A Political Economy Model of Corporate Governance*

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Abstract

We develop a political economy model that describes how the corporate law rules that govern publicly traded firms are determined. In our model, organized interest groups, which include a corporate insiders' lobby and an institutional investors' lobby, compete for influence over the politicians who set corporate law rules. 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. 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.[1]

The efficiency costs of insufficient investor protection make it 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

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[1]See, for example ... [to be completed]

disappear as these officials become more knowledgeable about which rules are optimal? Or 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 (LaPorta 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 likely to be also substantially affected by contemporary political choices, which in turn are likely to be affected not only by politicians' perception of the social interest but also by interest groups' lobbying. We are interested is in understanding the direction in which such lobbying affects corporate rules and, in particular, whether (and in what direction) such lobbying pushes for investor protection levels that are different from the efficient ones.

The rules we are interested are those that govern publicly traded firms. These are the rules determine 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. Beyond a certain point, any further increase in the laxity of corporate legal rules becomes inefficient. Assuming that politicians do recognize the efficient level of investor protection, we focus on the question of whether they will choose to set investor protection at this efficient level.

At least two organized interest groups compete for influence over the politician who determines the laxity of corporate legal rules 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, which is made of institutional investors (i.e., financial intermediaries), and to which we refer for concreteness as mutual funds, represents the interest of outside shareholders in tightening these rules as much as possible. We assume that individuals who hold shares directly in firms or indirectly by investing in mutual funds are too dispersed and uninformed about the effects of alternative legal rules to become part of an effective organized interest group in the ordinary course of events. We identify and study the equilibrium outcome of the lobbying game between the corporate insiders lobby, the institutional investors lobby, and the politician.

Our analysis identifies factors whose existence might lead to rules that are excessively lax and generate excessive private benefits of control. First, unlike the institutional investors lobby, corporate insiders may be able to use some of the resources of the firms under their

control in their effort to influence politicians. Corporate insiders, but not the outside shareholders, can for example direct the campaign contributions that are made by their firms. The corporate insiders' control over corporate resources gives them the ability to benefit politicians in many other ways as well (e.g., supporting charitable contributions to the politicians' state, using their power to reward relatives or associates of the politicians with positions or business, using their standing to support positions and causes the politician seeks to advance, etc.). Because insiders capture the full benefits of lobbying for laxer rules, while their firms' (and in turn outside shareholders) bear some of the costs of such lobbying, they have an advantage over outside shareholders in the competition for influence.

Furthermore, institutional investors can be expected to invest in lobbying against lax rules less than what a lobby of organized outside shareholders that includes all of the outside shareholders would . To begin, institutional shareholders would themselves capture only a fraction of the benefits that their lobbying against lax rules would produce for public investors. Some public 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 rules would produce.

Moreover, some institutional investors, or the individuals making the decisions for them, might not only not capture the full benefits to their own investors from better rules but might even derive benefits from lax rules. For example, when a mutual fund manager is itself a publicly traded firm, its insiders' interest in having lax rules that would enable them to obtain a larger fraction of their firm's value might outweigh their interest in tighter rules that would increase the value of their managed portfolios and their firm. Similarly, some institutional investors, or the insiders controlling them, might also have insider blocks in non-financial publicly traded companies, which might provide them with an interest in lax rules. Finally, the possibility of some side payments between corporate insiders and institutional investors also weakens the potential for lobbying against lax rules by institutional investors.

While our basic model focuses on an economy with an existing stock of publicly traded companies, we also extend it to include lobbying by entrepreneurs or owners of new firms that are planning to take their firms pubic. Because owners of firms that go public internalize the costs that lax corporate rules will impose on public investors buying shares at the IPO, such owners expect to be hurt and thus will lobby against rules that are excessively lax. However, we show that, whenever the outcome of the two-lobby game is expected to produce a deviation in the direction of excessively lax rules, introducing lobbying by the of owners of firms that plan to go public would reduce but not eliminate this deviation.

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 primarily influenced by the direct effect of these decisions on voting; rather they are influenced by the lobbying of the organized interest groups – including their campaign contributions and other efforts that might have an indirect effect on voting decisions – and on whatever weight politicians give to the social efficiency. 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 but also, importantly, on the extent to which recent events and media coverage of them have made problems of corporate governance salient.

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 number 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 more developed stock markets and higher economic growth (see, e.g., LaPorta 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. Namely, they suggest that more developed countries will 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 is related to some prior and current attempts to model the political forces that shape corporate law. **[Literature Review to be Added]**

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 by considering the case in which there are both old and new firms. Section 5 extends the analysis to allow for additional agency problems on the side of institutional investors. Section 6 extends the analysis to incorporate voting decisions and voters' perceptions and thus the role of the media and stock market crashes. Finally, Section 7 offers concluding remarks.

2. Model

We study an economy with n existing publicly traded firms. In part 4, we extend the analysis to include IPOs that increase the number of firms in the economy. We begin by considering a static (one-period) game. (Because we initially assume the number of firms in the economy to be fixed, no loss of generality is entailed by limiting our attention to a one period model.) In this game, a politician sets corporate law rules following competition for influence by corporate insiders and outside shareholders that are represented by mutual funds. The firms then operate and distribute payoffs to these three groups, which depend on the selected corporate law rules. Below we spell out in detail our assumptions concerning insiders, outsiders, legal rules, and the political process in which they are set.

2.1. Firms, Insiders, and Outsiders

We assume for simplicity that the n public firms are identical. 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.

We denote the fraction of shares or cash flow rights that is held by the insider in each firm by $\alpha \in [0, 1)$. The rest of each firm's shares are owned by "outside" shareholders.

We assume that agents in the economy hold diversified portfolios – either directly or through financial intermediaries. We denote the fraction of outsiders' shares that are held through financial intermediaries 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. Also, in the U.S., most of the shares that are held by financial institutions are held by mutual funds, and we therefore, for concreteness, refer to all financial institutions as mutual funds. In our concluding remarks, we discuss the case in which the financial institutions are banks or insurance companies.

The payoff to shareholders consists of their share of the cash flow that is generated by the firm in which they hold shares. The 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 mutual funds 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 payoffs to the mutual funds are given by $\mu \in (0,1)$ times their share of the cash that is generated by the firms. In the case of American mutual funds, for example, figures between 1%-3% are typical.

2.2. Corporate Law Rules

The corporate legal rules determine 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 rules can be described by a single number, which we denote by $\lambda \geq 0$. A higher λ corresponds to laxer corporate legal rules, which translate into higher private benefits of control for insiders, and lower cash flows to shareholders. For every value of $\lambda \geq 0$, we denote the total value of insiders' private benefits of control in the n firms by $b(\lambda)$, and the total reduction in cash flow rights to shareholders of the n firms by $c(b(\lambda))$. We assume that the function $c(b)$ is increasing, differentiable, and convex, that $c(0) = 0$, and that $c'(0) < 1$.

The choice of λ determines insiders' private benefits of control as a fraction of the total profits that are generated by the n firms, $b(\lambda)$. Although politicians determine the laxity of corporate legal rules, λ, and not directly the percentage level of insiders' private benefits of control $b(\lambda)$, given that the choice of λ determines the level of $b(\lambda)$, we may view the politician's choice as a direct choice of $b(\lambda)$.

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

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

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

2.3. The Politician

For simplicity, we assume that corporate legal rules 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, 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 total sum of campaign contributions to the politician.[2]

Note that, at this stage, we assume that the politician's choice of investor protection does not have a significant direct effect on voting decision, 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] 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.

2.4. Organized Lobbies

In our model, then, three groups of players are affected by the determination of corporate legal rules: insiders, individual investors, and mutual funds. Insiders prefer that private benefits of control b be set strictly higher than the efficient level b^*, and individual investors and mutual funds 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 mutual funds 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.

2.5. The Influence Game

We denote the insiders' and the mutual funds' special interest groups by I and M, respectively. Following the literature (e.g., Bernheim and Whinston, 1986; and Grossman and Helpman, 2001) we assume that both the insiders and the mutual fund interest groups offer the politician nonnegative contribution schemes, denoted $C_I(\cdot)$ and $C_M(\cdot)$, respectively, which specify the amount they are willing to pay in return for the implementation of legal rules that would set the amount of private benefits of control equal to b.

An important practical difference between insiders and other interest groups, is that insiders may often be 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. Insiders can use their control over firms' resources to provide benefits to individuals affiliated with politicians (or the politicians themselves after they retire). Insiders 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.

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.

We thus assume that insiders can pay for a fraction $\gamma \in [0, 1]$ of their contribution to the politician with firm resources. Since, by assumption, insiders own a proportion α of each firm, this means that they only bear a fraction $1 - \gamma (1 - \alpha)$ of their contribution to the politician. In contrast to insiders, mutual funds cannot engage in influence activities at the expense of the n existing public firms. Indeed, under the standard contracts mutual funds have with their investors, mutual funds cannot even cannot even charge such expenses to their managed portfolio. Thus, the mutual funds have to bear it 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 mutual fund all obtain their payoffs which are defined as follows. The payoff to insiders and mutual funds when they pay the politician an amount p_I, and p_M, respectively, and the politician sets the level of private benefits of control at b is given by

$$u_I (b, p_I) = b - \alpha c(b) - p_I (1 - \gamma (1 - \alpha)),$$

and

$$u_M (b, p_M) = -\mu\beta (1 - \alpha) c(b) - p_M,$$

respectively.

3. The Determination of Legal Rules

We analyze Nash equilibria of the political process described above as follows. A pure strategy Nash equilibrium is a triplet $\langle b^o, C_I(\cdot), C_M(\cdot)\rangle$ 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

$$b^o \in \underset{b\geq 0}{\operatorname{argmax}} \left\{\omega\left(b - c(b)\right) + (1-\omega)\left(C_I(b) + C_M(b)\right)\right\}.$$

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 $\widehat{b} \in \underset{B\geq 0}{\operatorname{argmax}} \left\{\omega\left(b - c(b)\right) + (1-\omega)\left(\widehat{C}_I(b) + C_M(b)\right)\right\}$ that would make insiders strictly better off, or such that

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

Similarly, the fact that mutual funds optimize implies that there does not exist an alternative contribution schedule $\widehat{C}_M(\cdot)$ that would induce the politician to choose another level of benefits $\widehat{b} \in \underset{b\geq 0}{\operatorname{argmax}} \left\{\omega\left(b - c(b)\right) + (1-\omega)\left(C_I(b) + \widehat{C}_M(b)\right)\right\}$ that would make the mutual fund strictly better off or such that

$$u_M\left(\widehat{b}, \widehat{C}_M\left(\widehat{b}\right)\right) > u_M\left(b^o, C_M\left(b^o\right)\right).$$

We follow the literature and further focus our attention on Nash equilibria that are supported by "truthful" contributions schedules. A contribution schedule $C_j(\cdot)$, $j \in \{I, M\}$, is said to be truthful if it coincides with the interest group's objective function up to a constant for private benefit levels that make this function nonnegative, and is equal to zero otherwise, or if it is given by

$$C_j(B) = \max\left\{u_j(B, p_j), 0\right\}$$

for some p_j.Because every dollar that the mutual fund contributes to the politician comes out of its own pocket, if the mutual funds contributes $C_M(b)$ to the politician, then this is what the politician receives. However, because insiders only actually pay $1-\gamma(1-\alpha)$ out of every dollar they contribute to the politician, if insiders contribute $C_I(b)$ to the politician, then the politician receives a contribution that is equal to $\frac{C_I(b)}{1-\gamma(1-\alpha)}$. Consequently, the payoff to an interest group $j \in \{I, M\}$ who offers a truthful contribution schedule is constant on every level of private benefits b for which $u_j(b, p_j) > 0$.

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.

We have the following main result.

Proposition 1. *In the unique truthful Nash equilibrium of the lobbying game,* $\langle b^o, C_I(\cdot), C_M(\cdot)\rangle$,

(*a*) *the politician sets a level of private benefit of control* b^o *that is characterized by*

$$\begin{aligned} c'(b^o) &= \frac{\omega(1-\gamma(1-\alpha))+1-\omega}{\omega(1-\gamma(1-\alpha))+(1-\omega)(\alpha+\mu\beta(1-\alpha)(1-\gamma(1-\alpha)))} \qquad (*) \\ &\geq 1; \end{aligned}$$

(*b*) *the level of private benefit of control is efficient, that is* $b^o = b^*$, *if*

(*i*) *insiders cannot divert the firms' resources for the purpose of lobbying* ($\gamma = 0$),

(*ii*) *all outsider shareholders invest through mutual funds* ($\beta = 1$), *and*

(*iii*) *mutual funds appropriate the entire stream of benefits that accrue to their shareholders* ($\mu = 1$);

(*c*) *the level of private benefits of control is excessive, that is* $b^o > b^*$, *if either*

(*i*) *insiders can divert at least part of the firms' resources for the purpose of lobbying* ($\gamma > 0$), *or*

(*ii*) *some outsider shareholders do not invest through mutual funds* ($\beta < 1$), *or*

(*iii*) *mutual funds do not appropriate the entire stream of benefits that accrue to their shareholders.*

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 $\langle b^o, C_I(\cdot), C_M(\cdot)\rangle$ is a truthful Nash equilibrium in which both interest groups contribute positive amounts to the politician (that is both $C_I(b^o), C_M(b^o) > 0$), then b^o is given by the solution to equation $(*)$.

Suppose that $\langle b^o, C_I(\cdot), C_M(\cdot)\rangle$ is a truthful Nash equilibrium in which $C_I(b^o), C_M(b^o) > 0$. Let T_I denote the level of benefits where $C_I(b)$ starts to increase above zero, and let T_M

denote the level of benefits where $C_M(b)$ becomes equal to zero. The fact that $C_I(b^o)$ and $C_M(b^o)$ are both positive implies that $T_I < b^o < T_M$. The fact that b^o 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^o is an interior local maximum of the politician's objective function on the interval $[T_I, T_M]$. It therefore follows that

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

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

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

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

Note that if $\gamma=0$, and $\beta=\mu=1$, then the right-hand-side of $(*)$ is equal to 1 which implies that $b^o=b^*$. But if either $\gamma>0$, or $\beta<1$, or $\mu<1$, then the right-hand-side of $(*)$ is strictly larger than 1 which implies that $b^o>b^*$.

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 1 and 2 in the appendix. Lemma 1 shows that the special interests equilibrium contributions $C_I(b^o)$ and $C_M(b^o)$ are positive, and Lemma 2 shows they are uniquely determined. The fact that, by assumption, the special interest groups contributions are truthful implies that the groups' equilibrium contribution schedules $C_I(\cdot)$ and $C_M(\cdot)$ are also uniquely determined. ■

Remarks: (1) Intuition. Inspection of the proof of the proposition reveals that the outcome of a truthful Nash equilibrium maximizes a convex combination of social welfare $(b-c(b))$, the net payoff to insiders $(b-\alpha c(b))$, and the net payoff to the mutual funds $(-\mu\beta c(b))$ or to shareholders $(-c(b))$ with the weights ω, $\frac{1-\omega}{1-\gamma(1-\alpha)}$, and $(1-\alpha)(1-\omega)$ or $\mu\beta(1-\alpha)(1-\omega)$, respectively. Insiders lobby for more and mutual funds lobby for less private benefits of control relative to the efficient level. The fact that the weight given to insiders $\frac{1-\omega}{1-\gamma(1-\alpha)}$ is larger than or equal to $1-\omega$ and that the weight given to the mutual funds or shareholders is smaller than $1-\omega$ implies that the outcome is biased in favor of insiders. Interestingly, in the extreme case where $\gamma=0$ and $\mu=1$, what determines the extent of inefficiency is not the ratio of the shares held by insiders α and mutual funds $\beta(1-\alpha)$, but rather the proportion of shares that are represented by either special interest

group, $\alpha+\beta-\beta\alpha$. Thus the level of private benefit remains constant as β is increased and α is decreased in such a way that $\alpha+\beta-\beta\alpha$ remains constant. Intuitively, as α decreases and β increases both insiders and mutual funds have a stronger incentive to lobby the politician, and these two effects exactly cancel each other in equilibrium.

(2) Efficiency. The previous remark implies that the truthful equilibrium outcome identified in the Proposition is jointly efficient for insiders, mutual funds, 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. This "constrained efficiency" result is a standard result in the literature (Dixit, Grossman, and Helpman, 1997). Note however, that since the "weight" given to insiders is large relative to the weight given to mutual funds and shareholders, the equilibrium outcome still fails to maximize social welfare. In particular, if shareholders could directly pay insiders for agreeing to set the level of private benefits $b = b^*$, then there exists a payment that would have made everyone strictly better off.

(3) Comparative Statics. The following corollary to Proposition 1, which follows from inspection of equation $(*)$, describes the effect that the parameters of the model have on the outcome.

Corollary. *The equilibrium level of private benefits of control increases with:*

(a) *the relative weight that the politician assigns to campaign contributions,* $1-\omega$*;*

(b) *the amount of the firms' resources that insiders can divert for the purpose of lobbying the politician,* γ*.*

The equilibrium level of private benefits of control decreases with:

(c) *the proportion of outsider shareholders that invest through mutual funds,* β;

(d) *the amount that mutual funds can appropriate from the stream of benefits that accrue to their shareholders,* μ; *and*

(e) *the proportion of shares that are held by insiders,* α*.*

(4) Insiders Lobby Alone. If insiders are the only group who can 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 mutual funds 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 ω, 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.

4. New Firms

Strongly held views among financial economists imply that the founders of new firms, who supposedly hope to sell their firms later to shareholders for a profit, 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). Founders of new firms can thus be expected to lobby the politician to set the level of private benefits of control to maximize social welfare.

Suppose then that the economy consists of n existing firms as in the previous sections, and of m identical new firms. Suppose further that the owners of new firms can organize themselves into an effective lobbying group, denoted N, for the purpose for influencing the politician's decision. Suppose that as a group, owners of new firms obtain the payoff

$$u_N(b, p_I) = (b - c(b))\, V_N - p_N$$

when the politician sets the level of private benefits of control equal to b, and they pay p_N. The parameter $V_N > 0$ represents the relative size of the m new firms relative to that of the existing n firms.

The game proceed as follows. The three interest groups I, M, and N, simultaneously offer the politician contribution schemes, denoted $C_I(b)$, $C_M(b)$, and $C_N(b)$, respectively. Then, the politician chooses a level of private benefits of control that maximizes his objective function, and the politician, insiders, mutual fund, and founders of new firms all obtain their payoffs.

We have the following result.

Proposition 2. *In the unique truthful Nash equilibrium of the lobbying game,* $\langle b^{oo}, C_I(\cdot), C_M(\cdot), C_N(\cdot)\rangle$,

(*a*) *the politician sets a level of private benefit of control* b^{oo} *that is characterized by*

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

(*b*) *the level of private benefit of control is efficient, that is* $b^o = b^*$, *if*

(*i*) *insiders cannot divert the firms' resources for the purpose of lobbying* ($\gamma = 0$),

(*ii*) *all outsider shareholders invest through mutual funds* ($\beta = 1$),

(*iii*) *and mutual funds appropriate the entire stream of benefits that accrue to their shareholders* ($\mu = 1$);

(*c*) *the level of private benefits of control is excessive, that is* $b^o > b^*$, *if either*

(*i*) *insiders can divert at least part of the firms' resources for the purpose of lobbying* ($\gamma > 0$), *or*

(*ii*) *some outsider shareholders do not invest through mutual funds* ($\beta < 1$), *or*

(*iii*) *mutual funds do not appropriate the entire stream of benefits that accrue to their shareholders* ($\mu < 1$).

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

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

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

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

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

As in the proof of Proposition 1, if $\gamma = 0$, and $\beta = \mu = 1$, then the right-hand-side of $(**)$ is equal to 1 which implies that $b^{oo} = b^*$. But if either $\gamma > 0$, or $\beta < 1$, 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 $C_I(b^{oo})$, $C_M(b^{oo})$, and $C_N(b^{oo})$, are positive, and Lemma 4 show they are uniquely determined. ■

Remark 4. Comparison to the case without any new firms. As in the model without new firms, the equilibrium outcome is still inefficiently biased in favor of existing corporate insiders, for the same reason the outcome was biased in their favor in the absence of any new firms. The existence of new firms whose owners lobby for the outcome that maximizes social welfare implies that the outcome is closer to being efficient than before, but unless the new firms are much larger than existing ones ($V_N \nearrow \infty$) the outcome is still inefficiently biased in favor of insiders of existing firms. The comparative statics results apply as before. The extent of inefficiency is decreasing in the size of the new firms, V_N.

5. Conflict of Interest Among Institutional Investors

5.1. Institutional Investors that are Publicly Traded Firms

Some institutional investors, such as Charles Schwab for example, might themselves be publicly traded firms. On the one hand, corporate insiders in such investment firms, who like insiders in any other publicly traded firm, are the ones who decide on their firm's lobbying activity, prefer that investor protection be high so as to maximize the value of their investments. On the other hand, lower investor protection permits insiders in publicly traded investment firms to capture bigger private benefits of control, which suggests that they would be in favor of low investor protection.

Suppose for simplicity that all institutional investors are publicly traded firms. Suppose also that like corporate insiders in other firms, insiders in investment firms also hold a fraction α of the shares, and can finance a fraction γ of their lobbying expenses from the resources of their firms. The payoff to these insiders when they pay the politician an amount p'_M, and the politician sets the level of private benefits of control at b is therefore given by

$$u'_M(b, p'_M) = b - \alpha c(b) - \mu\beta(1-\alpha)c(b) - p'_M(1 - \gamma(1-\alpha)).$$

Proposition 3. *In the unique truthful Nash equilibrium of the lobbying game,* $\langle b^{oo}, C_I(\cdot), C'_M(\cdot)\rangle$,

(*a*) *the politician sets a level of private benefit of control* $b^{o\prime}$ *that is characterized by the following equation*

$$\begin{aligned} c'\left(b^{o\prime}\right) &= \frac{\omega\left(1-\gamma\left(1-\alpha\right)\right)+2\left(1-\omega\right)}{\omega\left(1-\gamma\left(1-\alpha\right)\right)+\left(1-\omega\right)\left(2\alpha+\mu\beta\left(1-\alpha\right)\right)} \\ &\geq 1; \end{aligned}$$

(*b*) *because, by assumption* $\alpha < 1$, *the level of private benefit of control is always inefficient in this equilibrium, even if* $\gamma = 0$, $\beta = 1$, *and* $\mu = 1$.

The proof of Proposition 3 is similar to that of Proposition 1.

Remark 5. Comparison to the case where institutional investors are private, closely owned, firms. Interestingly, $b^{o\prime}$ can be either larger or smaller than b^{o}. It can obviously be larger because mutual funds would lobby for a higher level of private benefits of control than they did before. It can be lower because the fact that the insiders of the mutual funds can use their firms' resources for the purpose of lobbying the politician, implies that their lobbying becomes more effective, and they are lobbying for a lower level of private benefits of control than insiders of other publicly traded firms. If insiders cannot rely on their firms for the purpose of financing their lobbying activities ($\gamma = 0$), then it can be shown that the outcome would become even more biased in favor of corporate insiders, namely $b^{o\prime} > b^{o}$.

5.2. Institutional Investors that Hold Insiders' Positions in Publicly Traded Firms.

Suppose that all institutional investors are private, closely held, firms and so face no internal agency problems. Suppose, however, that institutional investors hold blocs of shares in publicly traded firm. For example, private banks that manage assets for individual investors might also hold blocs in publicly traded firms. In this case too, mutual fund have conflicting interests. On the one hand they prefer that investor protection be strong so they can generate a higher return on their investments, but on the other hand, they also want investor protection to be weak so that they can capture more benefits as insiders.

Suppose that institutional investors each hold a fraction α of the shares of a different publicly traded firm. Suppose they can finance a fraction γ of their lobbying expenses from the resources of the firms in which they act as insiders. The payoff to these institutional investors when they pay the politician an amount p''_M, and the politician sets the level of private benefits of control at b is therefore given by

$$u''_M\left(b, p''_M\right) = b - \alpha c(b) - \mu\beta\left(1-\alpha\right)c(b) - p''_M\left(1-\gamma\left(1-\alpha\right)\right).$$

The fact that the payoff function of institutional investors is identical to what it was in the previous subsection implies that exactly the same results hold in both cases.

5.3. Side Payments between Insiders and Mutual Funds

Because corporate insiders and mutual funds 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 rules that are adopted by the politician.

Suppose that the collusion between insiders and the mutual funds is so successful that it is as if they lobby the politician as a single special interest group, that seeks to maximize the joint objective of insiders and the mutual funds as follows:

$$u_{IM}(b, p_{IM}) = b - \alpha c(b) - \mu\beta(1-\alpha)c(b) - p_{IM}(1 - \gamma(1-\alpha)).$$

Note that if $\gamma > 0$, then it is cheaper for the insiders and the mutual fund who lobby as one interest group to finance their contribution to the politician from the resources of the firm.

Proposition 4. *In the unique truthful Nash equilibrium of the lobbying game, $\langle b^{IM}, C_{IM}(\cdot)\rangle$, the politician sets a level of private benefit of control $b^* \leq b^{IM} \leq b^o$ that is smaller than or equal to the level it sets when insiders and the mutual funds lobby separately but still larger than the efficient level b^*. If $\gamma > 0$ then $b^{IM} < b^o$. The payment made by insiders and the mutual funds to the politician in this equilibrium is such that the politician obtains a lower payoff than it obtains if insiders and the mutual funds lobby separately.*

Proof. Insiders and the mutual fund would obviously want to pay the politician as little as possible. They will consequently offer the politician a schedule that would make it indifferent between choosing the policy preferred by insiders and the mutual fund and the policy that maximizes total welfare. The insiders' and mutual funds' problem is

$$\max_{b, p_{IM} \geq 0} u_{IM}(b, p_{IM})$$

subject to

$$u_P(b, p_{IM}) \geq u_P(b^*, 0)$$

The fact that insiders and the mutual fund would not pay the politician any more than is necessary to to induce it to choose their preferred level of benefits implies that in the optimal solution

$$p_{IM} = \left(\frac{\omega}{1-\omega}\right)(b^* - c(B^*) - (b - c(b)))$$

Plugging this equality into the insiders' and mutual funds' objective function, rearranging, multiplying by $\frac{1-\omega}{1-\gamma(1-\alpha)}$, and eliminating constant terms, implies that the insiders' and mutual funds' problem can be rewritten as

$$\max_{b \geq 0} b\left(\omega + \frac{1-\omega}{1-\gamma(1-\alpha)}\right) - c(b)\left(\omega + \frac{\alpha(1-\omega)}{1-\gamma(1-\alpha)} + \frac{\mu\beta(1-\alpha)(1-\omega)}{1-\gamma(1-\alpha)}\right).$$

It therefore follows that b^{IM} satisfies the equation

$$\begin{aligned} c'\left(b^{IM}\right) &= \frac{\omega\left(1-\gamma\left(1-\alpha\right)\right)+1-\omega}{\omega\left(1-\gamma\left(1-\alpha\right)\right)+\left(1-\omega\right)\left(\alpha+\mu\beta\left(1-\alpha\right)\right)} \\ &\leq c'\left(b^{o}\right), \end{aligned}$$

and is such that $c'\left(b^{IM}\right) < c'\left(b^{o}\right)$ if $\gamma > 0$, and that

$$c'\left(b^{IM}\right) \geq c'\left(b^{*}\right).$$

It therefore follows that $b^{*} \leq b^{IM} \leq b^{o}$ and that $b^{IM} < b^{o}$ if $\gamma > 0$.

The politician's payoff in this equilibrium is equal to $u_P\left(b^{*},0\right)$. The fact that mutual fund's contribution to the politician in the equilibrium in which insiders and the mutual funds lobby separately $C^{M}\left(b^{o}\right)$ is positive implies that it must also be the case that $C^{M}\left(b^{*}\right)$ is positive. This implies that the payoff of the politician in this equilibrium is at least as large as $u_P\left(b^{*},C^{M}\left(b^{*}\right)\right) > u_P\left(b^{*},0\right)$. ■

The proposition shows that collusion between corporate insiders and mutual funds improves social welfare both because it causes the politician to set private benefits of control at a more efficient level, and because it leads to a reduction in the extent of rent seeking, as measured by the overall amount that the special interest groups pay to the politician. Intuitively, the reason that the politician sets a level of private benefit of control that is smaller than or equal to the level it sets when insiders and the mutual funds lobby separately is that when insiders and mutual funds lobby together, the fact that insiders and the mutual fund can use the firms' resources to finance their lobbying implies that the cost of capital for the mutual funds decreases from \$1 to \$1 to $\$\frac{1}{1-\gamma(1-\alpha)}$ to \$1 which makes its interests better represented in equilibrium. If firms' resources cannot be used for the purpose of lobbying, then the outcome is identical to the outcome in the case where insiders and mutual funds lobby separately. The outcome is still inefficiently biased in favor of insiders in this case. The lower rent seeking activity is a consequence of the fact that the coordination between insiders and the mutual funds allows them to waste less resources in competing to drive policy in opposite directions.

6. Voting and the Role of the Media

Suppose that the politician cares not only about social welfare and its campaign contributions, but also about the effect that its decision about he private benefits of control might have on its chances of reelection. Specifically, suppose that the politician's objective is to maximize the following function

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

where p denotes the total sum of campaign contributions to the politician as before, $v(b,s)$ denotes the number of votes that the politician is expected to lose as a function of the private benefits of control it sets, and the salience of corporate governance issues, denoted 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 that the number of corporate insiders in the population is negligible so that it hardly affects the number of voters. Suppose also that number of votes that the politician stands to lose $v(b,s)$ 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. *In the unique truthful Nash equilibrium of the lobbying game in which the politician also cares about the votes it gets, $\langle b^o, C_I(\cdot), C_M(\cdot)\rangle$, the politician sets a level of private benefit of control $\widehat{b}$ that is characterized by*

$$c'\left(\widehat{b}\right) = \frac{\left(\omega_1 + \frac{\omega_2}{1-\gamma(1-\alpha)}\right) - \omega_3 v_b\left(\widehat{b}, s\right)}{\omega_1 + \frac{\alpha\omega_2}{1-\gamma(1-\alpha)} + \omega_2\mu\beta(1-\alpha)};$$

where $v_b(\cdot,\cdot)$ denotes the derivative of $v_b(\cdot,\cdot)$ with respect to its first argument.

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

Observe that $c'\left(\widehat{b}\right)$ 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.

7. Discussion

To be added.

8. Conclusion

To be added.

Appendix

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

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

$$b^o \in \underset{b\geq 0}{\text{argmax}} u_P(b, 0).$$

from which it follows that $b^o = b^*$.

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

$$b^* \notin \underset{b\geq b^*}{\text{argmax}} \left\{\omega(b - c(b)) + (1-\omega)\left(\frac{b - \alpha c(b)}{1-\gamma(1-\alpha)}\right)\right\}$$

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

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

It must therefore be the case that $T_I > b^o = b^*$. But this cannot be the case either, because, as shown above, if $T_I = b^o = b^*$, then the politician would set $\widehat{b} > b^*$. 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 $\langle b^o, C_I(\cdot), C_M(\cdot)\rangle$ is a truthful Nash equilibrium, then $C_I(b^o) > 0$. We now show that it must be the case that $C_M(b^o) > 0$ as well. Suppose that $\langle b^o, C_I(\cdot), C_M(\cdot)\rangle$ is a truthful Nash equilibrium in which $C_I(b^o) > 0$ and $C_M(b^o) = 0$. Because $u_P(b^o, C_I(b^o) + C_M(b^o)) = u_P(b^o, C_I(b^o))$, it must, in particular, be the case that

$$b^o \in \underset{b\geq T_I}{\text{argmax}} u_P(b, C_I(b)).$$

from which it follows that b^o satisfies the equation

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

Suppose that the mutual funds deviate and set $C_M(\cdot)$ such that $T_M = b^o$. Because, the maximum of the politician's objective function (up to a constant)

$$\omega(b - c(b)) + (1-\omega)\left(\frac{b - \alpha c(b)}{1 - \gamma(1-\alpha)} - \mu\beta(1-\alpha)c(b)\right)$$

on the interval $[T_I, b^o]$ is obtained strictly to the left of b^o, this implies that the politician would respond by setting b to be less than b^o. By continuity, the politician would also set b below b^o if mutual funds set $T_M = b^o - \varepsilon$ for some small $\varepsilon > 0$. Mutual funds would thus benefit from a deviation to $T_M = b^o - \varepsilon$ 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 $C_I(b^o) = 0$ and $C_M(b^o) > 0$ either. ■

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

Proof. Let $b_M \geq 0$ 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 mutual funds do not lobby the politician. We show that if $\langle b^o, C_I(\cdot), C_M(\cdot)\rangle$ is a truthful Nash equilibrium, then

$$u_P(b^o, C_I(b^o) + C_M(b^o)) = u_P(b_I, C_I(b_I)) = u_P(b_M, C_M(b_M)). \tag{A1}$$

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

This enables the calculation of the two interest groups contributions as follows: the differences $C_I(b_I) - C_I(b^o)$ and $C_M(b_M) - C_M(b^o)$ are determined by the fact that the equilibrium is truthful. Hence, the equation $u_P(b^o, C_I(b^o) + C_M(b^o)) = u_P(b_I, C_I(b_I))$ uniquely determines the value of $C_M(b^o)$, and the equation $u_P(b^o, C_I(b^o) + C_M(b^o)) = u_P(b_M, C_M(b_M))$ uniquely determines the value of $C_I(b^o)$. 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 $\langle b^o, C_I(\cdot), C_M(\cdot), C_N(\cdot)\rangle$ is a truthful Nash equilibrium, then $C_I(b^o)$, $C_M(b^o)$, and $C_N(b^o)$ are positive.*

Proof. Similar to the proof of Lemma 1. ■

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

Proof. Let $b_M \geq 0$ denote the truthful Nash equilibrium level of private benefits of control to insiders if only the mutual funds 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 $\langle b^o, C_I(\cdot), C_M(\cdot), C_N(\cdot)\rangle$ is a truthful Nash equilibrium, then

$$\begin{aligned} u_P(b^o, C_I(b^o) + C_M(b^o) + C_N(b^o)) &= u_P(b_I, C_I(b_I)) \\ &= u_P(b_M, C_M(b_M)) \\ &= u_P(b_N, C_N(b_N)). \end{aligned} \tag{A2}$$

As in the proof of Lemma 2, the fact that $b_M \leq T_I$ and that $T_M \leq b_I$ implies that $C_I(b_M) = C_M(b_I) = 0$. For a similar reason, it must be that $C_N(b_M) = C_N(b_I) = 0$. As in the proof of Lemma 2, optimality of the politician's choice implies that $u_P(b^o, C_I(b^o) + C_M(b^o) + C_N(b^o)) \geq u_P(b_I, C_I(b_I))$, $u_P(b_M, C_M(b_M))$, $u_P(b_N, C_N(b_N))$. 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 $C_I(b_I) - C_I(b^o)$, $C_M(b_M) - C_M(b^o)$, and $C_N(b_N) - C_N(b^o)$, are determined by the fact that the equilibrium is truthful. The three equations in (A2) thus determine the values of the three variables $C_I(b^o)$, $C_M(b^o)$, and $C_N(b^o)$. 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) "The Politics of Corporate Governance," 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* ??, ??-??.

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.

Pagan, M. and P. Volpin (1999) "The Political Economy of Corporate Governance," Center for Studies in Economics and Finance, Working Paper No. 29.

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.

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.