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Testing limits to policy reversal: Evidence from Indian privatizations ☆

Siddhartha G. Dastidar [a], Raymond Fisman [a,*], Tarun Khanna [b]

[a] Graduate School of Business, Columbia University, New York, NY 10027, USA
[b] Harvard Business School, Boston, MA 02163, USA

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ABSTRACT

We examine the effect of regime change on privatization. In the 2004 Indian election, the pro-reform BJP was unexpectedly defeated by a less reformist coalition. Stock prices of government-controlled companies that had been slated for privatization by the BJP dropped 3.5% relative to private firms. Government-controlled companies that were under study for possible privatization fell 7.5% relative to private firms. This is consistent with investor belief of a "point of no return," where advanced reforms are more difficult to reverse. Further analysis suggests that layoffs, combined with the privatization announcement, served as a credible commitment to privatize.

1. Introduction

The privatization of state assets has been a substantial source of revenues for governments worldwide, with cumulative privatization proceeds exceeding $1 trillion by 1999 (Megginson and Netter, 2001). Investors have often welcomed this sell-off of state assets, citing increased efficiency of private management, particularly in countries where the productivity of state-owned enterprises has lagged behind those in the private sector. However, many assets slated for privatization remain in government hands and governments have retained control rights through continued majority stakes in partially privatized companies.[1]

One potential explanation for this gap between planned and actualized privatizations stems from the often volatile politics in countries attempting to implement large-scale privatizations: while the party in power may favor the sale of state assets, privatization is a long-run process that may continue across different governing regimes with differing views on privatization. Since each new government may argue that they are not bound by

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* Corresponding author. Tel.: +1 212 854 9157; fax: +1 212 854 9895.
E-mail address: rf250@columbia.edu (R. Fisman).

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[1] There exists a large body of research, both theoretical and empirical, on the costs and benefits of state ownership. See Megginson and Netter (2001) and Shleifer (1998) for an overview and review of this literature.

the promises of earlier regimes, investors may be concerned that the privatization process will be derailed by each electoral cycle. As investors solve the backward induction problem, this may undermine attempts at sell-offs in the first place. Privatizing governments face this multi-party variant on the classic hold-up problem due to the temptation to expropriate the new owners after the transfer of funds has taken place (Perotti, 1995).

On the other hand, policies may be difficult to reverse once they have been committed to. First, and most straightforwardly, there is inertia in policy: legislative checks and balances in a parliamentary democracy make policy reversals difficult, and vested interests may be mobilized to resist changes. Second, a government may take steps that alter the cost-benefit trade-off of future governments (Alesina and Tabellini, 1990). For example, a government may choose to lay off workers in anticipation of future privatization, thereby making it less appealing for future governments to reverse course. Third, scholars of political economy also provide a number of arguments based on government credibility. Governments may not wish to completely undermine the policies that had been put in place by a previous regime since the new government understands that it will not be in power forever, and hence may wish to sustain a cooperative equilibrium with other parties (see, for example, Alesina (1988) for a classic reference).[2] Closely related is the argument that political parties may put some value on the maintenance of the reputation of the legislature (as distinct from the political party itself). Overall, there may thus be a stage beyond which less reformist politicians or new governments may not wish (or be able) to overturn a privatization-in-progress.[3]

To what degree are commitments to privatize actually held to be credible by investors, and to what extent do governments take actions that reinforce investors' beliefs that privatizations will be carried out even in the face of regime shifts to less privatization-friendly governments? India provides a promising context for examining these questions. It is a country with a large population of firms that, until recently, were at varying stages of the privatization process. Moreover, it has active electoral competition, and privatization is actively debated as a policy question.

In this paper, we study the effect of an unanticipated change in the governing party as a potential shock to privatization programs by studying the change in stock valuations of partially privatized firms in response to the surprise victory of the Indian National Congress (INC) party in India's 2004 election. In contrast to the less-reformist INC, the incumbent Bharatiya Janata Party (BJP) had outlined and committed to an ambitious program of economic liberalization. This included a stated goal of reducing its ownership in a number of publicly traded firms where the government still held a controlling stake. According to the Companies Act of 1956, while a shareholder needs over 50% ownership for majority control, to approve a "special resolution" (for example, amending Memorandum and Articles of Association) 75% support is needed. It is also a threshold that has been seen as "sacrosanct" by prior governments (Economic Times, 2000). Hence, we take 26% as the cutoff for government control. This represents what might be called "veto-proof privatization." However, for ease of exposition we refer throughout the paper to firms with government holdings below the 26% threshold as completely privatized, despite the government's continued partial ownership.

The firms in which the BJP intended to relinquish its controlling share were at various stages of this process when the election took place. Some were being studied for potential disinvestment; others had already been slated for disinvestment; and in others the government had already reduced its holdings to below 26%. As a result, this event serves as a useful laboratory for analyzing government commitments to privatize (and government commitment in a democracy more generally). Specifically, we use a list from the Ministry of Disinvestment (which has since been abolished) to classify all publicly traded companies with government ownership (i.e., partially privatized companies) as one of the following: *COMPLETE* (government had relinquished control by the time of the election and held a stake below 26%), *DIVEST* (the company was slated for future disinvestment at the time of the election), *UNDERSTUDY* (the company was being studied by the government for possible future disinvestment), or *NEVER* (the company was not under consideration for further disinvestment). We emphasize that by definition all firms in the sample have at least some private ownership, since we are looking at publicly traded firms. Hence, when we use the terms privatization or disinvestment below, we are referring to the change from partial to complete privatization/disinvestment. In addition, when we refer to complete privatization or disinvestment, we are referring to companies in which the government holds less than a 26% stake.

Our results may be summarized as follows: First, we find that share prices of partially privatized (government owned) firms decline by 3–4% relative to the prices of private firms over a 4-day window following the announcement of the election results. Further, there is considerable heterogeneity in the returns of different types of partially privatized firms. Most strikingly, the largest relative declines are among *UNDERSTUDY* firms that were under study for potential complete disinvestment; these firms' prices decline by 7–8% relative to private firms (significant at the 1% level) over the 4-day window. By contrast, the prices of *DIVEST* firms that were already slated for future (complete) disinvestment declined by only about 3.5% relative to private firms.

[2] A recent illustrative example from U.S. politics was the Senate debate over the use of the "nuclear option" to override the fillibuster of judicial appointments. Many observers suggested that this would undermine the generally cooperative relations between Democrats and Republicans.

[3] There are numerous examples of successor governments choosing not to overturn a predecessor government's privatization experience, despite political hostility to divestment on the successor's part. Examples include the Socialist return to power in France in 1988, which left the Chirac privatizations in place, the U.K.'s Labour takeover in 1997; the many government turnovers in Central Europe between 1991 and 2006; and the Prodi government's accession to power in Italy in 2006. We thank an anonymous referee for providing us these examples.

This result is quite surprising, given that *DIVEST* firms would be expected to decline by more than other partially privatized firms if a larger privatization premium had already been factored into their prices. This decline is significantly less than that of *UNDERSTUDY* firms. Finally, *COMPLETE* companies do not experience significant relative declines, nor do *NEVER* firms, which the prior government had not considered for complete disinvestment. We find this nonmonotonic pattern between likelihood of future privatization and returns to be highly robust to a range of specifications.

We provide a theoretical framework for interpreting these results. Intuitively, given that neither completely privatized firms nor never-to-be completely privatized firms suffered abnormal returns, investors did not expect an increase in government meddling under the INC (relative to private firms) in companies vulnerable to government interference. Hence, we may interpret the difference in the abnormal returns of firms merely under study for complete privatization (*UNDERSTUDY*) and those the BJP had committed to privatize (*DIVEST*) as stemming largely from different changes in the probability of further privatization. We interpret the greater negative returns of *UNDERSTUDY* firms as evidence in favor of some limits to policy reversals.

We further investigate whether *DIVEST* firms had taken any concrete (difficult-to-reverse) steps that made the government announcement and classification credible in the eyes of the market. Such steps would limit the ability for future governments to reverse privatization plans, in the spirit of Alesina and Tabellini (1990). Specifically, we consider the possibility that layoffs at partially privatized firms obviated the need for future governments to take this politically costly action, thus committing the firms to broader restructuring (see, for example, Dinc and Gupta (2007) and Bertrand, Kramarz, Schoar, and Thesmar (2007) for the political salience of employment in government firms). Consistent with this hypothesis, we find that *DIVEST* firms that were slated for disinvestment, but that did not lay off workers in the years prior to the election, had returns comparable to those of firms that were only under study for potential future privatizations, that is, the interaction between *DIVEST* and layoffs is a positive and significant predictor of returns. Overall, we interpret our findings as providing strongly suggestive evidence that reformist governments may have the ability to put in place changes that constrain future governments from reneging on pre-committed reforms.

We consider a number of alternative explanations based on incentives to privatize particular companies for the INC relative to the BJP. Most importantly, we consider whether our findings may result from a realignment of political interests and the resultant need for the government to maintain control of companies for political purposes (Dinc and Gupta, 2007). Interestingly, we do find that political changes in a company's state of incorporation is predictive of market reaction to an election outcome. However, this is independent of our main results, as we observe virtually identical returns from state electoral shifts regardless of government ownership. Rather, we interpret these state political effects as likely reflecting the value of political connections to the central government. We also consider alternative explanations based on the labor intensity, profitability, and leverage of different types firms, and similarly find that our results are unaffected.

Finally, we study post-election returns to examine the effect of actual (realized) government policy on asset values over the 2 years following the election. During this period, the specter of government intervention in the economy loomed much larger. As a result, all partially privatized firms, as well as those already completely disinvested, exhibited negative excess returns. However, a number of factors cloud the interpretation of these long-run results as the direct effect of changes in privatization policies.

The rest of the paper is structured as follows: In Section 2, we provide a background description of the Indian election of May 2004 and introduce an analytical framework to aid in our interpretation of the results. Section 3 describes the data. In Section 4, we present our empirical findings, using our analytical framework to interpret the results, including a discussion of returns over a longer post-election horizon. Section 5 concludes.

2. Political background

India officially announced that it was embarking on an economic liberalization program in 1991 while under a government led by the Indian National Congress (INC) party. Although a number of economic reforms were phased in over the subsequent years, the government made very little headway in privatizing state companies. By 1999, only 2.5 billion dollars in revenues had been generated through the sale of state assets.

In 1999 a coalition government led by the Bharatiya Janata Party (BJP) came to power with more ambitious plans for reform. In their 5 years in office, the BJP was much more successful in the actual implementation of policies. Of particular importance for our study, the BJP accelerated the disinvestment and privatization program, and invited bids for well-established public sector companies. In all, over 7.75 billion dollars were raised through the sale of controlling stakes and partial divestments through share issue privatizations (SIPs) in the following 5 years. In each SIP, a fraction of the company was sold to private investors through an equity issue on the Bombay Stock Exchange (BSE), with the government retaining a controlling stake in each company. There was the expectation, however, that the government would eventually give up its controlling stake, reducing its ownership to 26% (Gupta, 2005). For instance, the BJP's political manifesto states, "...the government should progressively withdraw from involvement in non-priority sectors... In general, it should reduce its role in manufacturing and services business, where the private sector can serve the people better except where it is required for strategic reasons, to prevent private sector monopolies, run important utilities, or in exceptional circumstances." In what follows, we refer to *complete disinvestment* as the government reducing its ownership share to below 26%

and we refer to *partial disinvestment* as the government retaining an ownership share above 26%. Performance improvements from these partial disinvestments have been documented (Gupta, 2005), and investors expected further improvements if and when the government reduced its share to below 26%.[4]

Since the initial privatization plans that the INC laid out in 1991–1992, the Indian governments have provided a range of sometimes conflicting reasons for privatization, and for their choices of which government companies would be privatized.[5] Both the 1991 and 1996 governments cited the importance of protecting workers' interests as a crucial consideration. We return to this later in our analyses that incorporate data on labor intensiveness and layoffs in companies under consideration to be privatized. These governments also emphasized that the government would not cede control over "strategic" sectors such as mining, power, and railways. This position was reiterated by the BJP in 1998–1999, when they announced that *all* nonstrategic sectors would be completely disinvested, and also narrowed the definition of a strategic sector. Additionally, demand-side considerations based on investor interest would factor into the sequencing of privatizations; we attempt to control for this below by accounting for profitability and leverage.

In addition to the companies that had already been completely disinvested by the election of 2004, the BJP published a list of companies that were already slated for full disinvestment in their following term, as well as a list of companies that were "under study" for possible complete disinvestment. Hence, among government-affiliated firms, we consider four classifications: fully disinvested (*COMPLETE*); slated for complete disinvestment (*DIVEST*); under study for complete disinvestment (*UNDERSTUDY*); and partially disinvested but not under consideration for full disinvestment (*NEVER*).

Finally, it is important to note that some firms owned by state-level governments had been partially privatized; five of these are in our sample, of which none was slated for complete disinvestment or was under study for complete disinvestment, hence all are classified as *NEVER*. We do not find any evidence in our literature searches that these companies were slated by their state-level owners for further disinvestment. We report results below with this subsample of firms excluded and we do not find that it substantively changes our estimates.

2.1. Election surprise of 2004

In its political manifesto, the BJP emphasized that the government should focus on core areas such as national security, macroeconomic management, infrastructure development (both physical and social), and maintenance of law and order. Importantly, the party emphasized that the government should withdraw from manufacturing and services businesses, except in certain strategic cases. This, along with frequent mention of the budget deficit, signaled to the market that a future BJP government would continue to implement its large-scale privatization program as described above. In fact, the BJP sold off stakes in six companies in the two months prior to the election to beat its fiscal deficit target.

By contrast, the INC (Congress party) platform stressed social change and employment opportunities for the poor. It mentioned strengthening the private sector through new management, and selective disinvestments. Further, it was extremely unlikely that the INC would be able to form a government without the support of the communist parties. Since privatization would inevitably lead to some labor retrenchment, the market interpreted the INC platform as largely anti-privatization and anti-reform (on April 28, 2004, The Economic Times noted, "It seems very unlikely that ... a Congress government dependent on support from the Left, can introduce legislation to push through with privatisation...").

Immediately preceding the 2004 elections, the BJP was overwhelming favored to return to power, as reflected in pre-election opinion polls indicating that the INC was likely to suffer its worst-ever defeat in election history.[6] The elections were held in various states on different days between April 20 and May 10. Even exit polls taken after the elections just 2 days before the results were declared reported that BJP was expected to win. For example, on May 11, 2004, Hindu BusinessLine wrote, "Exit polls conducted by TV channels predict that the [BJP-led coalition] is expected to garner 245–265 seats, while Congress and its allies would bag 190–210 seats."

The election results were declared late in the day on Thursday, May 13. The vote counts came during the trading day, but there was initially little reaction to the surprise INC victory, since the market was worried about a hung parliament after the results started trickling in. However, it was clear that the INC would require the involvement of the Indian communist party and allies (CPI-M) in order to form a coalition government, and anti-reform statements made after the market closed raised fears that the BJP's reform agenda would be undermined by the new government. On the evening of May 13, the communist allies (the Left Front) decided that scrapping

[4] For example, the Economic Times on March 10, 2004 quoted a major rating agency chief economist as saying, "...privatisation is extremely desirable from the point of view of increasing efficiency of resource use..."

[5] See www.divest.nic.in for summaries of the annual budgets.

[6] Pre-election polls conducted by Energy Compass, as reported in the Economic Times on April 8, 2004 stated that BJP would receive between 287 and 307 seats, while the opposition Congress Party-led alliance would win 143–163. After the first phase of elections, the Economic Times reported (N.B. NDA refers to the BJP-led coalition), "according to the Aaj Tak-ORG survey, NDA is set to get 93 seats, the Congress-led alliance 44 seats and 'others' three seats. This means the NDA is up seven seats, Congress down one seat and others are down six seats. Another exit poll gave the NDA 82 seats and the Congress-led alliance 55. That means the NDA is down six seats while the Congress is up nine seats. As per the Star-C Voter exit poll, NDA will get 80 seats, the Congress-led alliance 53 seats and others seven seats. This means that the NDA is down 11 seats and the Congress is up two seats. If the exit polls turn out to be true, this could well be the biggest brand crisis for the Congress party. And, the blame will inevitably be laid on Sonia Gandhi's doorstep." In general, leading Indian dailies, TV channels, and international news agencies like the Economist Intelligence Unit were unanimous in their views about a Congress loss.

Table 1
Timeline of events

Thursday, May 13th	Election results are finalized before markets close. Relatively little change in the market overall, as traders express relief that there will not be a hung parliament
Evening, May 13th	Communist party spokesperson states on television that the communists will oppose disinvestment if they are involved in forming the government
Friday, May 14th	Markets fall in reaction to the prior evening's remarks. Communist officials make further anti-reform statements in the afternoon, fueling the decline
Saturday–Sunday May 15th and 16th	Discussions of possible partnering of the Congress with the Communists fill the media
Monday, May 17th	Further decline fueled by the weekend's reports
Tuesday, May 18th	Sonia Gandhi declines post of Prime Minister, generating a recovery in financial markets. Manmohan Singh is heavily favored to be Prime Minister
May 19th	The market continues to rally with the appointment of Manmohan Singh as Prime Minister

of the disinvestment ministry was to be a precondition for the CPI-M to support a INC-led government. The BSE index reacted to the news by falling 6% the following day. The CPI-M General Secretary, Mr. Harkishen Singh Surjeet, said, "We cannot afford it (the disinvestment programme followed by the [BJP-led coalition]). We oppose disinvestment of profit-making [state-owned companies]" and generally implied that economic reforms would be put on hold. The BSE went into a tailspin, falling an additional 11% on May 17 (markets were closed for the weekend on May 15 and 16) despite senior members of the INC responding with reassuring statements on future reforms.

The market's concern over the CPI-M's influence in the new coalition were put to rest in the following days: after senior members of the INC reassured the markets on future reforms and the relatively reformist Manmohan Singh was announced as Prime Minister on May 18, the market recovered by 9% over the next 2 days. The timeline for the post-election sequence of events is given in Table 1.

We thus have two shocks to the political regime—May 14–17 represents a relatively extreme shift to policies that the market felt, with some probability, would be dominated by CPI-M ideology. Taking the longer period, May 14–19, the market's reaction reflects investor response to a less extreme political shift, that is, a shift from BJP reforms to INC reforms.[7] In this paper, we focus on this longer window and present results based on the two-day window as a robustness check.[8]

[7] This market's feelings toward Singh's leadership are summarized by Uday Kotak, managing director of Kotak Mahindra Bank (the Indian partner of Goldman Sachs), who commented that "[Singh] is a very acceptable face to the markets as well as to most political parties."

[8] The results for this intermediate window are virtually identical to those of the longer window in terms of the implied differences in privatization probabilities. See Section 4 below for further details.

2.2. Effect on (partially) privatized firms

As emphasized above, the two main coalitions (BJP and INC) had substantively differing views on economic reforms, and privatization was one of the central points of contention. Potential differences in the treatment of partially and completely privatized firms include both a shift in the probability of privatization as well as potential changes in the extent of government interference that may also impact firm value. While there was no mention by any party of actual reversals of already-privatized companies, governments obviously have many instruments through which corporate profits may be affected, and their interest and willingness to do so is likely to be greater among firms with prior government ownership.[9] In the empirical section, we estimate reduced forms of the expected effects of the leftward political regime shift from the BJP to the INC coalition government described above. However, to aid in our interpretation of these results, it will be useful to put some structure on market valuations. Specifically, we try to distinguish between changes in valuation caused by differences in the probability of disinvestment associated with different ruling parties and changes in valuation caused by differences in the extent of interference by different parties.

As suggested by our description of the privatization process above, we consider the effect on market valuation of four different types of firms: already completely privatized (c); slated for disinvestment (d); under study for disinvestment (u); and not considered for disinvestment (n). Again, we emphasize that when we use the terms disinvestment or privatization below, we are referring to the change from partial to complete disinvestment/privatization. Let the market valuation of a company of type $x \in \{c, d, u, n\}$ under regime $i \in \{BJP; INC\}$ be given by

$$V_i^x = q_i^x V_i^p + (1 - q_i^x) V_i^g, \tag{1}$$

where q_i^x is the probability of privatization for a type of firm x under regime i, V_i^p is the value if the firm is (completely) disinvested, and V_i^g is the value if the government chooses to retain a controlling share. That is, firm value is the average of completely privatized and partially privatized valuations, weighted by the probability of disinvestment. This is a significant assumption: it implies that the difference in valuations of firms of different types stems only from differing probabilities that they will be disinvested. Thus, firms of all types take on the same value if completely disinvested. In our empirical specification, we try to deal with this concern by including a variety of controls that hopefully absorb other sources of valuation changes, but this remains a concern to the extent that our controls are imperfect.

Next, the change in valuation triggered by a regime shift from BJP to INC is given by (omitting subscripts for

[9] For example, there were fears among recently divested oil companies immediately after the election that the oil pricing mechanism that the government had recently made flexible would be reversed.

ease of exposition)

$$\Delta V^{x}_{\mathrm{INC,BJP}} = (V^{g}_{\mathrm{INC}} - V^{g}_{\mathrm{BJP}}) + q^{x}_{\mathrm{INC}}(V^{p}_{\mathrm{INC}} - V^{g}_{\mathrm{INC}}) - q^{x}_{\mathrm{BJP}}(V^{p}_{\mathrm{BJP}} - V^{g}_{\mathrm{BJP}}). \quad (2)$$

As this expression makes clear, there are many simultaneous changes in valuation that occur with the regime change, and it is not immediately obvious how one may identify the various components. However, we are aided by the fact that companies in different stages of the privatization process will have extreme values of q that will simplify this expression. In particular, we assume that there was no risk of renationalization under any regime. This assumption is very much in line with the Indian government's relations with the private sector over the past few decades: since the nationalization of Air India in 1953, the only other major nationalizations have been the banking and insurance industry nationalizations in the late 1960s and early 1970s. These sectors have since been reopened to the private sector, and no media mentions have been made in recent years of any renationalizations. If this is the case, then for firms that had already been completely disinvested we may set $q^{c}_{\mathrm{BJP}} = q^{c}_{\mathrm{INC}} = 1$, so that the expression reduces to

$$\Delta V^{c}_{\mathrm{INC,BJP}} = V^{p}_{\mathrm{INC}} - V^{p}_{\mathrm{BJP}}. \quad (3)$$

Similarly, we assume that if a company is not under consideration for complete disinvestment by the BJP, the most reformist regime, then it is unlikely to be disinvested by any party, that is, $q^{n}_{\mathrm{BJP}} = q^{n}_{\mathrm{INC}} \approx 0$. This yields

$$\Delta V^{n}_{\mathrm{INC,BJP}} = V^{g}_{\mathrm{INC}} - V^{g}_{\mathrm{BJP}}. \quad (4)$$

Rearranging (2), we may obtain a general expression for the market's reaction:

$$\Delta V^{x}_{\mathrm{INC,BJP}} = \Delta V^{n}_{\mathrm{INC,BJP}} + (q^{x}_{\mathrm{INC}} - q^{x}_{\mathrm{BJP}})(V^{p}_{\mathrm{BJP}} - V^{g}_{\mathrm{BJP}}) + q^{x}_{\mathrm{INC}}(\Delta V^{a}_{\mathrm{INC,BJP}} - \Delta V^{n}_{\mathrm{INC,BJP}}). \quad (5)$$

We are primarily interested in comparing the two intermediate firm types d and u, and in particular in what we may infer about differential changes in probabilities of privatization from market reaction to political regime changes. We will find it useful to write

$$\Delta q^{x}_{\mathrm{INC,BJP}} = (q^{x}_{\mathrm{INC}} - q^{x}_{\mathrm{BJP}}). \quad (6)$$

Utilitizing (5), we have

$$\Delta q^{x}_{\mathrm{INC,BJP}} = \frac{\Delta V^{x}_{\mathrm{INC,BJP}} - \Delta V^{n}_{\mathrm{INC,BJP}}}{V^{p}_{\mathrm{BJP}} - V^{g}_{\mathrm{BJP}}} - q^{x}_{\mathrm{INC}}A, \quad (7)$$

where A is given by

$$A = \frac{\Delta V^{a}_{\mathrm{INC,BJP}} - \Delta V^{n}_{\mathrm{INC,BJP}}}{V^{p}_{\mathrm{BJP}} - V^{g}_{\mathrm{BJP}}}. \quad (8)$$

This will be useful if we put some structure on A. In particular, our regressions below generate estimates of $\Delta V^{a}_{\mathrm{INC,BJP}}$ and $\Delta V^{n}_{\mathrm{INC,BJP}}$, by looking at the change in market valuation of a- and n-type firms. This formulation also highlights the difficulties in interpreting returns as changes in probabilities in general, a point that we return to below in discussing long-run post-election returns.

3. Data

The data required for our empirical tests include (a) stock prices, (b) privatization information for the government-controlled companies, and (c) company-level controls.

Our sample is the set of BSE500 stocks, traded on the Bombay Stock Exchange in Mumbai. We obtain daily closing price data for each company from Datastream. The main dependent variable in what follows comprises the returns (i.e., daily closing price changes) for each company. We define election results day, May 13, as $t = 0$ and calculate returns over the subsequent trading days. Thus, we define the 4-day returns (May 14–19) for firm f as

$$R_f = \frac{P^{f}_{4} - P^{f}_{0}}{P^{f}_{0}}, \quad (9)$$

where P^{f}_{t} is the closing price of firm f on date t.[10]

We use ownership data from the Center for Monitoring Indian Economy (CMIE) database to classify companies as having government ownership. CMIE has five ownership classifications, namely, Domestic Group; Domestic non-Group; Foreign Group; Foreign non-Group; and Government. A firm is classified as government owned if it has a positive government holding. In practice, the central government retained a majority position in almost all firms where it held a positive stake. For firms classified as government owned, we obtain data on the Indian privatization process and the stage of privatization from the Department of Disinvestment, Ministry of Finance (India) website (www.divest.nic.in). Fully disinvested companies, or companies being considered for full disinvestment, were classified on the website as "under study," "under disinvestment," or "disinvested." We generate a set of indicator variables that reflect these classifications: *UNDERSTUDY*, *DIVEST*, and *COMPLETE*, respectively; firms that were not present on the list are classified as *NEVER*. These indicator variables map to the firm types (a, d, u, n) discussed in the previous section. Unfortunately, within a few months of the election this information was removed from the website.

These classifications are consistent with discussions in the media surrounding the BJP's privatization agenda. More importantly, as we discuss below, layoffs took place earlier and were larger in *DIVEST* firms relative to *UNDERSTUDY* firms; we believe this is the most important pattern in the data that provides some credibility to the government's posted list.

Data on firm characteristics are also obtained from the CMIE database. The characteristics of interest include size (sales), industry (matched to two-digit SIC codes), wage bill, and the state in which a company's headquarters is located. Additionally, labor force data are obtained from firms' annual reports. These data have to be hand-collected, and in some cases the annual reports do not mention labor force numbers; fortunately, in almost all cases this only involves nongovernment firms and hence

[10] The results are unchanged if we use risk-adjusted returns.

only affects our control sample. Data reflect labor force statistics in the month of March; we collect data for the years 2002 and 2004, which allows us to examine pre-election layoffs.

Finally, for data on Indian elections and political parties running various state governments, we rely primarily on the Election Commission of India website (www.eci.gov.in). Further information on political alliances is derived from (www.indian-elections.com. We provide further information on our use of this geographic data when we describe our tests on regional political influence.

The distribution of firms according to stage of disinvestment is given in Table 2 Panel A; in Table 2 Panel B we report data for each of our variables, both for the full sample and disaggregated according to stage of disinvestment. In addition to returns over the 2- and 4-day windows mentioned above, we also include summary statistics on the (log of) price changes over the 2-year window following the election, which we discuss in greater detail below.

As these summary statistics suggest, all firms with some government ownership underperformed the market in the wake of the election: for both the May 14–17 and

Table 2

Panel A: Frequency distribution of ownership type[a]

COMPLETE	6
UNDERSTUDY	14
DIVEST	11
NEVER	30
PRIVATE	432

Panel B: Summary statistics by firm type

Firm type	Mean	Std. Dev.	Obs.		Mean	Std. Dev.	Obs.
All				*DIVEST*			
May 14–19 returns	−0.078	0.053	493	May 14–19 returns	−0.116	0.055	11
May 14–17 returns	−0.170	0.077	493	May 14–17 returns	−0.226	0.098	11
Δ log(price), May 31, 2004–May 31, 2006	0.74	1.02	410	Δ log(price), May 31, 2004–May 31, 2006	0.49	0.38	10
log(SALES)	6.298	1.433	479	log(SALES)	8.222	1.751	11
WAGE_RATE	0.151	0.786	462	WAGE_RATE	0.068	0.080	11
Debt/Equity	0.720	35.978	364	Debt/Equity	0.700	16.948	8
PBIT/NA	10.473	82.560	429	PBIT/NA	14.285	6.054	10
BJP99	0.361	0.296	481	BJP99	0.361	0.336	11
BJP04	0.256	0.212	481	BJP04	0.213	0.189	11
log (Emp_{2004})− log(Emp_{2002})	0.047	0.30	264	log (Emp_{2004})− log(Emp_{2002})	−0.072	0.10	11
COMPLETE				*NEVER*			
May 14–19 returns	−0.086	0.037	6	May 14–19 returns	−0.096	0.048	30
May 14–17 returns	−0.236	0.053	6	May 14–17 returns	−0.247	0.080	30
Δ log(price), May 31, 2004–May 31, 2006	0.76	0.81	6	Δ log(price), May 31, 2004–May 31, 2006	0.49	0.56	29
log(SALES)	8.311	1.115	6	log(SALES)	7.593	1.407	28
WAGE_RATE	0.074	0.079	6	WAGE_RATE	0.112	0.062	27
Debt/Equity	0.135	0.106	2	Debt/Equity	1.235	2.027	6
PBIT/NA	17.025	15.182	2	PBIT/NA	1.780	7.719	21
BJP99	0.482	0.376	6	BJP99	0.457	0.350	28
BJP04	0.299	0.333	6	BJP04	0.333	0.252	28
log(Emp_{2004})− log(Emp_{2002})	−0.21	0.21	5	log(Emp_{2004})− log(Emp2002)	−0.048	0.14	22
UNDERSTUDY							
May 14–19 returns	−0.157	0.052	14				
May 14–17 returns	−0.280	0.060	14				
Δ log(price), May 31, 2004–May 31, 2006	0.81	0.64	14				
log(SALES)	8.092	1.264	14				
WAGE_RATE	0.132	0.094	14				
Debt/Equity	0.145	1.925	10				
PBIT/NA	19.705	32.936	12				
BJP99	0.643	0.433	14				
BJP04	0.230	0.230	14				
log(Emp_{2004})− log(Emp_{2002})	−0.082	0.15	14				

Notes: For debt/equity and PBIT/NA we list medians rather than means because of the presence of extreme outliers. WAGE_RATE is the ratio of the wage bill to sales in 2003. BJP04 and BJP99 are the fractions of seats won by the BJP in the firm's home state in 2004 and 1999 respectively.

[a] COMPLETE is an indicator variable denoting a fully privatized firm. NEVER is an indicator variable denoting a firm that was not being considered for future disinvestment at the time of the election. DIVEST is an indicator variable denoting that the firm had been slated for disinvestment by the BJP at the time of the election. UNDERSTUDY is an indicator variable denoting that the BJP was studying the possibility of future disinvestment. PRIVATE is an indicator variable denoting firms that had no government ownership.

May 14–19 windows, returns of *NEVER*, *UNDERSTUDY*, *DIVEST*, and *COMPLETE* generate more negative returns than those of the full sample. In particular, over the May 14–19 window, returns for government-affiliated firms range from −8.6% for *COMPLETE* firms to −15.7% for *UNDERSTUDY* firms, relative to the full sample average of −7.8%. Over the longer 2-year post-election window, beginning at the end of May 2004, we report the change in the log of prices, owing to the very long tails of returns. As with other emerging market exchanges, the BSE had a very high return over this period, with an average log price change of our sample firms of 0.74. Both *NEVER* and *DIVEST* firms underperformed the market considerably, with log price changes of about 0.5; *UNDERSTUDY* and *COMPLETE* firms slightly outperformed the market on average. However, as we will observe in the regressions that follow, a lot of the differences across groups are driven by industry effects.

Also of interest for our discussion, we find that *COMPLETE* firms had larger workforce declines during 2002–2004 (21%) relative to other companies with government stakes, suggesting that once freed of government control, management sheds excess labor. Both *UNDERSTUDY* and *DIVEST* firms had greater workforce declines (8.2% and 7.2%, respectively) relative to *NEVER* firms (4.8%). Finally, we note that all government-affiliated firm types are of a similar size, as proxied by log(*SALES*), and all such firms are larger on average than other firms in the BSE500.

4. Results

Before proceeding to regression analyses, we show the basic patterns in the data without conditioning on such characteristics as industry and size. Fig. 1 shows the median cumulative returns of our four types of firms relative to the BSE200 index during May 14–19. Looking at cumulative returns over the entire post-election event, we see that all government-affiliated companies declined relative to the BSE200. However, there is considerable heterogeneity in the extent of decline. Most strikingly, median cumulative returns for firms that were under study by the BJP for complete privatization declined by 6% relative to the market, while already-privatized and never-to-be privatized disinvested firms' returns were indistinguishable from the broader market index. An intermediate decline was seen by firms already slated for complete privatization.

Turning now to our regression analysis, we present results on cumulative returns for the post-election period, May 14–19. Our baseline specification is given by

$$R_f^{\mathrm{INC}} = \alpha + \beta_1\, COMPLETE_f + \beta_2\, DIVEST_f + \beta_3\, UNDERSTUDY_f + \beta_4\, NEVER_f + \varepsilon_f, \quad (10)$$

where f indexes the firm and ε_f is an i.i.d. error term. As explained in the data section, R_f^{INC} denotes the May 14–19 cumulative returns, and the remaining variables are indicator variables denoting the type of firm. The omitted category is for firms that never had government ownership, so that the coefficients on the four indicator variables reflect performance relative to private firms. The results of this regression are in the first column of Table 3.

While returns relative to private firms are negative and significant for all but *COMPLETE* firms, the decline is most pronounced for *UNDERSTUDY* firms, with a decline of 8.3% relative to private firms. By comparison, *DIVEST* and *NEVER* firms declined by 4.3% and 2.2%, respectively. When we control for industry effects in column 2, we find that the coefficient on *NEVER* is no longer significant at conventional levels. In column 3, we add log(*SALES*) as a control and find the results unchanged. We control for geographic heterogeneity by including state fixed effects in column 4, and again find that our results are unaffected. Finally, in column 5 government affiliated companies with large state government holdings are omitted, and the results are again unchanged. We summarize our first main result as follows:

Result 1. In the post-election period May 14–19, *NEVER* and *COMPLETE* firms experience declines that are statistically indistinguishable from the returns experienced by private firms. *UNDERSTUDY* firms experience declines of approximately 8% relative to private firms, significant at the 1% level. *DIVEST* firms experience intermediate declines of approximately 3.5%. The decline in *UNDERSTUDY* firms is also significantly different (at least at the

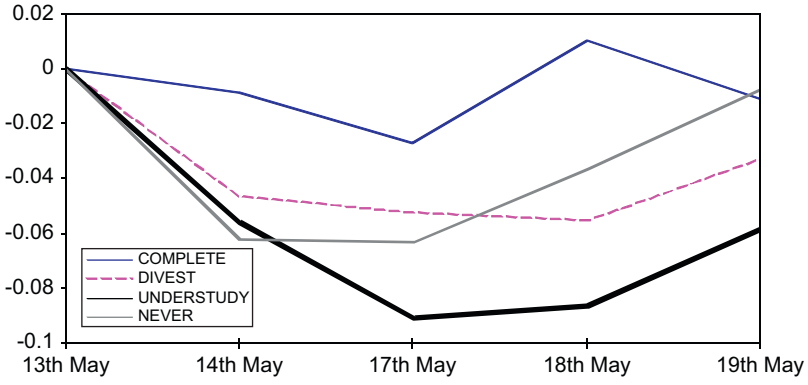

Fig. 1. Cumulative post-election returns of government affiliated companies relative to the BSE200.

Table 3
Effect of ownership type on 4-day post-election returns May 14–19

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
COMPLETE	−0.013	−0.015	−0.014	−0.012	−0.012	−0.013	−0.010	−0.012
	(0.014)	(0.018)	(0.019)	(0.018)	(0.018)	(0.019)	(0.018)	(0.017)
DIVEST	−0.043***	−0.038**	−0.037*	−0.035*	−0.036*	−0.035*	−0.036**	−0.038**
	(0.016)	(0.018)	(0.019)	(0.019)	(0.019)	(0.019)	(0.018)	(0.018)
UNDERSTUDY	−0.084***	−0.073***	−0.072***	−0.075***	−0.075***	−0.075***	−0.070***	−0.074***
	(0.014)	(0.013)	(0.014)	(0.016)	(0.016)	(0.016)	(0.013)	(0.013)
NEVER	−0.023**	−0.014	−0.016	−0.017	−0.014	−0.014	−0.013	−0.015
	(0.009)	(0.011)	(0.012)	(0.013)	(0.013)	(0.013)	(0.012)	(0.012)
log(Sales)			−0.000	−0.001	−0.001	−0.002	−0.001	−0.001
			(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
WAGE_RATE						−0.014		
						(0.009)		
BJP04							−0.035***	−0.044***
							(0.012)	(0.012)
BJP99								0.020**
								(0.008)
Industry FE	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE	No	No	Yes	Yes	Yes	Yes	No	No
Observations	493	492	478	470	466	454	469	469
R^2	0.09	0.20	0.21	0.27	0.26	0.28	0.23	0.24

Notes: Four-day returns is the dependent variable in all regressions. COMPLETE is an indicator variable denoting a fully privatized firm. NEVER is an indicator variable denoting a firm that was not being considered for future disinvestment at the time of the election. DIVEST is an indicator variable denoting that the firm had been slated for disinvestment by the BJP at the time of the election. UNDERSTUDY is an indicator variable denoting that the BJP was studying the possibility of future disinvestment. WAGE_RATE is the ratio of the wage bill to sales in 2003. BJP04 and BJP99 are the fractions of seats won by the BJP in the firm's home state in 2004 and 1999 respectively. Robust standard errors are in parentheses. *Significant at 10%; **significant at 5%; ***significant at 1%.

10% level in all specifications) from the declines experienced by *DIVEST* firms.

The interpretation of these results is aided by reference to Sections 2 and 3 above. First, we interpret the coefficient on *COMPLETE* to reflect the expected change in government interference in already completely disinvested firms, $\Delta V^{c}_{INC,BJP} = V^{p}_{INC} - V^{p}_{BJP}$. This is precisely estimated as zero (standard error of approximately 0.02) relative to private firms, in all specifications. Similarly, assuming that the probability of complete disinvestment is close to zero for all *NEVER* = 1 firms, the coefficient on *NEVER* reflects the decline in value of government-controlled firms ($\Delta V^{n}_{INC,BJP} = V^{g}_{INC} - V^{g}_{BJP}$) relative to private firms, and hence the likely change in government interference in government-controlled firms under the INC. In specifications with controls, this coefficient is insignificantly different from zero, suggesting that the market anticipated a minimal shift in government interference in the companies it controlled under the INC relative to the BJP (beyond industry-wide shifts in government policy that are absorbed by the industry effects). Comparing market reaction for *DIVEST* and *UNDERSTUDY* firms, we find that the coefficient on *UNDERSTUDY* is significantly more negative than the coefficient on *DIVEST*. Differencing (7) for the two types of firms, and utilizing the fact that $\Delta V^{c}_{INC,BJP} - \Delta V^{n}_{INC,BJP}$ (and hence *A*) is very close to zero, we may estimate the differential effect on the probability of complete disinvestment by

$$\Delta q^{d}_{INC,BJP} - \Delta q^{u}_{INC,BJP} \approx \frac{\Delta V^{d}_{INC,BJP} - \Delta V^{u}_{INC,BJP}}{V^{p}_{BJP} - V^{g}_{BJP}}. \quad (11)$$

Since the difference $\Delta V^{d}_{INC,BJP} - \Delta V^{u}_{INC,BJP}$ is negative (significant at least at the 10% level in all specifications), and the denominator is clearly positive, this suggests that the market expected a greater change in the probability of disinvestment of *UNDERSTUDY* firms, relative to *DIVEST* firms.

We now ask whether there is evidence of specific steps taken that would limit the scope for privatization reversal of *DIVEST* firms. Discussions of the political costs of privatization often focus on the electoral implications of reduced employment or increased prices (see, for example, Shleifer, 1998). We focus on layoffs, owing to data availability. Further, this has been one of the main controversies surrounding privatizations in India specifically (see Dinc and Gupta, 2007). Finally, given the policy platforms of the INC versus the BJP and the implied differences in their bases of support, we argue that the political cost of layoffs would be much greater for an INC government.

Given this asymmetric political cost of layoffs, the application of ideas from Alesina and Tabellini (1990) leads to two basic predictions. First, *DIVEST* firms should experience larger layoffs than *UNDERSTUDY* firms. Second, to the extent that the layoffs of *DIVEST* firms reflect an effort to prepare these companies for complete

disinvestment, *DIVEST* firms that undertake layoffs prior to the election should be more committed to continued privatization. That is, it is necessary for a firm to both be classified as *DIVEST and* have pre-election layoffs to have relatively high returns. We therefore also look at the interaction of pre-election layoffs and firm classifications in predicting market reaction to the election.

In the first test, we look at the change in (the log of) employment in the years preceding the election as a function of a firm's classification:

$$\log(Emp_{2004}) - \log(Emp_{2002}) = \alpha + \beta_1 COMPLETE_f + \beta_2 DIVEST_f + \beta_3 UNDERSTUDY_f + \beta_4 NEVER_f + \omega_i + \lambda_s + \varepsilon_f. \quad (12)$$

In the above expression, ω_i is an industry fixed effect and λ_s is a state fixed-effect for the location of the company's headquarters. The results are reported in Table 4. Our primary interest is in a comparison of the layoffs of *DIVEST* and *UNDERSTUDY* firms. In the specifications both with and without state fixed effects, *DIVEST* firms have larger workforce declines relative to *UNDERSTUDY* firms (columns 1 and 2); this difference is significant at the 10% level in the specification with state fixed effects.

Turning now to the implications for returns, we report specifications in Table 5 that augment specification (10) with the interaction of changes in labor force with firms' classifications. In column 1, we see that there is no direct effect of layoffs on post-election returns. However, our primary interest is whether there is a differential effect of layoffs on the returns of *DIVEST* firms, that is, whether layoffs are an important channel through which investors believed the BJP was able to commit future regimes to carry out their intended privatizations. In columns 2 and 3 we add the interactions of firms' classifications with layoffs. Interestingly, we find that, among all firms with a government affiliation, the relationship between pre-election employment changes and returns is by far the most significant for *DIVEST* firms, as reflected in the large and negative interaction term on *DIVEST* $\Delta \log(Emp)$. In the specification with both state and industry fixed effects, the coefficient implies that a 1% decline in the labor force between 2002 and 2004 results in election returns that are 0.83% higher for *DIVEST* firms. Further, the coefficients on the direct effects for *DIVEST* and *UNDERSTUDY*, which reflect the returns for firms with no change in labor force between 2002 and 2004, are virtually identical to one another in the specification with only industry fixed effects. In the specification with state fixed effects, the coefficient on the direct effect of *DIVEST* is actually more negative that that of *UNDERSTUDY*. Obviously, we do not have random assignment of layoffs, so some caution must be exercised in interpreting these results. Still, the combined set of

Table 4
Relation between ownership type and employment changes

	(1)	(2)
COMPLETE	−0.309***	−0.323***
	(0.098)	(0.122)
DIVEST	−0.120**	−0.104*
	(0.052)	(0.062)
UNDERSTUDY	−0.051	0.029
	(0.078)	(0.097)
NEVER	−0.118*	−0.101
	(0.061)	(0.078)
Log(Sales)	0.011	0.030
	(0.021)	(0.021)
Log(2002 Empl)	−0.032	−0.052**
	(0.023)	(0.024)
Industry FE	Yes	Yes
State FE	No	Yes
Observations	260	254
R^2	0.29	0.36

Notes: Dependent variable is log(2004 Employment) − log(2002 Employment) in all the regressions. COMPLETE is an indicator variable denoting a fully privatized firm. NEVER is an indicator variable denoting a firm that was not being considered for future disinvestment at the time of the election. DIVEST is an indicator variable denoting that the firm had been slated for disinvestment by the BJP at the time of the election. UNDERSTUDY is an indicator variable denoting that the BJP was studying the possibility of future disinvestment. Robust standard errors are in parentheses. *Significant at 10%; **significant at 5%; ***significant at 1%.

Table 5
Effect of employment changes on 4-day post-election returns May 14–19

	(1)	(2)	(3)
COMPLETE	−0.027	−0.006	−0.009
	(0.021)	(0.036)	(0.046)
DIVEST	−0.037	−0.102***	−0.143***
	(0.024)	(0.019)	(0.023)
UNDERSTUDY	−0.068***	−0.087***	−0.087***
	(0.016)	(0.020)	(0.020)
NEVER	−0.024	−0.026	−0.013
	(0.016)	(0.017)	(0.019)
log(Sales)	0.000	0.001	−0.001
	(0.003)	(0.003)	(0.003)
Δ log(Emp)	0.001	0.004	0.010
	(0.013)	(0.013)	(0.015)
Δ log(Emp)* PRIVATIZED		0.111	0.063
		(0.107)	(0.141)
Δ log(Emp)* DIVEST		−0.610***	−0.829***
		(0.160)	(0.160)
Δ log(Emp)* UNDERSTUDY		−0.083	−0.158**
		(0.071)	(0.079)
Δ log(Emp)* NEVER		−0.037	0.469
		(0.069)	(0.337)
Industry FE	Yes	Yes	Yes
State FE	No	No	Yes
Observations	251	251	245
R^2	0.32	0.35	0.46

Notes: Four-day returns is the dependent variable in all regressions. The measure of employment changes in all regressions is log (2004 Employment) − log(2002 Employment). COMPLETE is an indicator variable denoting a fully privatized firm. NEVER is an indicator variable denoting a firm that was not being considered for future disinvestment at the time of the election. DIVEST is an indicator variable denoting that the firm had been slated for disinvestment by the BJP at the time of the election. UNDERSTUDY is an indicator variable denoting that the BJP was studying the possibility of future disinvestment. Robust standard errors are in parentheses. *Significant at 10%; **significant at 5%; ***significant at 1%.

results we present above provide compelling circumstantial evidence in favor of belief in irreversibility by investors:

Result 2. Pre-election layoffs are larger in *DIVEST* firms relative to *UNDERSTUDY* firms. Further, *DIVEST* firms that do not experience pre-election layoffs have post-election returns that are comparable to (or below) those of *UNDERSTUDY* firms. This supports the irreversibility hypothesis as an explanation for the relatively high post-election returns of *DIVEST* firms.

4.1. Alternative hypotheses

While Result 2 provides positive evidence in favor of the irreversibility hypothesis, we consider a pair of leading alternative interpretations for our results. First, it may be that the firms to be fully divested earlier are those that would create the greatest benefit to the government, regardless of the party in power. If this were the case, then the "marginal" privatization cases that were only at the stage of being studied for possible privatization would be most adversely affected by a shift to a less privatization-friendly government. We refer to this below as the "Ordered Privatization" explanation.

Prior work suggests that governments may be averse to privatizing some types of politically strategic firms.[11] In particular, Boycko, Shleifer, and Vishny (1996) focus on excess employment in government firms, as these companies are used to achieve the political objective of increased employment. In our context, the Indian government will be better able to control the wage bill for firms where it maintains a controlling stake. Hence, it may be politically more costly for the government (BJP or INC) to lose control over a firm with more potential to cut costs by shedding labor. DeWenter and Malatesta (2001) observe that, in addition to concerns over employment, governments avoid privatizing firms that are unprofitable or heavily laiden with debt. Hence, we investigate whether there are systematic differences between *DIVEST* and *UNDERSTUDY* firms in these characteristics.

We define the variable *WAGE_RATE* to be the ratio of a firm's wage bill to total sales. As measures of profitability and leverage we use *PBIT/Assets* and *Debt/Equity*, respectively. The summary statistics in Table 2 show that for profitability there is virtually no difference between *DIVEST* and *UNDERSTUDY* firms, though there are many firms for which profit data are unavailable. For leverage, we find that *DIVEST* firms actually have higher debt ratios than *UNDERSTUDY* firms. The only characteristic that is consistent with the Ordered Privatization hypothesis is *WAGE_RATE*: this variable does indeed appear to be correlated with the decision to privatize with the mean *WAGE_RATE* of 0.067 and 0.139 for *DIVEST* and *UNDERSTUDY* firms, respectively. This difference is significant at the 5% level. Further, *NEVER* firms have a wage ratio of 0.14, which is much closer to that of *UNDERSTUDY* firms. We therefore include *WAGE_RATE* as a control variable in specification (10). This appears in column 5 of Table 3: the coefficient on *WAGE_RATE* is not significant, and more importantly, the coefficients on our privatization variables are unaffected. Thus, while there is some evidence that labor intensive firms were being held back from privatization, this does not seem to be the primary explanation for the differential market reaction that we study here. Overall, our results provide tentative evidence that runs counter to the Ordered Privatization explanation. We recognize that this is by no means conclusive, as it may be the case that the *DIVEST* versus *UNDERSTUDY* classification is a more precise proxy for the preferred ordering of privatization for any government, but our test does provide suggestive evidence to the contrary.

A second concern is that the ordering of privatizations may be a function of political interests. Indeed, in the case of India specifically, Dinc and Gupta (2007) provide evidence that government-owned firms based in states where the government holds a majority are less likely to be privatized. Therefore, the BJP may have held back firms in states where they had a dominant presence, so that firms in BJP-dominated states are more likely to be classified as *UNDERSTUDY* than as *DIVEST*. If, additionally, firm value suffers from being located in a politically disadvantaged state in general, so that firms in BJP-dominated states were expected to decline after the change in government, then underperformance of *UNDERSTUDY* firms relative to *DIVEST* firms after the election may be the result of an omitted variable bias.

The fact that our results are unaffected by state-level fixed effects implies that this is not a concern. As an additional test, we construct the variable $BJP04_s$, which is the fraction of seats in the federal government obtained by the BJP in state *s* in the 2004 election, where *s* is the state in which a firm is headquartered; we similarly define $BJP99_s$. Consistent with the work of Dinc and Gupta (2007), the mean value of *BJP*99 is indeed much higher for *NEVER* and *UNDERSTUDY* firms (0.46 and 0.64), while the average of *BJP*99 is 0.36 for *DIVEST* firms. Collectively, this supports the hypothesis that BJP politicians may have been avoiding the complete privatization of firms in their home states. We report results including these political variables in columns 6 and 7 of Table 3. The coefficient on *BJP*04 is negative and significant at the 1% level, but the coefficients on our privatization variables are unaffected. Thus, while there is indeed a significant effect of the political affiliation of a company's home state on post-election returns, this is independent of our privatization results. Additionally, we note that the interaction of *BJP*04 with our privatization variables is never significant, implying that the effect on firm value of being in a politically disadvantaged state is substantial also for private firms.[12]

[11] For a broad discussion of determinants of privatizations, see Gupta, Ham, and Svenjnar (2007).

[12] We view this as a very interesting ancillary set of results, and serves as a contribution on the value of political connections in the spirit of, for example, Fisman (2001), Ramalho (2005), and Faccio (2006).

4.2. Robustness

First, we consider whether a differential risk profile of government-owned firms may account for the results. To examine this possibility, we repeat our analyses using excess returns from a one-factor market model and obtain very similar results. Additionally, we look at similar regressions for the three largest stock market shocks in the 3 years prior to the 2004 election, to check whether government-owned stocks tend to move together during market crashes generally. We find that none of our government ownership variables is significant in predicting returns in these other crashes.

Second, we look at returns over the shortened event window of May 14–17, which reflected market concerns over a strong communist influence in the INC coalition. This generates a comparable set of results in comparing *DIVEST* and *UNDERSTUDY* firms. These results, reported in Appendix Table A1, reveal that *all* government-affiliated firms had larger declines (relative to the broader market) over this intermediate window, implying some interference by the government in firms they held a stake in. The ordering of returns among *NEVER*, *COMPLETE*, *DIVEST*, and *UNDERSTUDY* firms is unaffected, but the magnitudes are much larger, as expected.

4.3. Postscript: post-election returns

As of this writing, it has been over 3 years since the 2004 election results, giving us the opportunity to study actual privatization policies of the INC coalition and investor response to these policies. Obviously, investor response to the 2004 election outcome reflects investors' expectation over a distribution of potential outcomes, so we certainly cannot take a stand on the ex post realization of privatization policy. In fact, the influence of the Communist Party within the INC coalition turned out to be surprisingly strong, bringing the privatization process to a near-standstill. In particular, none of the companies in our analysis (both *DIVEST* and *UNDERSTUDY* firms) have been privatized ex-post, nor are there any imminent plans for their privatization. This unexpectedly strong resistance to privatization should have a negative impact on all firms that were under consideration for privatization. That is, we expect negative returns for *DIVEST* and *UNDERSTUDY* firms in the period following the elections. Additionally, to the extent that the curtailing of privatization plans caused a convergence in privatization probabilities for *DIVEST* and *UNDERSTUDY* firms, we might further expect greater declines for *DIVEST* firms relative to *UNDERSTUDY* firms.

Unfortunately, there is no crisp event that captures this change in privatization policies—there were over 100 days with government pronouncements on the future of privatization during the 2 years following the election. We try to capture the long-run change in investor beliefs by examining returns over the 2 years following the election (June 1, 2004 to May 31, 2006). A great many other policy changes were implemented during this period, and it was also a time during which the Indian market boomed due to high rates of economic growth, so some caution is merited in interpreting these results. Moreover, the primary focus of this paper relates to the (ex ante) expectations of investors at the time of the election, not the ex post realization, whose interpretation may be clouded by other factors. Given the very large variance in these long-run returns, we use the difference in the logarithm of prices as the dependent variable below.

Table 6
Effect of ownership type on 2-year post-election returns June 1, 2004–May 31, 2006

	(1)	(2)	(3)	(4)	(5)
COMPLETE	−0.269	−0.232	−0.229	−0.214	−0.209
	(0.309)	(0.310)	(0.285)	(0.369)	(0.369)
DIVEST	−0.539***	−0.463***	−0.355***	−0.259**	−0.260**
	(0.124)	(0.143)	(0.131)	(0.119)	(0.126)
UNDERSTUDY	−0.248	−0.541***	−0.463**	−0.161	−0.163
	(0.165)	(0.195)	(0.197)	(0.263)	(0.279)
NEVER	−0.529***	−0.300*	−0.290	−0.238	−0.241
	(0.115)	(0.170)	(0.186)	(0.221)	(0.238)
log(Sales)				−0.143***	−0.148***
				(0.044)	(0.039)
WAGE_RATE					0.004
					(0.046)
Industry FE	No	Yes	Yes	Yes	Yes
State FE	No	No	Yes	Yes	Yes
Observations	323	323	314	294	293
R^2	0.06	0.28	0.36	0.40	0.40

Notes: Change in the logarithm of share price is the dependent variable in all regressions. COMPLETE is an indicator variable denoting a fully privatized firm. NEVER is an indicator variable denoting a firm that was not being considered for future disinvestment at the time of the election. DIVEST is an indicator variable denoting that the firm had been slated for disinvestment by the BJP at the time of the election. UNDERSTUDY is an indicator variable denoting that the BJP was studying the possibility of future disinvestment. Sales is firm sales in 2004. WAGE_RATE is the ratio of the wage bill to sales in 2004. Robust standard errors are in parentheses. *Significant at 10%; **significant at 5%; ***significant at 1%.

Our results are shown in Table 6.[13] The first observation is that the coefficients on all ownership coefficients are negative, though their magnitudes and significance levels are sensitive to the specification. This might suggest some combination of investor belief in greater interference in partially privatized firms and changes in the probability of privatization. This seems to operate particularly at the sector level, as suggested by the difference between the results in columns 1 and 2: the ownership coefficients are more negative without the inclusion of sector effects. Additionally, we note that because the coefficients on *all* ownership variables are negative and differ in magnitude, there is no straightforward simplification of (5). This makes it difficult to isolate changes in privatization probabilities from changes in the extent of government

[13] Unfortunately, due to changes in the BSE500, our list of control companies is somewhat smaller than in the earlier regressions; we hand-collect price and accounting data for all non-*PRIVATE* companies that have dropped out of the BSE500 in order to maximize the sample size of "treatment" firms.

interference in partially privatized firms. In comparing the coefficients on *DIVEST* and *UNDERSTUDY* specifically, we find that they are both negative, but similar in magnitude (considering the lack of precision with which they are measured) in most specifications. However, given that the coefficients no longer have a clean interpretation as probabilities, making any inference of their relative magnitudes is problematic. For example, since the *level* of the probability of privatization is lower for *UNDERSTUDY* firms relative to *DIVEST* firms, if there were greater interference expected for both groups of companies, this could account for the similarly negative returns of the two groups, even if the change in privatization probability were larger for *DIVEST* firms. Given these complications, we leave a more complete analysis of long-run post-election returns for future work.

5. Conclusion

Government policies are subject to reversal following any regime change. In the volatile politics of many young democracies in the developing world, there is particular concern that this sort of reversal may reduce credibility with investors and hamper investment flows. In this paper, we study the effects of political change on privatizations by analyzing market reaction to the INC party's unexpected victory over the reformist BJP party in the 2004 Indian election. We provide evidence on investor belief in limits to policy reversal, documenting in particular the role of concrete and difficult-to-reverse interventions that impact a future government's trade-offs in deciding whether to reverse course. We therefore speak to two important literatures: the political economy of multi-party democracies, and the process of privatization.

However, we view this as only a very first step in generating a broader understanding of these issues. First, it would be useful to know the contexts in which irreversibility is strongest. We mention at various points in the text the importance of a legislative democracy with checks and balances, but there is huge variation in governing institutions within this realm. Research in political economy examines differences stemming from, for example, the extent of electoral competition, presidential versus parliamentary government, and many others, and it would be useful to know how these characteristics of government affect policy inertia.

Second, while we shed some light on one mechanism by which the credibility (and consequently the irreversibility) of government policy is established, it would be useful to consider additional instruments that the government may use to make policy commitments credible. We suggest that our methodology, built on examining valuation responses to unexpected electoral outcomes, may be a useful technique for examining this question in India and elsewhere.

Appendix

Table A1 presents the effect of ownership type.

Table A1
Effect of ownership type on 2-day post-election returns May 14–17

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
COMPLETE	−0.076***	−0.075***	−0.064***	−0.061***	−0.060***	−0.059***	−0.060***
	(0.020)	(0.021)	(0.021)	(0.017)	(0.017)	(0.021)	(0.020)
DIVEST	−0.067**	−0.061**	−0.057**	−0.055*	−0.055*	−0.055*	−0.055*
	(0.028)	(0.026)	(0.028)	(0.032)	(0.032)	(0.029)	(0.028)
UNDERSTUDY	−0.120***	−0.118***	−0.108***	−0.122***	−0.120***	−0.105***	−0.106***
	(0.016)	(0.015)	(0.017)	(0.020)	(0.020)	(0.017)	(0.017)
NEVER	−0.088***	−0.073***	−0.068***	−0.074***	−0.069***	−0.068***	−0.069***
	(0.015)	(0.018)	(0.018)	(0.019)	(0.020)	(0.019)	(0.019)
log(Sales)			−0.006*	−0.006*	−0.007**	−0.006**	−0.007**
			(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
WAGE_RATE					−0.018		
					(0.016)		
BJP04						−0.027	−0.031*
						(0.017)	(0.018)
BJP99							0.008
							(0.013)
Industry FE	No	Yes	Yes	Yes	Yes	Yes	Yes
State FE	No	No	Yes	Yes	Yes	No	No
Observations	493	492	478	470	454	469	469
R^2	0.16	0.26	0.27	0.32	0.33	0.28	0.28

Notes: Four-day returns is the dependent variable in all regressions. COMPLETE is an indicator variable denoting a fully privatized firm. NEVER is an indicator variable denoting a firm that was not being considered for future disinvestment at the time of the election. DIVEST is an indicator variable denoting that the firm had been slated for disinvestment by the BJP at the time of the election. UNDERSTUDY is an indicator variable denoting that the BJP was studying the possibility of future disinvestment. WAGE_RATE is the ratio of the wage bill to sales in 2003. BJP04 and BJP99 are the fractions of seats won by the BJP in the firm's home state in 2004 and 1999 respectively. Robust standard errors are in parentheses. *Significant at 10%; **significant at 5%; ***significant at 1%.

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