *Shares Subject to Cap* and rerun the models specified by Eqs. (4)–(6), but replacing *Wedge* with *Shares Subject to Cap*. We measure *Shares Subject to Cap* as of the end of the fiscal year prior to the announcement of the voting cap removal. Similarly to the *Wedge* variable, we predict a positive and significant coefficient for *Shares Subject to Cap*, while the coefficient on the interaction term *Shares Subject to Cap*Private* will be positive and significant, and larger that the coefficient on *Shares Subject to Cap*Gov*.

7. Analyses of results

In Table 5, we report the stock price reaction of Indian banks surrounding selected dates – September 11, 2002, April 21, 2003, May 5, 2005, December 13, 2011, April 26, 2012 and December 18, 2012. The two critical dates are May 5, 2005, and April 26, 2012, when definitive action was taken regarding the voting cap regulation. Specifically, on these dates, the Bill was presented to the Cabinet, and subsequently revised and cleared by the Cabinet. On the other dates, the bill was introduced for discussion and important

[34] We also collect data on Wedge by foreign investors and insiders and control for potential differential effects in the models, but we do not find different effects. Therefore, we do not report these statistics in the paper.

Table 5
Cumulative abnormal returns for all banks, government banks and private banks using the market model.

Event dates	**September 11, 2002**: The RBI has written to the Government to amend the Banking Regulations Act to abolish the 10 percent voting cap.			**April 21, 2003**: Bill to delete section 12(2) of the Banking Regulation Act, 1949, relating to voting rights introduced.			**May 5, 2005**: The Union Cabinet approved the introduction of a bill to amend the Banking Regulation Act, 1949, to lift the 10 percent voting rights cap in Indian banks.		
Windows	All banks ($n=24$)	Gov banks ($n=12$)	Priv banks ($n=12$)	All banks ($n=33$)	Gov banks ($n=18$)	Priv Banks ($n=15$)	All banks ($n=33$)	Gov banks ($n=18$)	Priv Banks ($n=15$)
(−1,0)	0.33	0.02	0.64	−0.34	−0.75	0.07	4.66**	2.07	7.76***
(−1,+1)	0.85	-0.47	2.16	−0.68	−2.17	0.80	2.79	0.74	5.27**
Event dates	**December 13, 2011**: The Committee recommended that the voting limit be increased from 10 percent to 26 percent for shareholders in private banks.			**April 26, 2012**: The Cabinet cleared the revised 2011 Banking Laws (Amendment) Bill with higher voting rights for shareholders in private banks (26 percent).			**Dec 18, 2012**: Lok Sabha passed 2011 Banking Laws (Amendment) Bill.		
Windows	All banks ($n=37$)	Gov banks ($n=24$)	Priv banks ($n=13$)	All banks ($n=37$)	Gov banks ($n=24$)	Priv Banks ($n=13$)	All banks ($n=41$)	Gov banks ($n=24$)	Priv Banks ($n=17$)
(−1,0)	−1.51	−1.55	−1.44	−2.12***	−2.90***	−0.96	0.90	1.18	0.47
(−1,+1)	−1.21	−1.42	−0.87	−2.58**	−3.73***	−0.07	1.14	0.86	1.55

Table 5 reports cumulative abnormal returns (in percentage) for all banks, government banks and private banks in India using the portfolio approach. The Bombay Stock Exchange (BSE) value-weighted portfolio is used as the market index. Daily returns from days −120 to −20 are used for estimation of the market model; days −20 to +20 represent the event period. Results are reported for September 11, 2002, April 21, 2003, May 5, 2005, December 13, 2011, April 26, 2012, and December 18, 2012.

** Denotes that CARs are significantly different from zero at 5 percent level of confidence.

*** Denotes that CARs are significantly different from zero at 1 percent level of confidence.

recommendations were rendered. On December 18, 2012, the final approval of the Bill was a mere formality to ratify the decision that was reached on April 26. As such, we do not expect any significant reaction on this date. The cumulative abnormal returns (CAR) for specific intervals around these dates are reported for three different sub-samples: the entire group of banks, and the two groups of government and private banks. We do not separately report the findings for old and new private banks due to the small sample of new privates. However, we discuss the results for these groups where valuation gains are significantly different. We note that sample sizes differ for the six dates because of non-availability of data.

On September 11, 2002, the RBI urged the GOI to amend the Banking Regulation Act of 1949 to abolish the voting cap. By then it was apparent that investors that were interested in control to influence decision-making and consider takeover were discouraged by the voting cap from taking ownership stakes. We find that the abnormal returns are not significant for any group of banks. These results suggest that, in general, the September 2002 *urging* by the RBI had little impact. Abnormal returns were insignificant also on April 21, 2003, when the Bill was introduced to the Lok Sabha.

On May 5, 2005, the Union Cabinet introduced the bill to lift the 10 percent voting cap and make voting rights proportional to ownership. The aggregate sample of 33 banks posted a significant gain of 4.7 percent around the window (−1, 0). The portfolio of private banks gained over 7.7 percent over the same interval, and gains over the other intervals were equally impressive. Further analysis reveals that the portfolio of new private banks gained 3.5 percent, and the nine old private banks gained 10 percent over days (−1, 0). The gain over the intervals (0, +1) and (−1, +1) exceeded 7 percent. These results are consistent with Hypothesis 1, and resonate with the extant literature on the attributes of takeover targets in that old private banks were smaller than and performed inferior to new private banks. As such, they were more vulnerable to takeover threat. The insignificant reaction by government banks reflects the fact that the recommended increase in voting rights for these banks was from 1 percent to 10 percent only. In addition, with minimum 51 percent ownership by government, change in control was ruled out.[35]

The next important development occurred on December 13, 2011, when the Standing Committee on Finance recommended that the voting right be increased from 10 percent to 26 percent only for private banks.[36] For government banks, the increase in voting rights was maintained at 10 percent. The market reaction is adverse, albeit insignificant, reflecting the market's perception that the recommendation was still open to debate.

On April 26, 2012, the Cabinet cleared the amended 2011 Banking Laws Bill allowing higher voting rights to 26 percent for private banks, and no change in voting rights for non-government owners in PSBs. The market reaction is significantly negative, but the effect is driven mainly by government banks. The negative effect on government banks may be attributed to certain other amendments to the Banking Laws Bill passed in April 2012. First, government banks were afforded more flexibility to raise and distribute resources to the majority shareholder (government). Second, the cap of INR 3000 crore as authorized capital for government banks was removed. These changes allowed the government to further consolidate its control on PSBs. On December 18, 2012, the Lok Sabha passed the Banking Bill. The abnormal returns are positive, albeit insignificant, indicating that the final adoption of the bill was a formality.

The above results are consistent with Hypothesis 1 that lifting the voting cap exposes banks to the market for corporate control, and that smaller and less efficient old private banks are more vulnerable to takeover threats. Next, we conduct cross-sectional analyses to identify the determinants of the wealth effects around the two relevant dates, May 5, 2005, and April 26, 2012.[37]

Analyses of Valuation Effect: May 2005 Approval of the Bill

We estimate cross-sectional models to identify the determinants of abnormal returns around the announcement of the May 2005 approval by the Union Cabinet to lift the voting cap. The dependent variable is the CAR over the interval (−1, 0) surrounding the announcement. We estimate six separate models. The first three models are based on Eqs. (4)–(6), respectively; in Models 4–6 we replace *Wedge* with *Shares Subject to Cap*. In Model l, we include two categorical variables to identify old and new private banks, and *Wedge*. In Model 2, we add controls for size, profitability, leverage, insider and foreign ownership. In Model 3, we introduce interaction terms *Wedge*Gov* and *Wedge*Private* to capture the fact that the proposal granted unequal rights to shareholders in private and nationalized banks, and *Old Private*Size* and *Old Private*ROA* to test the conjecture that a positive effect for old private banks may stem from their smaller size, and poor efficiency and profitability, which render them easy acquisition targets. In Model 4–6, we run the same specifications but replace *Wedge* with *Shares Subject to Cap*.

The results are reported in Table 6. Consistent with Hypothesis 1, we observe a stronger positive effect for old private banks (*Old Private*) in our baseline specification (Model 1). Consistent also with Hypothesis 2, the coefficient on *Wedge* is significantly positive. The results remain robust when including the control variables in Model 2. Next, in Model 3, we expect the relationship between wedge and the valuation effect to be stronger for private banks than for government-controlled banks. In support of this notion, the coefficients of both *Wedge*Gov* and *Wedge*Private* are positive, but only *Wedge*Private* is significant. We finally note that, when including *Old Private*Size* and *Old Private*ROA, Old Private* is no longer significant. In addition, *Old Private*ROA* is negative and significant, indicating that old private banks with lower profitability are expected to benefit more from the deregulation, as these banks are more likely to become takeover targets in the absence of the voting cap. This result supports our expectation.

Models 4–5 provide further support to Hypotheses 1 and 2. Both *Old Private* and *Shares Subject to Cap* are significant and positive, as predicted. When using an interaction between *Shares Subject to Cap* and *Private* and *Government* in Model 6, we note that although both interactions have a positive coefficient, it is only significant for *Shares Subject to Cap*Private*. Finally, similar to Model 3, when including *Old Private*Size* and *Old Private*ROA* in Model 6, *Old Private* is no longer significant, while *Old Private*ROA* is negative and significant. We also note that the coefficient on the ratio of non-performing loans to total assets is significantly positive in two of the four models in which it appears, which is consistent

[35] Further, as Hypothesis 2 asserts, the valuation effect is a function of *Wedge*. Given the small wedge in government banks (approximately 2 percent in 2004), it is intuitive that the reaction is more muted for this bank group. Our subsequent cross-sectional analysis reveals that government banks with larger wedge experience higher CARs.

[36] It is worth noting that under the 26 percent voting cap, a foreign bank must own the maximum allowed 74 percent to control 50 percent of voting shares. The amendment of the original recommendation of total removal of the cap for private banks possibly reflects the government's concern over foreign control of strategic institutes of national interest.

[37] Before turning to the identification of the bank-specific factors that contributed to the valuation effect, we checked the correlation among the variables. We find that insider ownership in private banks is significantly smaller. The data also show that private banks have a significantly smaller asset base. Highly leveraged banks have a greater proportion of non-performing assets, and also lower return on assets. We avoid including strongly correlated variables in the same model to minimize bias due to multicollinearity.

Table 6
Regression analysis of cumulative abnormal returns around the announcement of the proposal to remove the 10 percent voting cap for private banks and increase voting cap from 1 to 10 percent for government banks.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Old private	7.2516**	8.5741*	−14.7290	6.3962**	7.0326	−14.2874
	(2.43)	(1.78)	(−0.34)	(2.16)	(1.55)	(−0.34)
New private	−1.9349	0.3208		−4.2439	−2.9836	
	(−1.05)	(0.14)		(−1.33)	(−0.90)	
$Wedge_{t-1}$	0.1263*	0.1847**				
	(1.72)	(2.63)				
Shares Subject to cap_{t-1}				0.1272*	0.1777**	
				(1.81)	(2.49)	
$Wedge_{t-1}$*Gov			0.1559			
			(1.53)			
$Wedge_{t-1}$*Private			0.1971***			
			(3.14)			
Shares subject to cap_{t-1}*Gov						0.1544
						(1.51)
Shares subject to cap_{t-1}*Priv						0.1396***
						(3.26)
$Size_{t-1}$		1.4961	2.0110		1.3092	1.8668
		(1.07)	(1.23)		(1.01)	(1.20)
ROA_{t-1}		−1.1010	4.9791		0.3968	5.8632
		(−0.50)	(1.14)		(0.17)	(1.32)
NPL/TA_{t-1}		1.0612	1.4663*		1.2296	1.6779*
		(1.54)	(1.88)		(1.72)	(1.88)
$Leverage_{t-1}$		−0.0888	−0.1128		−0.0612	−0.0862
		(−1.31)	(−1.68)		(−0.83)	(−1.24)
Insider $ownership_{t-1}$		−0.0294	−0.0462		−0.0297	−0.0367
		(−0.73)	(−1.34)		(−0.80)	(−1.23)
Foreign $ownership_{t-1}$		−0.0075	−0.0529		−0.0067	−0.0644
		(−0.09)	(−0.70)		(−0.07)	(−0.84)
Old private*$Size_{t-1}$			2.6550			2.6634
			(0.95)			(0.97)
Old private*ROA_{t-1}			−10.6901*			−11.1772*
			(−1.93)			(−2.08)
Constant	1.0168	−21.9594	−37.0130	1.0143	−21.7065	−37.4709
	(1.15)	(−0.99)	(−1.32)	(1.16)	(−1.06)	(−1.40)
Observations	**29**	**29**	**29**	**29**	**29**	**29**
***R*-squared**	**0.451**	**0.582**	**0.587**	**0.465**	**0.585**	**0.697**

Table 6 presents cross-section regression models of the determinants of CARs for 33 Indian Banks in a two-day window [−1, 0] surrounding the May 5, 2005, announcement of the proposal to remove the 10 percent voting cap for Indian banks. The dependent variable is CAR [−1, 0]. *Old Private* is a dummy variable, indicating that the bank was created in the 1940s to extend banking services to underserved areas. *New Private* is a dummy variable, indicating that the bank was created pursuant to the January 1993 RBI guidelines for the formation and functioning of private sector banks. *Wedge* is the difference between the percentage ownership and voting power at the firm level. *Wedge*Gov* and *Wedge*Private* are the wedge in ownership for government-controlled and private banks, respectively. *Shares Subject to Cap* is the percentage of all shares subject to the cap. *Shares Subject to Cap*Gov* and *Shares Subject to Cap*Private* are the shares subject to the cap for government and private banks, respectively. *Size* is the bank's size based on ln(Total Assets). *ROA* is the bank's return on assets. *NPL/TA* is the ratio of gross non-performing loans to total assets. *Leverage* is the ratio of debt to debt plus equity and reserves in percentage. Insider and foreign ownership represent the fractional holdings of insiders and foreigners, respectively, in Indian banks. Government ownership in government-controlled banks is considered insider ownership. *Old Private*Size* and *Old Private*ROA* are interaction variables between *Old Private* and *Size* and *ROA*, respectively. All explanatory variables are measured as of the end of the previous fiscal year (i.e., assuming that the change of regulation was made in year *T*, all explanatory time-variant variables are measured as of year *T*−1).

* Denotes coefficients significantly different from zero at 10 percent level.
** Denotes coefficients significantly different from zero at 5 percent level.
*** Denotes coefficients significantly different from zero at 1 percent level.

with the notion that a high percentage of non-performing assets makes a bank more vulnerable to takeover.[38]

Overall, our analyses reveal that the valuation gain around the proposed lifting of the voting cap is significantly positive for private banks, and this effect is driven by under-performing and smaller old banks. Further, the abnormal returns for private banks are significantly related to the factors that influence their takeover probability, specifically the wedge between voting rights and cash-flow rights, and the proportion of shares subject to the cap.

[38] To check the robustness of our results, we conduct the analysis also only for the subsample of private domestic banks. *Old Private, Wedge* and *Shares Subject to Cap* are positive and significant. In addition, insider and foreign ownership variables are negative and significant. These results are consistent with our expectations and findings when using the full sample of Indian banks.

April 2012 Passage of the Amended Voting Cap Regulation

Next, we analyze the wealth effect around April 26, 2012, when the Indian Cabinet cleared the Banking Laws Bill, limiting the voting cap increase to 26 percent for private banks only. Table 7 reports the results from the regression analyses with CAR over the interval (-1, 0) surrounding April 26 as the dependent variable. We set up Models 1–3 based on Eqs. (4)–(6). In Model 1, we control for old and new private banks and *Wedge*. In Model 2, we add control variables (*Size, ROA, NPL/TA, Leverage, Insider* and *Foreign Ownership*). In Model 3, we add interaction variables *Wedge*Gov* and *Wedge*Private*, and *Old Private*Size* and *Old Private*ROA*. In Model 4, we replace *Wedge* with *Shares Subject to Cap*, while in Model 5 we control for the interaction effect between *Shares Subject to Cap* and *Gov* and *Private* and the interaction terms with *Old Private*.

Table 7
Regression analysis of cumulative abnormal returns around the announcement of the recommendation of the standing committee to increase the 10 percent voting cap to 26 percent for private banks.

	Model 1	Model 2	Model 3	Model 4	Model 5
Old private	0.0135*	0.0156	−0.6007	0.0153	−0.4974
	(1.79)	(0.94)	(−1.65)	(0.92)	(−1.40)
New private	0.0311***	0.0291		0.0293	
	(4.10)	(1.38)		(1.40)	
$Wedge_{t-1}$	−0.0002	−0.0003			
	(−0.55)	(−0.65)			
$Wedge_{t-1}$*Gov			−0.0017**		
			(−2.77)		
$Wedge_{t-1}$*Private			0.0005		
			(1.20)		
Shares subject to cap_{t-1}				−0.0002	
				(−0.50)	
Shares subject to cap_{t-1}*Gov					−0.0011**
					(−2.35)
Shares subject to cap_{t-1}*Priv					0.0004
					(0.98)
$Size_{t-1}$		−0.0040	−0.0052	−0.0040	−0.0049
		(−0.84)	(−0.81)	(−0.85)	(−0.77)
ROA_{t-1}		0.0167	0.0121	0.0168	0.0153
		(1.30)	(0.79)	(1.30)	(0.97)
NPL/TA_{t-1}		−0.0003	−0.0063	−0.0003	−0.0045
		(−0.05)	(−0.84)	(−0.04)	(−0.61)
$Leverage_{t-1}$		0.0002**	0.0002*	0.0002**	0.0002*
		(2.22)	(1.79)	(2.18)	(1.84)
Insider ownership		−0.0001	−0.0006**	−0.0001	−0.0005**
		(−0.45)	(−2.59)	(−0.45)	(−2.31)
Foreign ownership		−0.0004	−0.0009**	−0.0004	−0.0009*
		(−1.27)	(−2.19)	(−1.19)	(−1.84)
Old private*$Size_{t-1}$			0.0218		0.0181
			(1.62)		(1.38)
Old private*ROA_{t-1}			0.0075		0.0052
			(0.45)		(0.31)
Constant	−0.0276***	0.0723	0.1689	0.0724	0.1474
	(−4.36)	(0.57)	(0.88)	(0.58)	(0.78)
Observations	**36**	**36**	**36**	**36**	**36**
***R*-squared**	**0.206**	**0.333**	**0.391**	**0.330**	**0.368**

Table 7 presents cross-section regression models of the determinants of CARs for 37 Indian banks in a two-day window [−1, 0] surrounding the April 26, 2012, announcement that the Cabinet cleared the revised 2011 Banking Laws Bill that increases the 10 percent voting cap for Indian private banks to 26 percent. The dependent variable is CAR [-1, 0]. *Old Private* is a dummy variable, indicating that the bank was created in the 1940s to extend banking services to underserved areas. *New Private* is a dummy variable, indicating that the bank was created pursuant to the January 1993 RBI guidelines for the formation and functioning of private sector banks. *Wedge* is the difference between the percentage ownership and voting power at the firm level. *Wedge*Gov* and *Wedge*Private* are the wedge in ownership for government-controlled and private banks, respectively. *Shares Subject to Cap* is the percentage of all shares subject to the cap. *Shares Subject to Cap*Gov* and *Shares Subject to Cap*Private* are the shares subject to the cap for government and private banks, respectively. *Size* is the bank's size based on ln(Total Assets). *ROA* is the bank's return on assets. *NPL/TA* is the ratio of gross non-performing loans to total assets. *Leverage* is the ratio of debt to debt plus equity and reserves in percentage. Insider and foreign ownership represent the fractional holdings of insiders and foreigners, respectively, in Indian banks. Government ownership in government-controlled banks is considered insider ownership. *Old Private*Size* and *Old Private*ROA* are interaction variables between *Old Private* and *Size* and *ROA*, respectively. All explanatory variables are measured as of the end of the previous fiscal year (i.e., assuming that the change of regulation was made in year *T*, all explanatory time-variant variables are measured as of year *T*−1).

* Denotes coefficients significantly different from zero at 10 percent level.
** Denotes coefficients significantly different from zero at 5 percent level.
*** Denotes coefficients significantly different from zero at 1 percent level.

In Model 1, old and new private banks are positively associated with value, suggesting that the effect for private banks is significantly higher than that for government banks. This result possibly reflects the market's disappointment in the failure to remove the voting cap for government banks. However, once we add control variables (Model 2), the positive effect of *Old Private* and *New Private* disappears and only *Leverage* remains significant. We control for *Wedge* in Models 1 and 2, but we note that, given the significant difference in the effect of the 2012 announcement for government and private banks (e.g., lack of removal for government vs. relaxing the voting cap for private banks), the net effect is uncertain. As such, the lack of significance of *Wedge* in these models is not surprising, as it combines the potentially negative effect for government banks and the weakly positive effect for private banks. We obtain the same result when replacing *Wedge* with *Shares Subject to Cap* in Model 4.

If the effect for government banks is driven mainly by the wedge, the interaction term between *Gov* and *Wedge* should be negative and capture the market's disappointment in the failure to lift the voting cap for government banks. Consistent with this argument, *Wedge*Gov* is negative and significant in Model 3, *Wedge*Private* is positive, albeit insignificant. Similarly, in Model 5, in which we include interactions of ownership type and *Shares Subject to Cap*, the coefficient on *Shares Subject to Cap*Gov* is neg-

Table 8
Post-bill analysis of the impact of deregulation on foreign and insider ownership.

	Foreign ownership	Foreign ownership	Insider ownership	Insider ownership
Old private	27.3322***	26.9928***	−4.0862	−4.5851
	(3.94)	(4.02)	(−1.24)	(−1.34)
New private	25.2372***	25.3150***	14.8919**	14.5734*
	(9.30)	(9.26)	(2.07)	(2.00)
$Size_{t-1}$	3.4462***	3.1967***	−0.1998	−0.4168
	(3.15)	(2.90)	(−0.13)	(−0.26)
ROA_{t-1}	−1.1648	−3.6387	3.2883*	3.8915
	(−0.40)	(−0.89)	(1.71)	(1.57)
NPL/TA_{t-1}	0.4470	0.2213	−1.4900*	−1.6247*
	(0.38)	(0.19)	(−2.01)	(−1.97)
$Leverage_{t-1}$	−0.0249	−0.0201	−0.0364	−0.0395
	(−1.30)	(−0.90)	(−1.55)	(−1.41)
Change in concentration	−0.0010	−0.0068	0.2453*	0.2510*
	(−0.01)	(−0.04)	(1.78)	(1.82)
2005–2008	−1.2777	−1.1465	2.9099	2.9353
	(−0.46)	(−0.41)	(1.27)	(1.27)
2009	−2.6182	−2.2747	−1.4826	−1.5146
	(−1.22)	(−1.02)	(−0.56)	(−0.56)
2010–2011	−0.0844	−0.0828	−1.6491	−1.6345
	(−0.05)	(−0.05)	(−0.68)	(−0.66)
Post*Old private	−8.0325**	−38.8293	0.3212	−29.4621
	(−2.17)	(−1.29)	(0.17)	(−0.97)
Post*New private	−3.4205	−34.4596	−0.1333	−31.5088
	(−0.91)	(−1.03)	(−0.04)	(−0.97)
Post*Gov	−1.0821	−33.4779	−1.9430	−33.9415
	(−0.51)	(−1.03)	(−0.72)	(−1.06)
$Post*Size_{t-1}$		1.2408		1.1357
		(0.99)		(1.01)
$Post*ROA_{t-1}$		5.5496		−1.3977
		(1.40)		(−0.52)
$Post*NPL/TA_{t-1}$		1.0571		0.6422
		(0.80)		(0.55)
$Post*Leverage_{t-1}$		−0.0201		0.0185
		(−0.80)		(0.54)
Post*Change in concentration		2.4097		−0.0487
		(0.78)		(−0.03)
Constant	−85.6650***	−76.5289**	10.4538	16.2761
	(−2.90)	(−2.56)	(0.25)	(0.36)
Observations	**321**	**321**	**321**	**321**
***R*-squared**	**0.457**	**0.466**	**0.253**	**0.255**

Table 8 presents panel data analysis determining impact of deregulation on foreign and insider ownership. The dependent variable in columns (1) and (2) is *Foreign Ownership*; and in columns (3) and (4), *Insider Ownership*. *Old Private* is a dummy variable, indicating that the bank was created in the 1940s to extend banking services to underserved areas. *New Private* is a dummy variable, indicating that the bank was created pursuant to the January 1993 RBI guidelines for the formation and functioning of private sector banks. *Size, ROA, NPL/TA* and *Leverage* are lagged one year. *Change in Concentration* is change in concentration, where we proxy for concentration by the Herfindahl Index (HHI), equal to Σ(market share of bank i)^2. Market share is based on total income, following Sanyal and Shankar (2011). 2005–2008 is a dummy variable indicating the period between the introduction of the bill and the lapse of the proposal. 2009 indicates the year when the proposal lapsed. 2010–2011 indicates the period when the Bill was reintroduced for discussion. *Post* is a dummy variable indicating the period post-passing of the Bill between April 2012 and 2013. *Post*Var* are interaction variables between *Post* and the control variables. All other variables are as previously defined. Standard errors are adjusted for heteroscedasticity clustering by bank.

* Denotes coefficients significantly different from zero at 10 percent level.
** Denotes coefficients significantly different from zero at 5 percent level.
*** Denotes coefficients significantly different from zero at 1 percent level.

ative and significant, while the coefficient on *Shares Subject to Cap*Private* is insignificant. These results are consistent with Hypothesis 2 that banks with larger wedge, and higher percentage of shares subject to cap react favorably (adversely) to the proposal to lift (retain) the cap limit.

Several other findings are noteworthy. The positive and significant effect of *Leverage* is consistent with the notion that high leverage could be the symptom of low cash-flow, and a sign of weakness. The negative effect of *Insider Ownership* suggests that high insider ownership leads to managerial entrenchment, which deters takeover (Hadlock et al., 1999). Finally, *Foreign Ownership* is negative in both Tables 6 and 7, and significant in Table 7 (Models 3 and 5). As previously noted, *Foreign Ownership* is comprised only of FIIs in 2011 – portfolio investors that are motivated by cash-flow returns. As such, ownership by FIIs creates pressure on banks to perform better, as poor performance may trigger exit of these investors. Under this premise, superior performance of banks with foreign ownership makes them less vulnerable to takeovers, resulting in a negative valuation effect for banks with higher foreign ownership.

8. Post-deregulation analyses

The deregulation passed in 2011 increased the voting cap from 10 to 26 percent, which implies that takeovers would continue to be difficult. However, under the Companies' Act, an investor owning 26 percent (or more) of outstanding shares can block a takeover attempt as a minority shareholder. Therefore, it is interesting to examine if the passage of the Bill resulted in any change

Table 9
Post-bill analysis of the impact of deregulation on the number of blockholders and percentage of shares owned by blockholders.

	Number of blockholders	Number of blockholders	Percentage ownership by blockholders	Percentage ownership by blockholders
Old private	0.2621	0.2088	5.1912	3.9556
	(1.31)	(1.01)	(0.93)	(0.76)
New private	0.9832***	0.9527***	19.1507***	19.0059***
	(5.97)	(5.98)	(5.46)	(5.06)
$Size_{t-1}$	0.0479	0.0111	0.5774	−0.1065
	(0.70)	(0.16)	(0.42)	(−0.09)
ROA_{t-1}	−0.0824	−0.0824	−2.6571	−4.8740
	(−0.88)	(−0.55)	(−0.90)	(−1.19)
NPL/TA_{t-1}	−0.0523	−0.0599	−1.2009	−1.2209
	(−1.11)	(−1.10)	(−1.10)	(−1.22)
$Leverage_{t-1}$	−0.0014	−0.0007	−0.0156	−0.0230
	(−0.85)	(−0.41)	(−0.56)	(−0.97)
Change in concentration	−0.0097	−0.0095	−0.2773	−0.2745
	(−1.16)	(−1.14)	(−1.35)	(−1.33)
2005–2008	−0.0219	−0.0174	−1.1536	−0.8665
	(−0.15)	(−0.11)	(−0.47)	(−0.35)
2009	−0.3339**	−0.3126*	−6.1850**	−5.8795**
	(−2.06)	(−1.88)	(−2.30)	(−2.19)
2010–2011	0.1554	0.1599	5.9274*	5.9823*
	(1.06)	(1.07)	(1.84)	(1.81)
Post*Old private	0.0021	−3.6276	1.1845	−89.1139
	(0.01)	(−1.47)	(0.18)	(−1.41)
Post*New private	−0.3546	−4.1065	−4.3996	−99.0613
	(−1.68)	(−1.56)	(−1.14)	(−1.48)
Post*Gov	0.6801***	−3.1720	12.5108***	−84.2385
	(3.94)	(−1.23)	(3.86)	(−1.27)
$Post*Size_{t-1}$		0.1590		3.6211
		(1.53)		(1.37)
$Post*ROA_{t-1}$		−0.0251		3.9161
		(−0.18)		(0.92)
$Post*NPL/TA_{t-1}$		0.0277		0.2965
		(0.32)		(0.15)
$Post*Leverage_{t-1}$		−0.0029		0.0501
		(−1.02)		(0.64)
Post*Change in concentration		0.1451		2.5683
		(0.81)		(0.67)
Constant	−0.8511	0.1516	−5.7009	15.1400
	(−0.46)	(0.08)	(−0.16)	(0.45)
Observations	321	321	321	321
R-squared	0.282	0.288	0.233	0.252

Table 9 presents panel data analysis determining impact of deregulation on blockholders' number and ownership. The dependent variable in columns (1) and (2) is *Number of Blockholders*; and in columns (3) and (4), *Blockholder Ownership*. *Old Private* is a dummy variable, indicating that the bank was created in the 1940s to extend banking services to underserved areas. *New Private* is a dummy variable, indicating that the bank was created pursuant to the January 1993 RBI guidelines for the formation and functioning of private sector banks. *Size, ROA, NPL/TA* and *Leverage* are lagged one year. *Change in Concentration* is change in concentration, where we proxy for concentration by the Herfindahl Index (HHI), equal to Σ(market share of bank i)^2. Market share is based on total income, following Sanyal and Shankar (2011). 2005–2008 is a dummy variable indicating the period between the introduction of the bill and the lapse of the proposal. 2009 indicates the year when the proposal lapsed. 2010–2011 indicates the period when the Bill was reintroduced for discussion. *Post* is a dummy variable indicating the period post-passing of the Bill between April 2012 and 2013. *Post*Var* are interaction variables between *Post* and the control variables. All other variables are as previously defined. Standard errors are adjusted for heteroscedasticity clustering by bank.

* Denotes coefficients significantly different from zero at 10 percent level.
** Denotes coefficients significantly different from zero at 5 percent level.
*** Denotes coefficients significantly different from zero at 1 percent level.

in ownership, formation of blockholders, and size and profitability of banks.

The impact of the deregulation on ownership is our focus in Table 8. We estimate four models. The dependent variable is *Foreign Ownership* in Models 1 and 2, and *Insider Ownership* in Models 3 and 4.[39] Since government banks represent the largest group and the 2011 Bill does not affect these banks' voting rights distribution, we choose them as the control group, and include indicator variables for the two private bank types. To capture the differential impact of the voting cap regulation on bank types, we include interaction between *Post*, a categorical variable indicating the post-bill period, and *Old Private, New Private* and *Gov*. Next, following Sanyal and Shankar (2011), we control for *Change in Concentration* – a measure of competition based on the Herfindahl index (HHI) – around the passage of the bill. The authors report that the effect of bank ownership type on productivity depends on competition in the banking sector. Specifically, while old private banks gain as competition increases, all other bank types are adversely impacted by competition, with new private banks being worst hit. We compute market share based on total income, total assets, loans, and

[39] In defining insider ownership, we exclude government ownership, as by law government ownership is at least 51 percent in government banks and therefore less likely to be driven by market forces. Furthermore, government ownership in state banks is not subject to the voting cap. Therefore, including government ownership would distort results regarding the impact of the 2011 Bill on insider ownership.

Table 10
Post-bill analysis of the impact of deregulation on size and profitability.

	Model 1 Change in ROA	Model 2 Change in ROA	Model 3 Change in bank size	Model 4 Change in bank size
Change in size	−0.0088	0.0052		
	(−0.14)	(0.08)		
Change in ROA			−0.0177	0.0104
			(−0.14)	(0.08)
Change in leverage	0.0004	−0.0001	0.0122***	0.0119***
	(0.30)	(−0.05)	(3.87)	(3.75)
Change in NPL/TA	−0.0246	−0.0203	−0.1844***	−0.1820***
	(−0.86)	(−0.72)	(−5.31)	(−5.12)
Change in concentration		0.0009		−0.0083
		(0.19)		(−1.04)
Change in blockholder ownership	−0.0011	−0.0007	0.0001	0.0013
	(−0.94)	(−0.87)	(0.08)	(0.75)
Change in foreign ownership	0.0070	0.0060	0.0004	−0.0003
	(1.64)	(1.31)	(0.07)	(−0.06)
Post*Change in size	−0.3055***	−0.3227***		
	(−3.05)	(−3.05)		
Post*Change in ROA			−0.2352	−0.2645
			(−1.45)	(−1.59)
Post*Change in leverage	−0.0014	−0.0008	−0.0041	−0.0038
	(−0.83)	(−0.42)	(−1.54)	(−1.45)
Post*Change in NPL/TA	−0.2171**	−0.2176**	−0.1671**	−0.1708**
	(−2.11)	(−2.09)	(−2.15)	(−2.43)
Post*Change in concentration		0.0059		0.0319
		(0.29)		(1.27)
Post*Change in blockholder ownership	0.0026	0.0024	0.0091**	0.0079*
	(0.73)	(0.65)	(2.30)	(1.98)
Post*Change in foreign ownership	−0.0069	−0.0059	−0.0206**	−0.0200**
	(−0.92)	(−0.75)	(−2.16)	(−2.05)
Constant	−0.0061	−0.0012	0.0289*	0.0252
	(−0.47)	(−0.06)	(1.96)	(0.84)
Year fixed effects	Yes	No	Yes	No
Observations	**310**	**310**	**310**	**310**
***R*-squared**	**0.127**	**0.105**	**0.462**	**0.442**

Table 10 presents panel data analysis determining the impact of deregulation on profitability and bank size. The dependent variable in columns (1) and (2) is *Change in ROA*; and in columns (3) and (4), *Change in Bank Size*. Bank size is measured as the natural log of the total assets of the bank; *Post*Var* are interaction variables between *Post* and the control variables. All other variables are as previously defined. In Models 1 and 3, we include year fixed effects. In Models 2 and 4, we control for *Change in Concentration*, where we proxy for concentration by the Herfindahl Index (HHI), equal to Σ(market share of bank i)^2. Market share is based on total income, following Sanyal and Shankar (2011). Standard errors are adjusted for heteroscedasticity and clustering by bank.

* Denotes coefficients significantly different from zero at 10percent level.
** Denotes coefficients significantly different from zero at 5 percent level.
*** Denotes coefficients significantly different from zero at 1 percent level.

loans plus deposits. However, we report only the results based on market share using total income; results are similar with alternative measures of concentration.[40]

In Models 1 and 2, we find that over the period examined (2005–2013), both old private and new private banks gain foreign ownership. However, the interaction variables between *Post* and bank types are negative, and significant for *Old Private*. As such, the increase in foreign ownership cannot be attributed to the 2011 Bill. A plausible interpretation is that foreign ownership increased in private banks, especially old privates over the period 2004–2011, in anticipation of approval of the original proposal to completely remove the voting cap. However, foreign ownership declined after the bill was passed, conceivably because the cap was increased to only 26 percent. The analyses further suggest that foreign and insider investors followed different strategies. Foreigners preferred to invest in larger banks, while insiders invested in profitable banks with lower non-performing assets. We also find that increase in concentration (or, decrease in competition) is associated with increase in insider ownership. When controlling for different time periods between the initial proposal and the final amendment – 2005–2008, 2009, 2010–2011 and post-Bill (2012–2013) – we find none of these time periods to be significant. Finally, the interaction terms between the Post-bill indicator and key variables of interest are insignificant, with the exception of *Post*Old Private*. Overall, we conclude that the 2011 Bill did not induce any significant change in foreign or insider ownership.

In Table 9, we examine the number and ownership of blockholders. We find that blockholder ownership tends to be higher for new private banks. The data also reveal a close link between blockholder ownership and the status of the proposal to lift the voting cap. To elaborate, in 2009 – the year when the original proposal lapsed, our analyses reveal a sharp decline in both number and ownership of blockholders. The pattern reverses and we see significant increase in the number and ownership of blockholders as the Bill is finally enacted in 2011. Further, this increase is driven by government banks, as only Post*Gov is significant in Models 1 and 3. When including additional interaction variables between the Post indicator and other controls, however, *Post*Gov* is not significant; the effect is subsumed by *Post*Size*, which is positive and marginally significant, implying that blockholder ownership is higher for larger banks subsequent to the bill's passage.

[40] In unreported results, we also control for the level of Concentration. Results are similar. We also include the interaction term (*Post*Own*Change in Concentration*) between *Post, Own* (*Old Private, New Private* and *Gov*) dummy and *Change in Concentration* to examine how change in competition pre- and post-Act influences ownership of different types of banks. We find no evidence of any differential effects.

In Table 10, we report our findings on the impact of the deregulation on bank size and profitability. Our models are similar to those in Bertrand et al. (2007), who examine firm performance before and after the Banking Reform. In columns (1) and (2), the dependent variable is change in ROA, while in columns (2) and (3), we study bank size. In Models 1 and 3, we include year fixed effects, and in Models 2 and 4, we include *Change in Concentration*. The analyses reveal a significantly negative relation between profitability (ROA) and size, and non-performing assets after the passage of the bill. We also find a significantly negative relation between size and NPL/TA and foreign ownership, and a positive relation between size and blockholder ownership after the passage of the bill. These results suggest that deregulation induced a stronger relation between risk, ownership, size, and profitability.

9. Conclusions

We posit that the proposed removal of the voting cap in 2005 in India would increase the probability of takeover and enhance the value of votes of private bank stocks. Our analysis yields evidence consistent with this hypothesis. First, private bank stocks posted significant gains surrounding the 2005 announcement; these gains were driven mainly by gains in old private banks with reduced profitability. Second, gains in bank stocks were positively related to the proportion of shares subject to the voting cap and, more specifically, the wedge between cash-flow and control rights. This relationship was stronger for private banks, as the 2005 proposal called only for partial lifting of the 1 percent voting cap for government banks. The revised 2011 Banking Bill provides us with the opportunity to examine the impact of less than 100 percent removal of the voting cap only on private banks' value. As expected, bank stocks react negatively to the change, with the loss driven by government banks with higher wedge.

Our post-Bill analysis reveals that deregulation did not result in increasing foreign or insider ownership, but rather in increasing blockholders' number and percentage of shares held, a change that is observed only in government and larger banks. Furthermore, post-deregulation, we observe a stronger negative relationship between ROA and size, as well as share of non-performing loans. The increase in blockholder ownership leads to increase in bank size, while foreign ownership is negatively related to growth in bank assets.

Our study adds to the literature on the costs and benefits of deregulation. To our knowledge, the evidence on the value effects of regulatory constraints on voting power is scarce. Our findings make important contributions to the issue of the value of voting privilege as it relates to governance and the control of companies with disproportionate voting rights, as well as the growing literature on the valuation impact and efficiency gains from liberalization of foreign ownership restrictions in emerging markets. The context of our study is unique because the market for corporate control was virtually non-existent in the Indian banking sector due to highly restrictive regulatory provisions on ownership and voting rights. We contend that because of the exogeneity of the events, the associated valuation gain in 2005 and the loss of value in 2012 constitute a direct measure of the value of vote.

Our findings have important implications for improvement in performance and efficiency of the banking industry in India through increased competition, facilitated by the liberalization and deregulation in the last twenty-five years. Throughout this process, the approach was gradual restructuring of PSBs by enhancing competition through entry deregulation of foreign and domestic private banks. The expectation was that competition would bring forth the necessary restructuring and improvements in efficiency, with government retaining majority control. The competitive forces of market discipline could operate through two channels. One, the minority shareholders in PSBs would actively pressure management by influencing decision making. Two, consolidation among private sector banks would force the entire banking sector to improve efficiency in order to retain market share. However, government's reluctance to allow minority shareholders influence on decision making is evident in the failure to lift the voting cap from 1 to 10 percent. This policy failure, contrasted with the increased alignment of cash-flow rights and voting rights for private banks, could result in a profitability and efficiency gap between government and private banks, unless increased competition drives banks to improve performance in order to sustain their competitive position. The amendment to allow 26 percent voting in private banks implies that although majority voting control remains unattainable by one investor, it is possible through alliance by two or more investors. The likely implications of our results are that the 2011 Bill can promote consolidation of the banking industry in India, by the way of market-driven M&As among the private sector banks, facilitated by easier (compared to the past) gain of control. Public sector banks under competitive pressure, on the other hand, will be forced to consolidate, by the way of M&As within the public banking sector.

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