

# A Political Economy Model of Investor Protection\*

Lucian Bebchuk<sup>†</sup>      Zvika Neeman<sup>‡</sup>

## Incomplete Working Draft

Last Revised: July, 2005

### Abstract

We develop a political economy model that analyzes how lobbying by interest groups affect the level of investor protection. We identify factors that may lead to equilibrium levels of investor protection that are inefficiently low. These factors include the ability of corporate insiders to use the corporate assets they control to influence politicians, and the divergence of interests between institutional investors and the class of outside shareholders. The interest that insiders and entrepreneurs have in raising equity capital in the future reduces but does not eliminate the distortions that arise from insiders' interest in extracting rents from the capital that public firms already have. Our analysis generates testable predictions regarding the way in which investor protection can be expected to vary over time and around the world.

## 1. Introduction

It is now well recognized that the legal rules that govern corporate law matter a great deal for the economy. There is a large body of both empirical and theoretical literature that suggests that a country's level of investor protection has a substantial effect on how efficiently firms are run, on the development of stock markets, and on economic growth.<sup>1</sup>

Because insufficient investor protection can be costly, it is important to understand why such protection might fall short of being optimal. Why do countries vary so much in their level of investor protection? Why do levels of investor protection within any given country change over time? And when investor protection is too low, is such suboptimality due to insufficient understanding by relevant public officials, which should be expected to disappear as officials become more knowledgeable about what level of investor protection is optimal, or

---

\*Acknowledgements to be added.

<sup>†</sup>Harvard Law School; URL [www.law.harvard.edu/faculty/bebchuk](http://www.law.harvard.edu/faculty/bebchuk); Email [bebchuk@law.harvard.edu](mailto:bebchuk@law.harvard.edu).

<sup>‡</sup>Department of Economics, Boston University, and The Center for Rationality and Department of Economics, The Hebrew University of Jerusalem; URL <http://people.bu.edu/zvika>; Email [zvika@bu.edu](mailto:zvika@bu.edu).

<sup>1</sup>For reviews of this body of work, see La Porta et al. (2000), and Shleifer et al. (2005).

are there some political impediments to providing efficient levels of investor protection that might permit excessively lax corporate rules to persist even after they are recognized to be inefficient?

The aim of this paper is to contribute to an understanding of the answers to these questions by developing a model of how interest group politics affects the level of investor protection. To be sure, a country's levels of investor protection might be influenced by the nature of the country's institutions and their legal origin (La Porta et al., 1998; Glaezer and Shleifer, 2003), and by the culture and religion of its population (Stulz and Williamson, 2003), all of which lie outside the realm of contemporary interest group politics. But the level of investor protection is also likely to be substantially affected by current political choices, which in turn are likely to be affected not only by politicians' perception of social welfare, but also by lobbying by interest groups. We are interested in understanding the direction in which such lobbying affects the level of investor protection and, in particular, whether (and in what direction) such lobbying pushes for investor protection levels that are different from efficient ones.

The politicians' choices we are interested in are those that determine the level of investor protection for outside investors in publicly traded firms. This level protection determines the extent to which "corporate insiders" – managers and controlling shareholders who have some control over corporate decisions – can extract private benefits of control. The laxer the corporate governance system, the larger are these private benefits of control. Beyond a certain point, any further weakening of investor protection is inefficient. Assuming that politicians do recognize the efficient level of investor protection, we focus on the question of whether they would choose to set investor protection at this efficient level.

In our model, three organized interest groups compete for influence over the politicians who determine the level of investor protection in our model. One group, which benefits from rules that are laxer than optimal, consists of the corporate insiders of existing firms. A second group is made of institutional investor whose interests might overlap with those of "outsider" shareholders in existing companies. A third group consists of owners of private firms ("entrepreneurs") that plan to take them public. We also allow for the possibility of insiders that plan to raise equity capital for their existing public firms or for new firms that they will take public and that thus may have some overlap of interests with the entrepreneurs. We assume that, under ordinary circumstances, individual investors, who invest in publicly traded firm either directly or indirectly through institutional investors, are too dispersed and uninformed to become part of an effective organized interest group with respect to investor protection.

We identify and study the equilibrium outcome of the lobbying game between the interest groups and the politician. Our analysis identifies factors that might lead to inefficiently low levels of investor protection and excessive private benefits of control. First, unlike the lobby of institutional investors, corporate insiders may be able to use some of the resources of the firms under their control in order to influence politicians (Bebchuk and Roe, 1999). Corporate insiders, but not other shareholders, have the power to direct their firms' campaign

contributions, to channel charitable contributions in ways favored by politicians, to offer relatives or associates of politicians positions or business, use to their standing to support positions and causes the politician seeks to advance, and so forth. Because insiders capture the full benefits of lobbying for lower levels of investor protection, while their firms' (and in turn, other shareholders in their firms) bear some of the costs of such lobbying, insiders have an advantage in the competition for influence over politicians. To win extra private benefits of control, insiders will be willing to spend more resources than the value of these extra benefits to them.

Furthermore, institutional investors can be expected to invest in lobbying against weak investor protection less than would be optimal for the class of all outsider shareholders. While institutional investors have to bear the costs of lobbying themselves, they will capture only part of the benefits to outside investors resulting from improved investor protection. To begin, some investors hold shares in companies directly, not through institutional investors. Furthermore, depending on their relationship with their own investors, some institutional investors – for example, mutual fund managers – may capture only a fraction of increases in the value of their managed portfolios that better investor protection would produce. Finally, institutional investors might be able to receive side payments from the public firms controlled by insiders. Each of these problems can lead to under-investment in lobbying by institutional investors compared to what would be optimal from the perspective of the class of outside shareholders in exiting public companies. To prevent a given increase in private benefits, institutional investors will be willing to spend less than the costs of these benefits to outside shareholders.

Another way of seeing the problem we identify is to recognize the existence of an externality. The parties in the lobbying game are not the only ones affected by weak investor protection. Individual investors that invest in existing public firms either directly or indirectly through institutional investors are also adversely affected. However, because such individuals are not present at the table, as it were, this negative externality is not fully taken into account in the lobbying game, as a result, the outcome is distorted toward excessively lax levels of investor protection.

The problem does not go away when, as we assume, the lobbying game includes entrepreneurs and insiders that expect weak investor protection to affect them adversely by making it more difficult to raise equity capital in the future. The existence of entrepreneurs and insiders that plan to take companies public in the future or to raise additional capital for existing public firms moderates the bias in favor of excessive private benefits but does not eliminate it. In an economy with public firms, lobbying has an effect on the allocation of rents from the capital that public firms already have (Bebchuk and Roe, 1999, La Porta et al., 2000). As long as lax investor protection affects negatively the interests of individuals that directly or indirectly hold shares in existing public firms, and who are not at the table, the outcome of the lobbying game would be distorted in favor of excessively large private benefits.

In the ordinary course of events, most corporate issues are not sufficiently understood and

salient to most voters to influence their voting decisions. Such issues are intensely followed by the relevant interest group with sufficient stake and expertise, but not by individual voters. With respect to such issues, politicians' decisions are not influenced so much by the direct effect of these decisions on voting behavior, but rather by the influence activities of organized interest groups and by whatever weight politicians assign to the promotion of social welfare.

However, we allow in our model for some corporate issues to become salient enough to have significant direct influence on individual investors' voting decisions. This effect can pull politicians in the direction of improving investor protection. The strength of this effect would depend on the size of the investor class, and also, importantly, on the extent to which events and their coverage by the media contribute to the salience of corporate governance problems. Thus, the ordinary pro-insider operation of interest group politics can, every now and then, be interrupted by pro-investor reforms resulting from a wave of corporate scandals or a stock market crash that makes a large number of individual investors sufficiently engaged that their voting decisions could be affected by politicians' failure to improve investor protection. In the US, the adoption of securities laws of 1933 and 1934 following the crash of 1929, and the adoption of the Sarbanes-Oxley Act following the burst of the stock market bubble and the Enron and Worldcom scandals took place under such circumstances. At such times, the normal operation of interest group lobbying by informed insiders and institutional investors was supplemented or perhaps even took a back seat to pressures from the public at large.

Our model generates a wide range of testable predictions about the relationship between the levels of investor protection and various factors. Our results have bearing both on the change in the level of investor protection over time and around the world. These results can shed some light on patterns identified by the existing empirical work as well as provide basis for future empirical work.

One important pattern established by the evidence is the positive correlation that higher levels of investor protection have with such country variables as the presence of a well developed stock markets and higher levels of economic growth (see, e.g., La Porta et al. 1998, 1999a, 1999b). One possible interpretation of this correlation is that higher levels of investor protection bring about more developed stock markets and improved economic performance. Our results indicate, however, that some of the causality might go in the opposite direction: countries with more developed economies and more accountable political systems tend to adopt higher levels of investor protection. This effect might be partially responsible for the observed correlation between investor protection and economic and capital markets growth.

Our work complements other work that seeks to model the political forces shaping investor protection. Pagano and Volpin (2000), Perrotti and Von-Thadden (2004) and Roe (2005) present voting models in which investor protection is shaped by voting decisions. In contrast, our focus is on how investor protection is affected by the lobbying activities. Because voters pay little attention to most investor protection issues most of the time, such activities might play a key role. Moreover, because corporate insiders directly control a small fraction of the electorate's votes, these models focus on the possibility of a coalition between insiders and stakeholders against outside shareholders (Pagano and Volpin (2000) and Perrotti and Von-

Thadden (2004) or a coalition between insiders and outside shareholders against stakeholders (Roe, 2005). In contrast, we focus on the many aspects of investor protection that do not affect stakeholders but rather insiders and outside shareholders.

Perrotti and Volpin (2005) model interest group activities and focus, in the spirit of Rajan and Zingales (2003) and others stressing the conflict of interest between established and new firms, on the interest that incumbent firms might have to keep investor protection low to discourage entry by new firms that could dissipate the rents the incumbents are making in imperfectly competitive product markets. In Perrotti-Volpin model, entrepreneurs cannot spend on influencing politicians as much as incumbents because the entry of entrepreneurs will lead to dissipation of supra-competitive rents. In contrast to this focus on the interest of incumbent firms in reducing entry by new firms, we focus on the interest of the insiders of existing firms in extracting private benefits from the capital they have at the expense of their outside investors. We show that, even putting aside entry-deterrence interests by assuming that the profits of existing firms are not affected by entry of new firms, insiders' interest in extracting rents from the capital in place, coupled with some basic aspects of the lobbying over investor protection, push toward sub-optimal investor protection.

In developing our model, we build on tools used by a growing literature that models interest group politics. This literature has used the common agency model developed by Bernheim and Whinston (1986) and adapted to interest group politics by Grossman and Helpman (1994). This framework has been used to study various political economy issues, such as trade policy (Grossman and Helpman (1996), Dixit, Grossman, and Helpman (1997)), taxation (Marceau and Smart (2003)), and environmental regulation (Yu (2004)). Our model incorporates some elements not existing in the models of other contexts, such as the ability of one organized group (corporate insiders) to use for its influence activities some resources that belong to other groups, and agency problems on the part of members of an organized interest groups (the institutional investors group).

The rest of this paper is organized as follows. In Section 2, we present the basic model. Section 3 is devoted to the characterization of equilibrium outcomes. Section 4 extends the analysis to incorporate voting decisions and voters' perceptions and thus the role of the media and stock market crashes. Section 6 presents and discusses the predictions generated by our model and the ways in which it can shed light on existing evidence as well as provide a basis for future empirical work. Finally, Section 7 offers concluding remarks.

## **2. Model**

### **2.1. The Economy**

We assume that the optimal level of investor protection requires some government involvements. Of course, there might be some who believe that, no matter what legal rules and politicians' choices are, firms can always provide themselves optimal investor protection by adopting appropriate arrangements through their charters. If one were to believe that firms

could always provide optimal investor protection privately, politicians choices in this connection would be irrelevant, and exploring what shapes them would be useless. Under a widely held view, however, which underlies our analysis, firms cannot provide optimal protection without politicians providing the appropriate legal and regulatory infrastructure and environment. The evidence that the development of stock markets is correlated with the protection provided through legal rules and public enforcement is of course consistent with this view.

We also assume that politicians can change the level of investor protection from time to time: Investor protection is not set once and for all, before the creation of a country's public equity markets. Choices need to be made explicitly or at least implicitly from time to time.

Our interest is in studying a special type of economy: an economy with public firms and institutional investors. Although this type of an economy is only one of those theoretically conceivable, it is of course a very important type for practical purposes because so many economies around the world are of this type. We put aside the question of what legal rules led to or facilitated the creation of such an economy in the first place. Our interest is in understanding how the levels of investor protection evolve in such economies.

We assume that the political choices determining investor protection are not made once, before the emergence of an economy with a public firms and institutional investors, and are then fixed forever. The rules and government institutions and practices that shape investor protection in the US, UK, Germany, France, and many other advanced economies are not written immutably into the constitutions of these countries. They evolve and change substantially over time. Those that are in place in the beginning of this century are quite different from those that existed in the beginning of the past century when most of these countries already had a substantial presence of public firms and institutional investors or those that existed fifty years ago at the end of the second world war.

We therefore study an infinite-horizon economy with public firms and financial institutions in which choices about the level of investor protection can be made periodically. In each period, interest groups compete for influence over politicians that set investor protection until the next period in which politicians (whether the same or others) may make changes in investor protection levels. To the extent to which political choices about investor protection levels have long-lasting consequences and are difficult to reverse until a substantial time has passed, each period can be thought as lasting a long time. We wish to study the nature of the equilibrium of the interest game group in such an economy.

We consider, then a representative period in the life of an (infinite-horizon) economy with public firms and institutional investors. In the beginning of this period, interest groups try to influence the politicians that determine investor protection levels. By determining investor protection levels we mean not only choosing the legal rules of corporate and securities law, but also the extent to which these rules are enforced, the extent to which rules and government institutions permits and facilitates private efforts to enforce these rules, and so forth. The chosen investor protection level affects the payoffs at the end of this period to corporate insiders, outside shareholders, institutional investors, and politicians. Below we spell out in

detail our assumptions concerning these sets of players and the process of competition for influence over political choices.

Within the considered period, the sequence of events is as follows:

- In the beginning of the period there is already a stock of  $N$  public firms which have raised capital from outside investors in preceding periods.
- Interest groups compete for influence over the politician, and
- The politician then sets the level of investor protection.
- After that, against the background of the chosen level of investor protection, more capital is raised from outside investors. Specifically, entrepreneurs take  $M$  more firms public (or insiders raise more capital for existing public firms). To abstract from incumbents' possible interest in deterring entry (Rajan and Zingales, 2003; Perrotti and Volpin, 2004), we are assuming that a low level of investor protection will not prevent the raising of equity capital and thus not reduce creation of new public firms but only change the terms under which new capital will be raised.
- Finally, at the end of the period, public firms produce cash flows and private benefits which are the product of the chosen level of investor protection.

Later on we explore the case where new capital is raised by insiders or their public firms, rather than by entrepreneurs. The results in this case are similar to those obtained for this case.

## 2.2. Firms, Insiders, and Outsiders

In the beginning of the period, there are no firms that raised capital from outside investors in the past. We assume for simplicity that the  $N$  public firms in the economy are all identical. In every period, each firm generates a stream of benefit that has value  $V > 0$ . Each firm has an “insider” who possibly holds a majority of the shares and who controls its decision-making. If the firm has a controlling shareholder, then this controlling shareholder may be thought of as the insider. If the firm's shares are dispersed, then the firm's manager may be thought of as the insider. The insider is assumed to hold a fraction  $\alpha$  of the firm's shares.

In addition to the capital already raised, we assume that additional capital is raised from outside investors during the considered period. One can contemplate three types of capital raising. First, the existing insiders may take additional firms public. Second, the firms controlled by the current insiders might raise additional capital. Third, owners of private firms not affiliated with the current insiders may go public with their firms. As will be discussed in Section 3, all three cases affect the results in a similar way. Therefore, for concreteness, we will assume the first case. [The next version of the paper will explicitly treat also the other cases and show why the results hold in them as well.]

In particular, we will assume that the existing insiders will go public with an additional  $\delta N$  firms, selling  $1 - \alpha$  of the shares and remaining with  $\alpha$  of the shares. Once they go public, we will assume that the new firms will be identical to the firms existing already, producing the same payoffs to insiders and outside shareholders.

Let us now turn to the outside investors that hold a fraction  $1 - \alpha$  of the equity of each public firm. We assume that agents in the economy hold diversified portfolios – either directly or through institutional investors. We denote the fraction of outsiders’ shares that are held through institutional investors by  $\beta \in (0, 1]$ . All other shares are held directly by small individual investors. Thus, a proportion  $\beta(1 - \alpha)$  of each firm’s shares are held by financial institutions, and a proportion  $(1 - \beta)(1 - \alpha)$  is directly held by small investors. In U.S. capital markets, financial institutions hold slightly over 50% of the shares of all public firms. Institutional investors that hold shares in public companies include mutual funds, pension funds, hedge funds and other money managers, insurance companies, and banks.

The per period payoff to shareholders consists of their share of the cash flow that is generated by the firm in which they hold shares. The per period payoff to insiders consists of their share of the firms’ cash flows plus private benefits of control which are described in the next subsection. Since institutional investors are typically paid fees that are linear in the cash flows that are generated by the firms in which they invest, we assume that the per period payoffs to the institutional investors are given by  $\mu \in (0, 1)$  times their share of the cash that is generated by the firms. The parameter  $\mu$  may vary of course greatly across institutional investors; in the US, for example, in the case of the American market, for example, figures between 1%-3% are typical for mutual funds while figures between 20%-30% are typical for hedge funds.

### 2.3. Investor Protection

The level of investor protection determines the constraints that insiders face in running the firm and consequently also the size of the private benefits of control they can capture. Suppose, for simplicity, that the laxity of corporate legal investor protection can be described by a single number, which we denote by  $\lambda \geq 0$ . A higher  $\lambda$  corresponds to laxer corporate legal rules, which translate into weaker investor protection, higher private benefits of control for insiders, and lower cash flows to shareholders. The choice of  $\lambda$  determines insiders’ private benefits of control as a fraction of the total profits that are generated by the firms, which we denote by  $b(\lambda)$ . Although politicians determine the laxity of corporate legal investor protection,  $\lambda$ , and not directly the percentage level of insiders’ private benefits of control  $b(\lambda)$ , given that the choice of  $\lambda$  determines the level of  $b(\lambda)$ , we may view the politician’s choice as a direct choice of private benefits to insiders  $b$ . For every value of  $b \geq 0$ , we denote the the total reduction in cash flow rights to shareholders by  $c(b)$ . We assume that the function  $c(b)$  is increasing, differentiable, and convex, that  $c(0) = 0$ , and that  $c'(0) < 1$ .

The social welfare that corresponds to a level of insiders’ private benefits of control  $b$  is



therefore given by

$$b - c(b)$$

Our assumptions imply that social welfare is maximized by setting the private benefits of control to insiders to be such that the marginal benefit to insiders is set equal to the marginal cost to all shareholders (including insiders). That is, the maximization of social welfare requires that private benefits of control to insiders be set equal to the value  $b^* > 0$  that satisfies the equation

$$c'(b^*) = 1.$$

For any choice of  $b$  that exceeds  $b^*$ , for each of the existing  $N$  public companies: Corporate insiders of existing companies gain:

$$b - \alpha c(b)$$

and outside shareholders lose

$$(1 - \alpha) c(b)$$

with institutional investors losing

$$\mu\beta(1 - \alpha) c(b)$$

of this amount.

For each of the  $M$  new firms that will be created: Entrepreneurs planning to go public lose:

$$b - c(b)$$

The question we shall investigate is whether the politician can be expected to set investor protection at the efficient level  $b^*$ .

## 2.4. The Politician

For simplicity, we assume that in every period corporate legal investor protection are determined by a single politician. Following Grossman and Helpman (2001), we assume that the politician's objective function combines a concern about social welfare together with a concern for the benefits that the politician can extract from the different interest groups in the economy.

The benefits that an organized interest group can confer on a politician can take many forms. They may consist, for example, of direct monetary contributions to the politician, of charitable contributions to causes that are endorsed by the politician, of support for positions the politician seeks to advance, of positions or business deals given to associates, relatives, or others related to the politician, of the cultivation of special relationship with the politician, etc.

We follow the standard practice and we assume, for simplicity, that lobbying take the form of campaign contributions to the politician. Thus, in every period the politician's objective is to maximize the following function

$$u_P(b, p) = \omega(b - c(b)) + (1 - \omega)p$$

where  $\omega \in [0, 1)$  denotes the relative weight assigned to social welfare in the politician's objective function, and  $p$  denotes the monetary value of benefits given to the politician by interest groups.<sup>2</sup>

It is worth noting that, like the literature, we assume that the politician's choice is among general rules. That is, the politician cannot set investor protection levels differently for some insiders than for others. The politician has to choose a level that will apply to all public firms. For this reason, players with an interest in a given company only cannot lobby for special rules for that company. They can only participate in the lobbying for general rules whose application to their particular company will be beneficial to them.

Note that, at this stage, we assume that the politician's choice of the level of investor protection does not have a direct effect on voters' voting decisions, because voters largely do not follow this subject. The choice of investor protection only affects voting decisions indirectly, because the campaign contributions of interest groups (and other things the interest groups may do for the politician) can help the politician get votes. In Section ?? we extend the model to incorporate direct effect on voting decisions.

## 2.5. The Influence Game

**[for simplicity, without entrepreneurs, to be added later]** In our model, then, in every period, three groups of players are affected by the determination of corporate legal investor protection: insiders, individual investors, and institutional investors. Insiders prefer that private benefits of control  $b$  be set strictly higher than the efficient level  $b^*$ , and individual investors and institutional investors prefer that private benefits of control be set strictly lower than the efficient level.

Each of these three groups has different objectives and consequently may benefit by organizing to influence the politician's decision, yet might be differently adept at overcoming the free-rider problem associated with organizing itself for the purpose of collective action. At least since Olson (1965), the literature has recognized that small, closely knit, groups whose members each have a large stake in getting organized might be more effective in organizing for collective action. Accordingly, we assume that both insiders and institutional investors can organize themselves to form special interest groups for the purpose of influencing the politician's decision. In contrast, individual investors, who are both more numerous and disperse and have, individually, a much smaller stake in the politician's decision, do not form an organized interest group and engage in lobbying. We follow the literature in assuming that each of the two organized interest groups act so as to maximize the total payoff to the members of the group.

We denote the insiders' and the institutional investors' special interest groups by  $I$  and  $F$ , respectively. Following the literature (e.g., Bernheim and Whinston, 1986; and Grossman

---

<sup>2</sup>Grossman and Helpman (1996) showed that preferences of this form can be derived from a model of political competition in which contributions are used by politicians to sway impressionable voters in their favor. See, however, Besley and Coate (2001) for an alternative perspective.

and Helpman, 2001) we assume that both the insiders and the institutional investors interest groups offer the politician nonnegative contribution schemes, denoted  $C_I(\cdot)$  and  $C_F(\cdot)$ , respectively, which specify the amount they are willing to pay in return for the implementation of legal investor protection that would set the amount of private benefits of control equal to  $b$ .

The cost for the special interest groups of paying the politician depends on the constraints that are imposed on the ways in which lobbyists can influence politicians. Specifically we assume that every dollar of benefits enjoyed by the politician costs  $\kappa$  to the organized interest group providing it. The parameter  $\kappa$  represents the “influence technology” available to interest groups in the economy. In an economy in which there are no constraints on the bribing of politicians, interest groups can just write a check to the politician, and  $\kappa$  is equal to one. In contrast, if checks cannot be written but expensive gala dinners may be arranged, an interest group may have to spend much more than \$1 to provide the politician with \$1 of benefits. The more constrains are imposed on conferring benefits on politicians, the greater is  $\kappa$ . The parameter  $\kappa$  thus represents how costly the influence technology is.

An important practical difference between insiders and other interest groups, is that insiders are able to use their control over firms’ resources for their influence activities. Insiders have control over the campaign contributions and the charitable contributions that firms make, so insiders can use their control over firms’ resources to provide benefits to individuals affiliated with politicians (or the politicians themselves after they retire). Insiders also determine whether their firms will support various policy measures that a politician seeks to advance. CEOs’ command of large firm resources substantially contributes to their ability to attract prominent politicians to their dinner parties, to bring many high-wealth individuals to fund-raisers they throw for politicians, and so forth. Indeed, in the U.S., the Business Roundtable, a powerful interest group representing executives of the country’s largest companies, is largely financed by the membership fees that the executives’ firms pay to the organization.<sup>3</sup>

We therefore assume that insiders can use their firms to finance their influence activities. Because, insiders own a proportion  $\alpha$  of each firm, insiders bear only a fraction  $\alpha$  of their contribution to the politician. In contrast to insiders, institutional investors cannot engage in influence activities at the expense of existing public firms. Indeed, under the standard

---

<sup>3</sup>One might wonder why corporate charters do not explicitly prohibit insiders from using company resources to influencing politicians. While some of the expenditures are difficult to observe or verify, others such as campaign donations are not. A main reason for the absence of such prohibitions might be that some use of company resources to gain influence might be in the interest of shareholders. Insiders can use the influence they gain with a politician to lobby for rules that are good for firm profits (e.g., lax regulation on the industry in which the firm operates) or are good for their extraction of private benefits. And while it might be possible to observe that insiders are lobbying politicians, it is hard to observe the particular purpose for which they are lobbying any given politician. For example, when a CEO of a bank cultivates relationship with a member of the Senate banking committee, it is hard to separate the extent to which the influence affect the Senator’s positions on bank regulation and the extent to which the influence affects the Senator’s positions on regulation of, say, insider trading or executive compensation.

contracts institutional investors have with their investors, institutional investors cannot even charge such expenses to their managed portfolio. Thus, institutional investors have to bear such expenses themselves with their own private resources.

The game proceed as follows. The two interest groups simultaneously offer the politician contribution schemes. Then, the politician chooses a level of private benefits of control that maximizes his objective function, and the politician, insiders, and institutional investors all obtain their payoffs which are defined as follows. The payoff to insiders and institutional investors when they pay the politician an amount  $p_I$ , and  $p_F$ , respectively, and the politician sets the level of private benefits of control at  $b$  is given by

$$u_I(b, p_I) = b - \alpha c(b) - \kappa p_I,$$

and

$$u_F(b, p_F) = -\mu\beta(1 - \alpha)c(b) - \kappa p_F,$$

respectively.

### 3. The Equilibrium Level of Investor Protection

We analyze Nash equilibria of the political process described above as follows. A pure strategy Nash equilibrium is a triplet  $\langle b^o, C_I(\cdot), C_F(\cdot) \rangle$  that is such that the politician chooses the level of private benefit of control to maximize its objective function, and each interest group does not want to change its own contribution schedule given the other interest group's contribution schedule and the politician's anticipated choice. Optimization by the politician implies that

$$b^o \in \operatorname{argmax}_{b \geq 0} \{ \omega(b - c(b)) + (1 - \omega)(C_I(b) + C_F(b)) \}.$$

Optimization by insiders implies that there does not exist an alternative contribution schedule  $\widehat{C}_I(\cdot)$  that would induce the politician to choose another level of benefits

$$\widehat{b} \in \operatorname{argmax}_{B \geq 0} \left\{ \omega(b - c(b)) + (1 - \omega) \left( \widehat{C}_I(b) + C_F(b) \right) \right\}$$

that would make insiders strictly better off, or such that

$$u_I(\widehat{b}, \widehat{C}_I(\widehat{b})) > u_I(b^o, C_I(b^o)).$$

Similarly, the fact that institutional investors optimize implies that there does not exist an alternative contribution schedule  $\widehat{C}_F(\cdot)$  that would induce the politician to choose another level of benefits

$$\widehat{b} \in \operatorname{argmax}_{b \geq 0} \left\{ \omega(b - c(b)) + (1 - \omega) \left( C_I(b) + \widehat{C}_F(b) \right) \right\}$$

that would make the institutional investors strictly better off or such that

$$u_F(\widehat{b}, \widehat{C}_F(\widehat{b})) > u_F(b^o, C_F(b^o)).$$

We follow the literature and further focus our attention on Nash equilibria that are supported by “truthful” contributions schedules. A contribution schedule  $C_j(\cdot)$ ,  $j \in \{I, F\}$ , is said to be truthful if it is such that the payoff to the interest group is a constant that is independent of the politician’s ultimate choice of  $b$ , provided that the interest group’s contribution is positive, or in other words, if it is such that  $u_j(b, C_j(b)) = K$  for some constant  $K$  for every  $b$  such that  $C_j(b) > 0$ .

Confining attention to truthful Nash equilibria may not be as restrictive as it may seem. Bernheim and Whinston (1986) show that for any profile of strategies that are chosen by other special interest groups, each special interest has a best response contribution schedule that is truthful. And Bernheim, Peleg, and Whinston (1987) show that the set of truthful equilibria coincides with the set of coalition-proof pure strategy Nash equilibria. These two facts are an important part of the reason that the literature has considered truthful equilibria to be the standard refinement of pure strategy Nash equilibria in common agency games.

### 3.1. The case in which no new capital is raised

In order to better understand our results, it is best to start with the analysis of the special case in which the economy is not growing, no new firms are created, and no capital is raised by existing firms. Note that in this case, entrepreneurs are not participating in the lobbying game and only two groups are there, insiders and institutions.

We have the following main result.

**Proposition 1.** *Assume an economy with public firms and institutional investors in which no new capital is raised from outside investors, and in which at least one of the following conditions holds:*

1. *Insiders can use the resources of existing firms to finance their influence activities,*
2. *Some individual investors hold shares directly in public firms, or*
3. *institutional investors have to pass on to their investors some of the benefits of improved investor protection in their portfolio of public firms.*

*In such an economy, the lobbying game has a unique truthful Nash equilibrium in which the level of investor protection is sub-optimal and the level of private benefits to insiders is excessive.*

**Proof.** The proof consists of three steps, the first of which is given here, and the other two are relegated to the appendix. We first show that if  $\langle b^o, C_I(\cdot), C_F(\cdot) \rangle$  is a truthful Nash equilibrium in which both interest groups contribute positive amounts to the politician (that is both  $C_I(b^o), C_F(b^o) > 0$ ), then  $b^o$  is characterized by the following equation

$$\begin{aligned} c'(b^o) &= \frac{\omega + \left(\frac{1-\omega}{\kappa}\right)}{\omega + \left(\frac{1-\omega}{\kappa}\right)(\alpha + \mu\beta(1-\alpha))} \\ &\geq 1. \end{aligned} \tag{*}$$

Suppose that  $\langle b^\circ, C_I(\cdot), C_F(\cdot) \rangle$  is a truthful Nash equilibrium in which  $C_I(b^\circ), C_F(b^\circ) > 0$ . Let  $T_I$  denote the level of benefits where  $C_I(b)$  starts to increase above zero, and let  $T_F$  denote the level of benefits where  $C_F(b)$  becomes equal to zero. The fact that  $C_I(b^\circ)$  and  $C_F(b^\circ)$  are both positive implies that  $T_I < b^\circ < T_F$ . The fact that  $b^\circ$  is optimal for the politician implies that it is a global maximum of the politician's objective function. In particular, it must be that  $b^\circ$  is an interior local maximum of the politician's objective function on the interval  $[T_I, T_F]$ . It therefore follows that

$$\left. \frac{d}{dB} [\omega(b - c(b)) + (1 - \omega)(C_I(b) + C_F(b))] \right|_{b=b^\circ} = 0.$$

Because in a truthful Nash equilibrium in which both interest groups' contributions are positive, these contributions are equal to  $\frac{b - \alpha c(b)}{\kappa}$  and  $-\frac{\mu\beta(1 - \alpha)c(b)}{\kappa}$  up to a constant, respectively, it follows that

$$\begin{aligned} b^\circ &\in \operatorname{argmax}_{b \geq 0} \left\{ \omega(b - c(b)) + \left( \frac{1 - \omega}{\kappa} \right) (b - \alpha c(b) - \mu\beta(1 - \alpha)c(b)) \right\} \\ &= \operatorname{argmax}_{b \geq 0} \left\{ b \left( \omega + \left( \frac{1 - \omega}{\kappa} \right) \right) - c(b) \left( \omega + \left( \frac{1 - \omega}{\kappa} \right) (\alpha + \mu\beta(1 - \alpha)) \right) \right\} \end{aligned}$$

It therefore follows that  $b^\circ$  satisfies equation (\*).

Note that if  $\beta = \mu = 1$ , then the right-hand-side of (\*) is equal to 1 which implies that  $b^\circ = b^*$ . But if either  $\beta < 1$ , or  $\mu < 1$ , then the right-hand-side of (\*) is strictly larger than 1 which implies that  $b^\circ > b^*$ . Note also that right-hand-side of (\*) is decreasing in  $\kappa$ . That is, the more expensive it is to pay the politician, the less it is paid, and the closer is the outcome to the efficient one.

If insiders can finance their influence activities through their firms, then the level of private benefits of control  $b^\circ$  is characterized by the solution to the equation

$$\begin{aligned} c'(b^\circ) &= \frac{\omega + \left( \frac{1 - \omega}{\alpha\kappa} \right)}{\omega + \left( \frac{1 - \omega}{\kappa} \right) (1 + \mu\beta(1 - \alpha))} \\ &\geq 1 \end{aligned}$$

and all the results above go through as before except that  $b^\circ$  is strictly larger in this case.

To complete the proof we have to show that in any truthful Nash equilibrium, both interests groups make positive, uniquely determined, contributions to the politician. This follows from Lemmas 1 and 2 in the appendix. Lemma 1 shows that the special interests equilibrium contributions  $C_I(b^\circ)$  and  $C_F(b^\circ)$  are positive, and Lemma 2 shows they are uniquely determined. ■

**Remark 1. Intuition.** The intuition of the result is as follows. The optimal level of private benefits is defined at the level in which the marginal benefits to insiders is equal to the marginal cost to outside shareholders. However, in the economy assumed in the

proposition, investor protection will be set at a level in which the marginal benefit of private benefits to insiders is lower than their marginal cost to outsiders shareholders.

When insiders can finance influence activities using their firms' resources, then, For any given increase in private benefits  $b$ , insiders will be willing to spend more on influence activities than the value to them of this marginal benefit. And when institutional investors do not hold all the shares not in the hand of insiders, or when institutional investors have to pass on to their own investors some of the increase in the value of portfolios of public company shares held by them, then, for any given increase in private benefits, institutional investors will be willing to spend less on influence activities to prevent this increase than the marginal costs of this increase to outside shareholders. Thus, under the conditions specified in the proposition, the insiders will be willing to spend more than the institutional investors to get increases in private benefits at any level below the optimal level as well as in some levels above the optimal level.

Another way of understanding the intuition for the result is as follows. In models using the Grossman-Helpman framework, the outcome is efficient for the lobbying interest groups and the politician in the sense that there is no outcome that can make all of them better off compared to the equilibrium outcome (Dixit, Grossman, and Helpman, 1997). Similarly, in our model the truthful equilibrium outcome identified in the Proposition is jointly efficient for insiders, institutional investors, and the politician, in the sense that there is no other outcome that generates the same payment to the politician that all would weakly prefer to it and at least some strictly prefer to it. That is, the outcome are efficient with respect to all the parties that are at the bargaining table, as it were. However, in our model, the outcome has an effect not only on the interests of the parties at the table but also on the interests of individual investors who directly or indirectly own stock in public companies. Spending by insiders to influence politicians to increase private benefits, and increase in private benefits, imposes a negative externality on these individual investors. However, the lobbying groups do not take this externality into account. The politician is influenced by this externality but also by the influence activities of the lobbying groups which do not take the externality into account. As a result, the outcome is one in which private benefits are excessive.

**Remark 2. If only insiders can lobby.** If insiders were the only group who could effectively lobby the politician, then the outcome would be set at a level of private benefits of control that is characterized by the fact that it maximizes the payoff to insiders subject to the constraint that the politician is paid an amount that ensures that its payoff is equal to its payoff when it sets the private benefits of control at its efficient level and receives no payment,  $u_P(b^*, 0)$ . The level of private benefits of control in this case, which we denote by  $b^I$ , is finite because the convexity of the cost function  $c$  implies that after some point any further benefit to insider is more than offset by the reduction in the value of firm to insiders. The outcome in the case in which both insiders and the institutional investors lobby the politician, which we denoted by  $b^o$ , is bounded between the efficient level  $b^*$  and  $b^I$ . As the relative weight that the politician puts on social welfare, denoted  $\omega$ , approaches one,  $b^o$

converges to the efficient level  $b^*$ . As the relative weight that the politician puts on monetary contributions,  $1 - \omega$ , approaches one,  $b^o$  converges to  $b^I$ .

### 3.2. The General Case with Raising of New Capital

Thus far we have identified the equilibrium level of investor protection in the special case in which there were no entrepreneurs, and no new firms were created after the setting of the investor protection. We now change this assumption and allow for the possibility that, as assumed in the general model described in Section 2, entrepreneurs create a positive number of new firms.

A strongly held views among financial economists implies that agents who seeks to raise capital from the public by selling part of their firms to new shareholders, have an interest in limiting the extent of future inefficiency, because such inefficiency would depress the price they can obtain for shares of their firms (Jensen and Meckling, 1976). This view might lead some to believe that in an economy in which capital is being raised, the interest of insiders in efficient level of investor protection for new firms will provide a powerful force pushing for efficient level of investor protection.

As we will see below, insiders desire to raise more capital from outside investors will moderate their interest in suboptimal level of protection but will not eliminate it. This is established by the following result.

**Proposition 2.** *Assume an economy with public firms and institutional investors in which new capital is expected to be raised from outside investors, and in which at least one of the following conditions holds:*

1. *Insiders can use the resources of existing firms to finance their influence activities,*
2. *Some individual investors hold shares directly in public firms, or*
3. *institutional investors have to pass on to their investors some of the benefits of improved investor protection in their portfolio of public firms.*

*In such an economy, the lobbying game has a unique truthful Nash equilibrium in which the level of investor protection is sub-optimal (and the level of private benefits to insiders is excessive). However, the level of investor protection will be less sub-optimal, and the level of private benefits will be less excessive, than the corresponding levels in periods in which no new capital is raised as specified in Proposition 1.*

**Proof.** The proof of Proposition 2 is similar to that of Proposition 1. Suppose that  $\langle b^{oo}, C_I(\cdot), C_F(\cdot), C_N(\cdot) \rangle$  is a truthful Nash equilibrium in which  $C_I(b^{oo}), C_F(b^{oo}), C_N(b^{oo}) > 0$ . Let  $T_I$  denote the level of benefits where  $C_I(b)$  starts to increase above zero, and let  $T_F$  denote the level of benefits where  $C_F(b)$  becomes equal to zero. The fact that  $C_I(b^o)$  and  $C_F(b^o)$  are both positive implies that  $T_I < b^{oo} < T_F$ . The fact that  $b^{oo}$  is optimal for the



politician implies that it is a global maximum of the politician's objective function. In particular, it must be that  $b^{oo}$  is an interior local maximum of the politician's objective function on the interval  $[T_I, T_F]$ . It therefore follows that

$$\left. \frac{d}{dB} [\omega (b - c(b)) + (1 - \omega) (C_I (b) + C_F (b) + C_N (b))] \right|_{b=b^{oo}} = 0.$$

Because in a truthful Nash equilibrium in which all three interest groups' contributions are positive, these contributions are equal to  $\frac{b - \alpha c(b)}{\kappa}$ ,  $-\frac{\mu\beta(1-\alpha)c(b)}{\kappa}$ , and  $\frac{(b - c(b))V_N}{\kappa}$ , up to a constant, respectively, it follows that

$$\begin{aligned} b^o &\in \operatorname{argmax}_{b \geq 0} \left\{ \omega (b - c(b)) + \left( \frac{1 - \omega}{\kappa} \right) (b - \alpha c(b) - \mu\beta (1 - \alpha) c(b) + (b - c(b)) V_N) \right\} \\ &= \operatorname{argmax}_{b \geq 0} \left\{ \begin{array}{l} b \left( \omega + \left( \frac{1 - \omega}{\kappa} \right) (1 + V_N) \right) \\ -c(b) \left( \omega + \left( \frac{1 - \omega}{\kappa} \right) (\alpha + \mu\beta (1 - \alpha) + V_N) \right) \end{array} \right\} \end{aligned}$$

It therefore follows that  $b^o$  satisfies the following equation

$$\begin{aligned} c'(b^{oo}) &= \frac{\omega + \left( \frac{1 - \omega}{\kappa} \right) (1 + V_N)}{\omega + \left( \frac{1 - \omega}{\kappa} \right) (\alpha + \mu\beta (1 - \alpha) + V_N)} \quad (**) \\ &\geq 1. \end{aligned}$$

As in the proof of Proposition 1, if  $\beta = \mu = 1$ , then the right-hand-side of (\*\*) is equal to 1 which implies that  $b^{oo} = b^*$ . But if either  $\beta < 1$  or  $\mu < 1$ , then the right-hand-side of (\*\*) is strictly larger than 1 which implies that  $b^{oo} > b^*$ .

To complete the proof we have to show that in any truthful Nash equilibrium, both interests groups make positive, uniquely determined, contributions to the politician. This follows from Lemmas 3 and 4 in the appendix. Lemma 3 shows that the special interests equilibrium contributions  $C_I(b^{oo})$ ,  $C_F(b^{oo})$ , and  $C_N(b^{oo})$ , are positive, and Lemma 4 show they are uniquely determined. ■

**Remark 3. Intuition.** The intuition for the results in proposition 2 is as follows. Recall that the reason for the inefficiency of the outcome in proposition 2 resulted form the fact that the lobbying groups did not take into account fully the negative effects of private benefits on individual investors. When insiders expect to be raising more capital, they will fully internalize the cost that excessive levels of private benefits will be imposing on outside investors in new companies. However, the insiders, and the insiders and institutional investors combined, will not be fully taking into account the negative effect that excessively lax rules will impose on individual investors holding shares directly or indirectly in existing public companies. As a result, the outcome will continue to be distorted in favor of excessively large private benefits.

However, the introduction of new capital raising by insiders does operate to reduce the distortion and the extent to which investor protection is to lax and private benefits too

large. In the growing economy, institutional investors are not going to be hurt by the fact that new firms will be subject to inefficient rules, because such firms will go public at a price reflecting this level, and thus the willingness of institutional investors to spend on preventing increase in private benefits will not change. However, the willingness of insiders to spend on increasing private benefits beyond the efficient level will be reduced. As a result, the new capital raising will moderate the distortion in favor of lax investor protection.

The extent of this moderation will depend on the ratio of  $\delta N (b^* - c(b^*) - (b - c(b)))$  to  $N\alpha (b - c(b))$  – that is the ratio of firms that will have to go public in the future on the basis of the chosen investor protection level and the stock of existing firms that already obtained their capital. The larger this ratio, the more will insiders willingness to spend on increasing private benefits beyond the efficient level will be moderated.

**Add** explanation for reason that the results will be similar for the cases in which the new firms going public will be taken by owners unaffiliated with the existing insiders and in which the existing firms expect to raise additional capital.

### 3.3. The General Case with Raising of New Capital by Insiders and Existing Public Firms

To be completed.

### 3.4. Side Payments between Insiders and institutional investors

Because corporate insiders and institutional investors can make side payments to each other, say, in the form of business decisions that are made by one to benefit the other, it is interesting to check what effect such collusion might have on the laxity of corporate legal investor protection that are adopted by the politician.

Suppose that insiders can use the resources of their companies to pay the institutional investors to induce them to quit lobbying.

**Proposition 3.** *In the economies described in Propositions 1 and 2, if insiders can directly pay institutional investors, then in the unique truthful Nash equilibrium of the lobbying game, the level of investor protection would be more lax and private benefits of control would be more excessive, in comparison to the equilibria described in Propositions 1 and 2.*

**Proof.** To be completed. ■

**Remark 6. Intuition.** To be added.

## 4. Voting and the Role of the Media

Suppose that the politician's choice of investor protection level can affect not only the contributions of organized interest groups but also have a meaningful direct effect on voting

decisions. Although the number of corporate insiders in the population is small, the number of individual investors might be significant. Suppose that a non-negligible fraction of the electorate consists of investors that follow the choice of investor protection and a lax choice of an investor protection level might lead them to vote against the politician. Specifically, suppose that the politician’s objective is to maximize the following function

$$\hat{u}_P(b, p) = \omega_1(b - c(b)) + \omega_2 p - \omega_3 v(\theta, b, s)$$

where  $p$  denotes the total sum of campaign contributions to the politician as before,  $v(\theta, b, s)$  denotes the number of votes that the politician is expected to lose as a function of the private benefits of control it sets, the fraction of the population that invests in public companies directly or indirectly  $\theta$ , and the salience of corporate governance issues  $s$ , and  $\omega_1, \omega_2, \omega_3 > 0$  describe the weights given to social welfare, campaign contributions, and lost votes, respectively, in the politician’s objective function. Suppose also that number of votes that the politician stands to lose  $v(\theta, b, s)$  is increasing in the level of private benefits of control it sets,  $b$ , the salience of the issue of favorite treatment of corporate insiders,  $s$ , and in the fraction of voters who are shareholders.

An argument similar to the one used to prove Proposition 1 implies that in the unique truthful Nash equilibrium of the lobbying game in this case, the outcome would be less biased in favor of corporate insider compared to the case analyzed in Section 3 where the politician ignored the voters’ response.

**Proposition 5.** *If investor protection decisions have a direct effect on voting decisions, then the lobbying game will have a unique truthful Nash equilibrium in which investor protection is stronger and private benefits of control are smaller than in the equilibria identified in Propositions 1 and 2.*

The proof of Proposition 5 is similar to that of Proposition 1.

Observe that  $c'(\hat{b})$  decreases with  $s$ . Proposition 5 thus implies that if the salience of the issue of the favorite treatment of corporate insiders is strong, as it is expected to be as a result of more extensive media coverage, or after corporate scandals and market crashes, then the politician might even set the level of the private benefits of control  $b$  to be lower than the efficient level  $b^*$ . This case may be interpreted as reflecting a surrender of the politician to populist sentiment. Proposition 5 also indicates that as public rage subsides and the salience of corporate discipline decreases, the level of private benefits of control is expected to increase again.

## 5. Predictions and Implications

[Only predictions are listed – accompanying text to be added]

### **5.1. Investor protection and the political/legal system**

**Prediction 1:** Investor protection will be lower when the public officials setting the level of investor protection give a low weight to social welfare in their objective function.

**Prediction 2:** Investor protection will be lower when interest groups seeking to influence politicians face weaker constraints on their influence activities and thus have a less expensive “influence technology.”

**Prediction 3:** Investor protection will be higher in growing economies that need to raise new capital from outside investors that is larger relative to the value of the capital already in the hands of existing public firms.

**Prediction 4:** Investor protection will be higher when the legal and institutional structures make the consequences of political choices with respect to investor protection more lasting and ones that would take longer to reverse.

### **5.2. Investor protection and the stage of the economy:**

**Prediction 5:** Investor protection will be higher in growing economies that have a relatively large need for raising additional equity capital from outside equity investors.

**Prediction 6:** Investor protection will be higher when the fraction of the electorate that directly or indirectly owns shares in public companies is large.

### **5.3. Investor Protection and corporate structures and activities:**

**Prediction 7:** Among economies with controlling shareholders, investor protection will be lower in those in which controllers hold low fraction of cash flows rights due to separation of cash flow rights and voting rights.

**Prediction 8:** Investor protection will be lower when it is relatively easy for insiders to make the companies they run make side payments to institutional investors.

### **5.4. Investor protection and public perceptions:**

**Prediction 9:** Investor protection will be higher when dispersed shareholders are more financially educated and when the media is more active.

**Prediction 10:** Investor protection will be higher following scandals or crashes that make problems of insider opportunism more salient.

## **6. Conclusion**

To be added.

## Appendix

**Lemma 1.** *If  $\langle b^\circ, C_I(\cdot), C_F(\cdot) \rangle$  is a truthful Nash equilibrium, then both  $C_I(b^\circ)$  and  $C_F(b^\circ)$  are positive.*

**Proof.** We first show that it cannot be that  $C_I(b^\circ) = C_F(b^\circ) = 0$  in a truthful Nash equilibrium  $\langle b^\circ, C_I(\cdot), C_F(\cdot) \rangle$ . Suppose that  $\langle b^\circ, C_I(\cdot), C_F(\cdot) \rangle$  is a truthful Nash equilibrium in which  $C_I(b^\circ) = C_F(b^\circ) = 0$ . Because  $u_P(b^\circ, C_I(b^\circ) + C_F(b^\circ)) = u_P(b^\circ, 0)$ , it must, in particular, be the case that

$$b^\circ \in \operatorname{argmax}_{b \geq 0} u_P(b, 0).$$

from which it follows that  $b^\circ = b^*$ .

Recall that  $T_I$  denotes the level of benefits where  $C_I(b)$  starts to increase above zero, and  $T_F$  denotes the level of benefits where  $C_F(b)$  becomes equal to zero. The assumption that  $C_I(b^\circ) = C_F(b^\circ) = 0$  thus implies that  $T_F \leq b^\circ = b^* \leq T_I$ . Now, it cannot be that  $T_I = b^\circ = b^*$  because

$$b^* \notin \operatorname{argmax}_{b \geq b^*} \{\omega(b - c(b)) + (1 - \omega)(b - \alpha c(b))\}$$

which is obtained at a point  $\hat{b} > b^*$  that satisfies

$$c'(\hat{b}) = \frac{1}{\alpha + (1 - \alpha)\omega} > 1 = c'(b^*).$$

It must therefore be the case that  $T_I > b^\circ = b^*$ . But this cannot be the case either, because, as shown above, if  $T_I = b^\circ = b^*$ , then the politician would set  $\hat{b} > b^*$ . By continuity, the politician would also set  $b$  above  $b^*$  if insiders set  $T_I = b^* + \varepsilon$  for some small  $\varepsilon > 0$ . Insiders would thus benefit from a deviation to  $T_I = b^* + \varepsilon$  for some small  $\varepsilon > 0$  because it would put them on a lower (and better) indifference curve.

We have thus shown that it must be the case that if  $\langle b^\circ, C_I(\cdot), C_F(\cdot) \rangle$  is a truthful Nash equilibrium, then  $C_I(b^\circ) > 0$ . We now show that it must be the case that  $C_F(b^\circ) > 0$  as well. Suppose that  $\langle b^\circ, C_I(\cdot), C_F(\cdot) \rangle$  is a truthful Nash equilibrium in which  $C_I(b^\circ) > 0$  and  $C_F(b^\circ) = 0$ . Because  $u_P(b^\circ, C_I(b^\circ) + C_F(b^\circ)) = u_P(b^\circ, C_I(b^\circ))$ , it must, in particular, be the case that

$$b^\circ \in \operatorname{argmax}_{b \geq T_I} u_P(b, C_I(b)).$$

from which it follows that  $b^\circ$  satisfies the equation

$$c'(b^\circ) = \frac{1}{\alpha + (1 - \alpha)\omega}.$$

Suppose that the institutional investors deviate and set  $C_F(\cdot)$  such that  $T_F = b^\circ$ . Because, the maximum of the politician's objective function (up to a constant)

$$\omega(b - c(b)) + (1 - \omega)(b - \alpha c(b) - \mu\beta(1 - \alpha)c(b))$$

on the interval  $[T_I, b^\circ]$  is obtained strictly to the left of  $b^\circ$ , this implies that the politician would respond by setting  $b$  to be less than  $b^\circ$ . By continuity, the politician would also set  $b$  below  $b^\circ$  if institutional investors set  $T_F = b^\circ - \varepsilon$  for some small  $\varepsilon > 0$ . Institutional investors would thus benefit from a deviation to  $T_F = b^\circ - \varepsilon$  for some small  $\varepsilon > 0$  because it would put them on a lower (and better) indifference curve.

A similar argument shows that it cannot be the case that  $C_I(b^\circ) = 0$  and  $C_F(b^\circ) > 0$  either. ■

**Lemma 2.** *The special interests groups contribution schedules  $C_I(\cdot)$  and  $C_F(\cdot)$  are uniquely determined in a truthful Nash equilibrium.*

**Proof.** Let  $b_F \geq 0$  denote the truthful Nash equilibrium level of private benefits of control to insiders if insiders do not lobby the politician, and let  $b_I > b^*$  denote the truthful Nash equilibrium level of private benefits of control to insiders if the institutional investors do not lobby the politician. We show that if  $\langle b^\circ, C_I(\cdot), C_F(\cdot) \rangle$  is a truthful Nash equilibrium, then

$$u_P(b^\circ, C_I(b^\circ) + C_F(b^\circ)) = u_P(b_I, C_I(b_I)) = u_P(b_F, C_F(b_F)). \quad (\text{A1})$$

The fact that  $b_F \leq T_I$  and that  $T_F \leq b_I$  implies that  $C_I(b_F) = C_F(b_I) = 0$ . Optimality of the politician's choice implies that  $u_P(b^\circ, C_I(b^\circ) + C_F(b^\circ)) \geq u_P(b_I, C_I(b_I))$ ,  $u_P(b_F, C_F(b_F))$ . We show that the last inequality must be binding. Suppose that  $u_P(b^\circ, C_I(b^\circ) + C_F(b^\circ)) > u_P(b_I, C_I(b_I))$ . It follows that institutional investors can reduce their contribution schedule by some small amount  $\varepsilon > 0$  without affecting the politician's optimal choice  $b^\circ$ . A contradiction. Similarly, it also follows that  $u_P(b^\circ, C_I(b^\circ) + C_F(b^\circ)) = u_P(b_F, C_F(b_F))$ .

This enables the calculation of the two interest groups contributions as follows: the differences  $C_I(b_I) - C_I(b^\circ)$  and  $C_F(b_F) - C_F(b^\circ)$  are determined by the fact that the equilibrium is truthful. Hence, the equation  $u_P(b^\circ, C_I(b^\circ) + C_F(b^\circ)) = u_P(b_I, C_I(b_I))$  uniquely determines the value of  $C_F(b^\circ)$ , and the equation  $u_P(b^\circ, C_I(b^\circ) + C_F(b^\circ)) = u_P(b_F, C_F(b_F))$  uniquely determines the value of  $C_I(b^\circ)$ . The fact that the equilibrium is truthful implies that it is sufficient to determine the value of an interest group's contribution at one point at which it is positive to determine its entire contribution schedule. ■

**Lemma 3.** *If  $\langle b^\circ, C_I(\cdot), C_F(\cdot), C_N(\cdot) \rangle$  is a truthful Nash equilibrium, then  $C_I(b^\circ)$ ,  $C_F(b^\circ)$ , and  $C_N(b^\circ)$  are positive.*

**Proof.** Similar to the proof of Lemma 1. ■

**Lemma 4.** *The special interests groups contribution schedules  $C_I(\cdot)$ ,  $C_F(\cdot)$ , and  $C_N(\cdot)$ , are uniquely determined in a truthful Nash equilibrium.*

**Proof.** Let  $b_F \geq 0$  denote the truthful Nash equilibrium level of private benefits of control to insiders if only the institutional investors lobby the politician, let  $b_I > b^*$  denote the

truthful Nash equilibrium level of private benefits of control to insiders if only insiders lobby the politician, and let  $b_N = b^*$  denote the truthful Nash equilibrium level of private benefits of control to insiders if only owners of new firms lobby the politician. We show that if  $\langle b^\circ, C_I(\cdot), C_F(\cdot), C_N(\cdot) \rangle$  is a truthful Nash equilibrium, then

$$\begin{aligned}
 u_P(b^\circ, C_I(b^\circ) + C_F(b^\circ) + C_N(b^\circ)) &= u_P(b_I, C_I(b_I)) & (A2) \\
 &= u_P(b_F, C_F(b_F)) \\
 &= u_P(b_N, C_N(b_N)).
 \end{aligned}$$

As in the proof of Lemma 2, the fact that  $b_F \leq T_I$  and that  $T_F \leq b_I$  implies that  $C_I(b_F) = C_F(b_I) = 0$ . For a similar reason, it must be that  $C_N(b_F) = C_N(b_I) = 0$ . As in the proof of Lemma 2, optimality of the politician's choice implies that  $u_P(b^\circ, C_I(b^\circ) + C_F(b^\circ) + C_N(b^\circ)) \geq u_P(b_I, C_I(b_I)), u_P(b_F, C_F(b_F)), u_P(b_N, C_N(b_N))$ . For the same reason as in the proof of Lemma 2, this inequality must be binding which enables the calculation of the three interest groups' contributions as follows: the differences  $C_I(b_I) - C_I(b^\circ)$ ,  $C_F(b_F) - C_F(b^\circ)$ , and  $C_N(b_N) - C_N(b^\circ)$ , are determined by the fact that the equilibrium is truthful. The three equations in (A2) thus determine the values of the three variables  $C_I(b^\circ)$ ,  $C_F(b^\circ)$ , and  $C_N(b^\circ)$ . The fact that the equilibrium is truthful implies that it is sufficient to determine the value of an interest group's contribution at one point at which it is positive to determine its entire contribution schedule. ■

## References [incomplete]

- Bebchuk, L. (2004) "Politics and Investor Protection," working paper, Harvard Law School.
- Bebchuk, L. and M. Roe (1999) "A Theory of Path Dependence in Corporate Governance and Ownership," *Stanford Law Review* 52, 775-808.
- Benny, L. (2004) "The political economy of insider trading legislation and enforcement: international evidence," working paper.
- Bernheim, D. and M. Whinston (1986) "Menu auctions, resource allocation and economic influence," *Quarterly Journal of Economics* 101, 1-31.
- Bernheim, D., B. Peleg, and M. Whinston (1986) "Coalition proof Nash equilibria, I: Concepts," *Journal of Economic Theory* 42, 1-12.
- Besley, T., and S. Coate (2001) "Lobbying and Welfare In a Representative Democracy," *Review of Economic Studies* 68, 67-82.
- Biais, B. and E. Perotti (2002) "Machiavellian Privatization," *American Economic Review* 92, 240-258.
- Dixit, A., G. Grossman, and E. Helpman (1997) "Common Agency and Coordination: General Theory and Application to Government Decision Making," *Journal of Political Economy* 105, 752-769.
- Djankov, S., C. McLiesh, T. Nenova, and A. Shleifer (2003) "Who Owns the Media?" *Journal of Law and Economics* ??, ??-??.
- Dyck, Alexander, David Moss, and Luigi Zingales (2004), Private Benefits of control: an International comparison, *Journal of Finance* 59, 537-600.
- Dyck, Alexander, David Moss, and Luigi Zingales (2005), Media versus Special Interests, Working Paper.
- Faccio, Mara (2005) "Political Connections and Corporate bailouts," Working Paper, Vanderbilt University and Purdue University. Fisch, J. (2003) "Corporations and lawmaking process: the case of federal express," working paper.
- Glaezer, E., and A. Shleifer (2003) "Legal origins," *Quarterly Journal of Economics* ??, ??-??.
- Grossman, G. and E. Helpman (1994) "Protection for Sale," *American Economic Review* 74, 833-850.
- Grossman, G. and E. Helpman (1996) "Electoral competition and special interest politics," *Review of Economic Studies* 63, 265-286.



- Grossman, G. and E. Helpman (2001) *Special Interest Politics*, MIT University Press, Cambridge Mass.
- Grossman, G. and E. Helpman (2002) *Interest groups and trade policy*, Princeton University press.
- Jensen, M. and W. Meckling (1976) "Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure," *Journal of Financial Economics* 3, 305-60.
- La Porta, R., F. Lopez-de-Silanes, and A. Shleifer (1999) "Corporate Governance Around the World," *Journal of Finance* 54, 471-517.
- La Porta, R., F. Lopez-de-Silanes, A. Shleifer, and R. Vishny (1998) "Law and Finance," *Journal of Political Economy* 107, 1113-1155.
- La Porta, R., F. Lopez-de-Silanes, A. Shleifer, and R. Vishny (1999) "Investor Protection and Corporate Governance," *Journal of Financial Economics* 58, 3-27.
- Marceau, N. and M. Smart (2003) "Corporate lobbying and commitment failure in capital taxation," *American Economic Review* 93, 241-251.
- Mayer, C. (1998) "New Issues in Corporate Finance," *European Economic Review* 32, 1167-1183.
- Olson, M. (1965) *The Logic of Collective Action*, Harvard University Press, Cambridge Mass.
- Pagano, M. and P. Volpin (1999) "The Political Economy of Corporate Governance," *American Economic Review* forthcoming.
- Perrotti, Enrico, and Paolo Volpin (2005), Lobbying on Entry, Working Paper.
- Perotti, E. and E. von Thadden (2003) "The Political Economy of Bank and Market Dominance," European Corporate Governance Institute, Finance Working Paper No. 21/2003.
- Perrotti, Enrico and Ernst Ludwig von Thadden (2004), The Political Economy of Dominant Investors, Working Paper.
- Rajan, R. and L. Zingales (2003) "The Great Reversals: The Politics of Financial Development in the 20th Century," *Journal of Financial Economics* 69, 5-50.
- Stulz, R. and R. Williamson (2003) "Culture, openness, and finance," *Journal of Financial Economics* 70, 313-349.
- Yu, Z. (2004) "Environmental Protection: A theory of direct and indirect competition for political influence," *Review of Economic Studies*, to appear.