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Christian At

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Shareholder vs. Stakeholder Protection and Interest Group Politics

by

Christian At*

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This paper develops a framework for analyzing how lobbying by interest groups affects both the level of shareholder and stakeholder protection. We find that lobbying may lead the equilibrium level of shareholders protection to be sub-optimal: the new result is that it may be too high as much as it may be too low. We show that deregulation of lobbying increases the suboptimality of protection levels, while ownership concentration contributes to reduce it.. (JEL: G34; K22)

1 Introduction

The literature on Law and Finance has largely studied the relation between shareholder protection and the value of firms, both from an empirical and theoretical point of view (La Porta et al. (2000), Pagano and Volpin (2005b)). However, shareholders are not the only agents involved in corporate governance. Stakeholders, e.g. workers, environmental activists, customers or local communities, can substantially affect, or be affected by, the welfare of the firm. Cespa and Cestone (2007) note that there is by now a large consensus that stakeholders enjoy substantial effective control on firms by the threat of costly boycotts and media campaigns; they observe that social and environmental activists are increasingly involved in the corporate governance debate. Dyck and Zingales (2002) provide empirical evidence that stakeholders have a strong impact on corporate policies, through the media. Similarly, Pagano and Volpin (2005a) stress the important role of workers in the debate. Atanassov and Kim (2009) highlight the importance of interaction among management, labor, and investors in shaping corporate governance. As a consequence, we observe a debate on the role of stakeholders and especially their level of protection (e.g. see Tirole (2001), Jensen (2010), Cespa and Cestone (2007)). Since objective functions of stakeholders and shareholders can be antagonist, the optimal choice of their protection's level is not straightforward from a social perspective, especially when they can compete for political influence. This is the point of this paper.

We examine the effects of lobbying by interest groups on the level of shareholder and stakeholder protection. The level of shareholder protection we consider, determines the extent to which a manager can extract private benefits of control. The stakeholder

* University of Franche-Comte, CRESE.

protection is the possibility through a regulatory agency for instance, to make binding recommendations over the choice of projects, i.e. pressuring managers to act not just in shareholders' interest, but in a publicly way. We consider that shareholder and stakeholder protections are antagonist, i.e. that better stakeholder protection is costly for shareholders.

We introduce political aspects by using the common-agency framework developed by Bernheim and Whinston (1986) and Grossman and Helpman (1994). We consider three groups: a manager-shareholder who runs the firm, outsiders shareholders and stakeholders. We consider that only the manager and stakeholders can compete for influence over politicians, shareholders being too dispersed to be able to become an organized interest group. We find that the lobbying game leads to inefficiently equilibrium levels of shareholder and stakeholder protection. Our main result is that shareholder protection can also be inefficiently high and not just inefficiently low as in Bebchuk and Neeman (2010).

Our work is related to Bebchuk and Neeman (2010), who modelize how lobbying by interest groups affects the level of investor protection. However, they do not consider stakeholders as an organized group that can influence politicians. Cespa and Cestone (2007) propose a theoretical model investigating the conflicts of interest between managers, shareholders, and other non-investing stakeholders but they do not explore the competition between them for influence over politicians setting the levels of stakeholder/shareholder protection.

The paper is organized as follows. Section 1 presents the basic model. Section 2 characterizes the benchmark with no lobbying. Section 3 is devoted to the characterization of equilibrium outcomes of the influence game. Section 4 offers concluding remarks and discusses the predictions generated by our model. The proofs are in appendix.

2 Model

Consider a firm run by a manager, who holds a fraction α of shares, while the remaining fraction $1 - \alpha$ is dispersed among outside small shareholders. All shareholders have perfectly congruent objectives. The firm generates both a profit accruing to its owners, and an externality on its other stakeholders. The manager enjoys private benefits. All agents are risk-neutral.

Projects

The firm faces 2 projects, $i = 1, 2$ yielding $\{\Pi_i, B_i\}$ where Π_i represents the profits of shareholders and B_i represents the positive externality on stakeholders. We assume the following payoffs:

project 1	project 2	probability
$\{\Pi, B\}$	$\{\Pi, B\}$	λ
$\{\Pi, 0\}$	$\{0, B\}$	$1 - \lambda$
where $\Pi > 0$ and $B > 0$		

The shareholders' preferred project is the project 1 while the project 2 is the stakeholders' favorite one. However, as Cespa and Cestone (2007) and Baron (2008) note, firm's projects are not always completely antagonist, they can sometimes coincide. For example, some projects can be more costly for shareholders because they bear some social expenditures, but consumers could respond by increasing their demand, as a response to advertising for the firm's product or brand (see Fisman, Heal, and Nair (2005)).

Hence, the probability λ also measures the congruence of interests between stakeholders and shareholders. When $\lambda = 1$ there is perfect congruence of interests, and the tradeoff between profit maximization and stakeholders' objectives becomes irrelevant.

Politicians and legal protection of stakeholders and shareholders

We assume that politicians determine the level of stakeholder protection that constrains the firm in the following manner. As Cespa and Cestone (2007), a regulatory agency to apply the law on stakeholder protection, makes binding recommendations over the choice of projects. With probability x , the regulatory agency is informed about the projects' payoffs and so, it decrees that the manager has to choose project 2, i.e. the project yielding B to stakeholder with certainty. With probability $1 - x$, the agency is not informed and so, the manager picks the project he prefers. Therefore, x is the probability that the stakeholder protection is enforced. Politicians can indirectly influence x by voting more or less restrictive laws and/or voting high or low budget for the regulatory agency. Without loss of generality, we simplify the link by assuming that x is directly chosen by politicians and so, $x \in [0, 1]$ represents the level of stakeholder protection.

This modeling implies that stakeholder protection is detrimental to shareholders since any increase in x reduces the expected profit of shareholders and so, $1 - x$ represents the level of shareholder protection. Perotti and von Thadden (2006) and Pagano and Volpin (2005b,a) consider such an antagonist link focusing on workers as stakeholders. They state that workers protection such wide pension arrangement, quality of working conditions, long-term contracts or firing restriction, reduces the shareholders' payoff.

Extraction technology of the manager's private benefits

The manager can divert part of the revenues as private benefits, that should be interpreted broadly to include theft or self-serving transactions with related parties as well as any use of corporate resources that is not in the (dispersed) shareholders' best interest such as e.g., empire building.

We consider that the manager enjoys the private benefits of higher stakeholders' payoff. This assumption is supported by both theoretical and empirical papers. Bertrand and Mullainathan (2003) focus on workers and they find that managers prefer high wages because they want to "enjoy the quiet life" through lower effort wage bargaining. Cronqvist et al. (2009) also find that paying more workers allow the managers to enjoy private benefits. Pagano and Volpin (2005a) model how higher employee compensations (in particular when they are ensured by legal protection) can protect the managers' private benefits by defending them against hostile takeovers. Atanassov and Kim (2009) find that strong union laws protect not only workers but also underperforming managers,

i.e. managers enjoying high private benefits. Baron (2008) shows that this positive link can be explained through corporate social responsibility. If the stakeholders' payoff is viewed as the social expenditures level that a firm must distribute, the manager may prefer high expenditures as a consumption activity or for personal satisfaction and public acclaim.

We model the non-contractible diversion decision as the manager's choice of $\phi^0 \in [0, \phi(x)]$ where the upper limit $\phi(x)$ is increasing in the level of stakeholder protection, $\phi'(x) > 0$.^{1 2} Hence, the benefits accruing to shareholders, i.e. public benefits, are $(1 - \phi^0)\Pi$ and the private benefits are $\phi^0\Pi$. To simplify, we assume that $\phi(x) = x$.

The timing

At $t = 0$, founders of firms sell fractions $1 - \alpha$ of their shares to outside shareholders and give the remaining shares to a manager. At $t = 1$, interest groups compete for influence over politicians. At $t = 2$, politicians set the levels of shareholder/stakeholder protection. At $t = 3$, the manager learns the payoffs of all projects; he chooses the project he prefers or delegates the decision to stakeholders. At $t = 4$, the manager operates the firm, he diverts private benefits and the payoffs are realized.

3 No lobbying case

Let us begin by analyzing the case with no lobbying.

At $t = 4$, the manager diverts private benefits. Since private benefits extraction entails no deadweight loss, the diversion decision is straightforward. Setting $\phi^0 = \phi(x)$ is a manager's (weakly) dominant strategy. His utility has two components: as a manager he enjoys private benefits $\phi(x)\Pi$ and as a shareholder he receives net public benefits $\alpha(1 - \phi(x))\Pi$.

At $t = 3$, the manager learns the payoffs of projects. With probability x the manager must choose the project preferred by stakeholders, i.e. project 2, and with probability $1 - x$ he chooses the project he prefers. Since his payoffs come from Π , then he chooses project 1.

At $t = 2$, the politicians' objective is to choose the level of stakeholder protection x that maximizes the social welfare that is the sum of the utilities of shareholders, the manager and stakeholders.

We have now to derive the utilities of different groups and to determine the protection's level that maximizes the social welfare. We also determine the level of stakeholder protection that maximizes the expected utilities of each group.

Shareholders - With probability x , stakeholders exercise their right and shareholders expected gain is $x\lambda(1 - \alpha)(1 - \phi(x))\Pi$. With probability $1 - x$, the manager chooses

¹Similar assumption can be found in Burkart et al. (2014).

²In a more general setting, we could assume that there exists a level of stakeholder protection, $\hat{x} \in (0, 1)$, above which the upper limit $\phi(x)$ decreases in the level of stakeholder protection because high worker wages and/or high corporate social responsibility expenditures can be costly for the manager. However, our main results would not be affected.

his preferred project that is also the shareholders' preferred one. Their expected gain is $(1-x)(1-\alpha)(1-\phi(x))\Pi$. We have:

$$\begin{aligned} U_{SH} &= x\lambda(1-\alpha)(1-\phi(x))\Pi + (1-x)(1-\alpha)(1-\phi(x))\Pi, \\ &= (1-x(1-\lambda))(1-x)(1-\alpha)\Pi. \end{aligned}$$

The optimal level of stakeholder protection for shareholders is no stakeholder protection, i.e. $x_{SH} = 0$.

Stakeholders - With probability x , they choose their preferred project yielding B with certainty; with probability $(1-x)\lambda$, the project chosen by the manager also yields B to stakeholders. Their utility writes:

$$U_{ST} = (x + (1-x)\lambda)B.$$

The optimal level of stakeholder protection for stakeholders is $x_{ST} = 1$.

Manager - The optimal level of protection preferred by the manager is not straightforward. His expected utility is:

$$\begin{aligned} U_M &= x\lambda(\phi(x)\Pi + \alpha(1-\phi(x))\Pi) + (1-x)(\phi(x)\Pi + \alpha(1-\phi(x))\Pi), \\ &= (1-x(1-\lambda))(x + \alpha(1-x))\Pi. \end{aligned}$$

As a shareholder, he benefits from a low level of stakeholder protection but his private benefits are then, reduced. We find:

Lemma 1. *The optimal level of protection for the manager is as follows:*

a- For $\lambda \in [0, 1/2)$, $x_M \in [0, 1)$ such that

$$x_M = \begin{cases} \frac{1-\alpha(2-\lambda)}{2(1-\alpha)(1-\lambda)}, & \text{if } \alpha \in (0, \frac{1}{2-\lambda}) \\ 0, & \text{if } \alpha \geq \frac{1}{2-\lambda}. \end{cases}$$

b- For $\lambda \in [1/2, 1]$, $x_M \in [0, 1]$ such that

$$x_M = \begin{cases} 1, & \text{if } \alpha \leq 2 - \frac{1}{\lambda} \\ \frac{1-\alpha(2-\lambda)}{2(1-\alpha)(1-\lambda)}, & \text{if } \alpha \in (2 - \frac{1}{\lambda}, \frac{1}{2-\lambda}) \\ 0, & \text{if } \alpha \geq \frac{1}{2-\lambda}. \end{cases}$$

The optimal level of protection for the manager depends negatively on his holding. When his holding increases, the manager's objective is more aligned with the shareholders' one, and he prefers a lower level of stakeholder protection. The congruence parameter λ is also relevant because when λ is small, full stakeholder protection, i.e.

$x_M = 1$, is never optimal for the manager; strong stakeholder protection benefits to the manager through his private benefits, however, when λ is small enough, this implies a low probability that firm generates Π , and finally, low expected private benefits. Hence, the manager prefers to give up some private benefits by choosing a lower x_M even when α is close to 0. To the contrary, when λ is higher, the manager prefers stronger stakeholder protection that maximizes his private benefits.

We can now write the social welfare:

$$\begin{aligned} W(x) &= \sum_i U_i(x), \quad \text{for } i = ST, SH, M, \\ &= (1-x)(\Pi + \lambda B) + x(\lambda\Pi + B). \end{aligned}$$

The derivative of the social welfare $W(x)$ with respect to x writes:

$$\frac{dW(x)}{dx} = (1-\lambda)(B - \Pi).$$

Hence, if the firm's profit is greater (lesser) than the stakeholders' benefits, then the level of stakeholder (shareholder) protection is maximal, i.e. $x = 1$ ($x = 0$). We can also consider the amounts B and Π as the economic "stake" in the government policy of stakeholders and shareholders, which can depend on their electoral size for instance.

At $t = 0$, the founders choose the stake α for the manager and sell the remaining shares on the market. Hence, they choose α to maximize their utility $U_F = (1-\alpha)V$, where $V = (1-x(1-\lambda))(1-x)\Pi$ and $x \in \{0, 1\}$. The firm's value is maximized with fully dispersed ownership, i.e. $\alpha = 0$.

4 Influence game

We assume now that the manager and stakeholders organize themselves to form special interest groups for the purpose of influencing the politicians' decision. Stages $t = 3, 4$ are unaffected, hence we focus on stages $t = 1, 2$ and we study stage $t = 0$ in a subsequent subsection. We consider that shareholders are too numerous and dispersed to have, individually, an interest in engaging in lobbying.

As Bernheim and Whinston (1986), lobbying activities are described by a menu-auction game: each lobby group chooses a schedule that specifies the level of contributions to politicians that will be paid in exchange for each policy that can feasibly be enacted. The level of protection is then chosen unilaterally by politicians. We assume that the politicians' objective is a linear combination of social welfare and the sum of contributions C_i from stakeholders and the manager.

$$\Phi(x, C) = W(x) + \omega \sum_i C_i(x), \quad \text{for } i = ST, M.$$

Where the parameter ω indexes the sensitivity of politicians to political contributions.

Taking the other groups' strategy as given, each interest group simultaneously offers politicians a political contribution C_i for $i = ST, M$ to maximize its own (net) welfare. The stakeholder net welfare writes:

$$U_{ST} - C_{ST}.$$

As Bebchuk and Neeman (2010), we assume that the manager can use the firm's resources to finance his influence activities, hence he bears only a fraction α of his contribution; his net welfare writes:

$$U_M - \alpha C_M.$$

A truthful political contribution schedule from group i is defined as $C_i(x, b_i) = \max(0, U_i(x) - b_i)$, where b_i is a constant and is some base level of its welfare chosen by i . From lemma (1) (in appendix), we know that the equilibrium level of protection supported by truthful contributions, satisfies:

$$x^* = \operatorname{argmax}_x W(x) + \omega \left(U_{ST}(x) + \frac{U_M(x)}{\alpha} \right).$$

We obtain:

Proposition 1. *When stakeholders and the manager form lobbying groups, then there exists a unique truthful Nash equilibrium given by*

$$x^* = \begin{cases} 0, & \text{if } B \leq \underline{B} \\ \alpha \frac{B(1+\omega) - \Pi}{2\Pi(1-\alpha)\omega} + \frac{1-\alpha(2-\lambda)}{2(1-\alpha)(1-\lambda)} \in (0, 1), & \text{if } B \in (\underline{B}, \overline{B}) \\ 1, & \text{if } B \geq \overline{B}. \end{cases}$$

where $\underline{B} = \left(1 - \frac{(1-\alpha)\omega}{\alpha(1+\omega)(1-\lambda)}\right) \Pi$ and $\overline{B} = \left(1 - \frac{(1-\alpha)\omega(2\lambda-1)}{\alpha(1+\omega)(1-\lambda)}\right) \Pi$.

This equilibrium level of shareholder protection can be inefficiently low, i.e. $x^ > 0$ while $x = 0$ is socially optimal, but also inefficiently high, i.e. $x^* < 1$ while $x = 1$ is socially optimal.*

Stakeholders and the manager spend their resources to obtain from politicians a protection's level close to the levels that maximize their utility. Since the objectives of shareholders, stakeholders and manager are not always aligned, lobbying can lead to suboptimal protection's levels. The result on inefficiently high equilibrium level of shareholder protection is a departure from the political economy literature (e.g. Pagano and Volpin (2005b) or Bebchuk and Neeman (2010)) where typically investor protection is suboptimally low. This different result is due to the assumption that better shareholders protection is costly for stakeholders.

Let us study the impact of the model's parameters on the equilibrium level of shareholder /stakeholder protection and on the degree of inefficiencies. Obviously we must have Π and B close enough to each other, otherwise, lobbying activities cannot influence politicians enough to observe inefficiencies.

4.1 Congruence of interest

Whatever λ , stakeholders lobby always for full protection, i.e. $x = 1$. The behavior of the manager is less straightforward. The level of stakeholder protection x has two opposite effects on the manager's utility: as a shareholder, higher x reduces the probability to obtain Π with certainty, but as a manager, higher x increases his private benefits (more than the reduction of the net public benefits). Hence, an increase in λ alleviates the first negative effect and the manager is willing to spend more the firm's resources to lobby for an increased level of stakeholder protection. We have

Proposition 2. *When $x^* \in (0, 1)$, more congruence of interest between stakeholders and shareholders (an increase in λ) implies more stakeholder protection.*

Congruence of interest between stakeholders and shareholders have also an impact on inefficiencies. Recall that inefficiency occurs when the equilibrium level of protection is not equal to the socially optimal level, i.e. when $x^* > 0$ ($x^* < 1$) while $x = 0$ ($x = 1$) is socially optimal because $\Pi > B$ ($\Pi < B$). From the previous proposition, it is straightforward that it is more likely to observe inefficiently low shareholder protection when λ is high since both stakeholders and manager lobby against full shareholder protection.

We can observe inefficiently high shareholder protection only when λ is low enough. As we know, when λ is low full stakeholder is never optimal for the manager. Hence, he spends on influence activities to obtain a level of protection closer to the one he considers optimal, which tends to 0 when λ tends to 0.

Corollary 1. *Inefficiently low (high) shareholder protection should be more observed when congruence of interest between shareholders and stakeholders is high (low).*

4.2 Sensitivity of politicians to political contributions

The sensitivity of politicians to political contributions measured by ω plays a central role of this model. When politicians are more sensitive to political contributions, this increases the role that interest groups lobbying play in politicians' final decision. Hence, interest groups lobbying push politicians away from setting levels of protection at the optimal level that social welfare considerations would suggest.

Proposition 3. *Shareholder/stakeholder protections are more suboptimal when politicians are more sensitive to political contributions.*

The parameter ω can take different interpretations. This can be a measure of the costs on influence activities (Bebchuk and Neeman (2010)). According to Marceau and Smart (2003), ω represents the degree of lobbying regulation, i.e. deregulating lobbying involves an increase in ω . As Perotti and Volpin (2008) note, in an autocratic country, ω will be small because politicians are not accountable to voters. In a democratic country, politicians wish to be reelected and they need to give more importance to the social surplus if they want to be reelected. This relationship is found in the empirical analysis of Mitra, Thomakos, and Ulubaşoğlu (2002).

Corollary 2. *Shareholder protection can be higher*

a- *in autocratic countries or in countries where politicians are more accountable to society.*

b- *when constraints on influence activities are weaker.*

c- *when lobbying is deregulated*

Note that these predictions are different from those established by Bebchuk and Neeman (2010) or Perotti and Volpin (2008). Recall that this arises when $B > \Pi$, i.e. a situation where no shareholder protection is socially optimal.

4.3 Ownership concentration

The fraction of shares held by the manager can also affect the equilibrium level of protection. We find

Proposition 4. *Ownership concentration decreases the suboptimality of the levels of shareholder/stakeholder protection.*

In the politician's program, an increase in ownership concentration, i.e. the manager holds more shares, has the two following effects. First, when ownership is more concentrated, i.e. higher α , the manager's interest is more aligned with the shareholders' one and so, the manager lobbies for a lower stakeholder protection. Second, higher α also implies that the manager bears more the cost of his contribution, that is reduced and so, the weight of the manager's contribution in the politician's utility (4) is lesser. When $B > \Pi$, full stakeholder protection is socially optimal, the manager lobbies for a lesser protection but since his contribution decreases as α increases, we find $\frac{dx^*}{d\alpha} > 0$. When $B < \Pi$, full shareholder protection is socially optimal; as α increases, the manager lobbies for a greater shareholder protection, we find $\frac{dx^*}{d\alpha} < 0$.

At $t = 0$, the founders choose α to maximize their utility $U_F = (1 - \alpha)V$, where the value of the firm $V = (1 - x^*(1 - \lambda))(1 - x^*)\Pi$ depends on α via the optimal level of stakeholder protection. Obviously, the firm's value V is maximized for $x = 0$ since the project yielding Π with certainty is always chosen and no private benefits are extracted. When $B > \Pi$, we have $x_\alpha > 0$ and so, the firm's value is maximized with fully dispersed ownership, i.e. $\alpha = 0$. Since the founders sell the fraction $1 - \alpha$ of the firm, their utility is maximized for $\alpha = 0$. When $B < \Pi$, we have $x_\alpha < 0$ implying that the firm's value is maximized for fully ownership concentration. The founders face the following trade-off: giving the maximal stake to the manager and selling all the shares to shareholders, which can lead them not to sell all the shares on the market.

Proposition 5. *When $B > \Pi$, fully dispersed ownership is optimal. When $B < \Pi$, concentrated ownership structure can be optimal.*

4.4 Expropriation of stakeholders

Consider now that the manager is also able to expropriate stakeholders. This assumption means that the stakeholders' payoffs apply only to the part of the firm's revenues that is not diverted by the manager. These revenues owed to the stakeholders may be profit sharing for workers or tax benefits used to develop environmental programs. Hence, stakeholders receive $(1 - \phi(x))B$. We have to study the changes in the preferred levels of stakeholder protection, induced by this new assumption.

Let us begin with the manager. His payoffs come now from both Π and B . With probability $1 - x$, he chooses the project that maximizes his utility, that is:

$$U_M = x(\lambda(\phi(x)\Pi + \alpha(1 - \phi(x))\Pi) + \phi(x)B) + (1 - x) \max\{U(P1), U(P2)\},$$

where $U(P1) = \phi(x)\Pi + \alpha(1 - \phi(x))\Pi + \lambda\phi(x)B$ is the payoff if he chooses project 1, and $U(P2) = \lambda(\phi(x)\Pi + \alpha(1 - \phi(x))\Pi) + \phi(x)B$ is the payoff if he chooses project 2. The manager prefers project 2 if his holding is low enough to give sufficient weight on private benefits diverted from the stakeholders' payoff B , we find $\alpha < \frac{\phi(x)(B - \Pi)}{(1 - \phi(x))\Pi}$ (note that if $\Pi > B$ then project 1 is always chosen). Expropriating both the stakeholders and shareholders gives more weight on private benefits in the manager's utility. Hence, compared to the case with shareholders expropriation only, the manager is induced to lobby for a higher stakeholders protection, i.e. higher x , since this increases his private benefits. Note that full stakeholder protection is optimal when he prefers project 2.

Full shareholder protection, i.e. $x = 0$, is still optimal for shareholders. However, it is less straightforward for stakeholders. They face the following tradeoff: full protection, $x = 1$ increases their expected payoff because the project they prefer is always chosen, but this also increases the private benefits of the manager. Therefore, compared to the case with shareholders expropriation only, stakeholders are induced to lobby for a lower protection, i.e. $x < 1$. Note that no stakeholder protection is optimal when the manager prefers project 2.

Hence, considering expropriation of stakeholders has no straightforward consequence on the result of lobbying. The manager lobbies for more stakeholder protection, which can be compensated by stakeholders lobbying for less protection. However, our main result on the level of shareholder protection that can be inefficiently high, is not affected.

5 Conclusion

We have developed a framework for analyzing how lobbying by interest groups affects both the level of shareholder and stakeholder protection. We have found that lobbying may lead the equilibrium levels of shareholder/stakeholder protection to be sub-optimal. The new result is that it may be too high as much as it may be too low

Our analysis can provide testable predictions for empirical work regarding the way in which shareholder/stakeholder protection varies over time and around the world. At the

difference of Bebchuk and Neeman (2010), we stress the important role of stakeholders as one of the main interest group lobbying for influence over politicians. Therefore, we consider that the behavior of stakeholders should be introduced in empirical works.

Among countries favoring more shareholder protection but where stakeholders activism is effective, we should observe a lower level of shareholder protection than in countries with no activism of stakeholders. The trend should be negatively correlated with the existence of strong regulation of lobbying, i.e. with the existence of limits on politicians' freedom to receive benefits (whether as campaign contributions or in other form) from interest groups. The trend should also be negatively correlated with ownership concentration.

Appendix

A.1 The subgame-perfect Nash equilibrium

The subgame-perfect Nash equilibrium can be characterized by the following lemma:

Lemma 2. 1. *The equilibrium level of protection satisfies:*

$$x^* = \operatorname{argmax}_x W(x) + \omega \left(U_{ST}(x) + \frac{U_M(x)}{\alpha} \right)$$

2. *the equilibrium levels of political contribution are:*

$$\begin{aligned} C_{ST}(x^*, b_{ST}) &= \frac{1}{\alpha} U_M(x^M) + \frac{1}{\omega} W(x^M) - \left(\frac{1}{\alpha} U_M(x^*) + \frac{1}{\omega} W(x^*) \right) \\ C_M(x^*, b_M) &= U_{ST}(x^{ST}) + \frac{1}{\omega} W(x^{ST}) - \left(U_{ST}(x^*) + \frac{1}{\omega} W(x^*) \right) \end{aligned}$$

where x^i for $i = ST, M$ is the jointly optimal level of protection for group i and politicians, and it satisfies:

$$\begin{aligned} x^{ST} &= \operatorname{argmax}_x f_{ST}(x) =: W(x) + \omega U_{ST}(x) \\ x^M &= \operatorname{argmax}_x f_M(x) =: W(x) + \frac{\omega}{\alpha} U_M(x) \end{aligned}$$

PROOF

1-Since the benefits of all the parties are maximized, we have:

$$W(x^*) + \omega (C_{ST}(x^*) + C_M(x^*)) \geq W(x) + \omega (C_{ST}(x) + C_M(x))$$

for politicians,

$$U_{ST}(x^*) - C_{ST}(x^*) \geq U_{ST}(x) - C_{ST}(x)$$

for stakeholders,

$$U_M(x^*) - \alpha C_M(x^*) \geq U_M(x) - \alpha C_M(x)$$

for the manager. The two last inequalities are equivalent to:

$$\begin{aligned} \omega(U_{ST}(x^*) - C_{ST}(x^*)) &\geq \omega(U_{ST}(x) - C_{ST}(x)) \\ \omega\left(\frac{U_M(x^*)}{\alpha} - C_M(x^*)\right) &\geq \omega\left(\frac{U_M(x)}{\alpha} - C_M(x)\right) \end{aligned}$$

Combining the three inequalities, we obtain:

$$W(x^*) + \omega\left(U_{ST}(x^*) + \frac{U_M(x^*)}{\alpha}\right) \geq W(x) + \omega\left(U_{ST}(x) + \frac{U_M(x)}{\alpha}\right)$$

2- In equilibrium, we have $C_{ST}(x^*) = U_{ST}(x^*) - b_{ST}$. As $C_{ST}(x^{ST})$ must also be positive (because $C_{ST}(x^{ST}) > C_{ST}(x^*)$), we have $C_{ST}(x^{ST}) = U_{ST}(x^{ST}) - b_{ST}$. Combining the two equations, we obtain:

$$C_{ST}(x^{ST}) - C_{ST}(x^*) = U_{ST}(x^{ST}) - U_{ST}(x^*)$$

The manager will raise b_M until politicians are indifferent between choosing x^* and choosing x^{ST} , that means:

$$\omega C_M(x^*, b_M) + \omega C_{ST}(x^*) + W(x^*) = \omega C_{ST}(x^{ST}) + W(x^{ST})$$

We have:

$$C_M(x^*, b_M) = U_{ST}(x^{ST}) - U_{ST}(x^*) + \frac{1}{\omega}(W(x^{ST}) - W(x^*))$$

In equilibrium, we have $C_M(x^*) = \frac{1}{\alpha}(U_M(x^*) - b_M)$. As $C_M(x^M)$ must also be positive (because $C_M(x^M) > C_M(x^*)$), we have $C_M(x^M) = \frac{1}{\alpha}(U_M(x^M) - b_M)$. Combining the two equations, we obtain:

$$C_M(x^M) - C_M(x^*) = \frac{1}{\alpha}(U_M(x^M) - U_M(x^*))$$

Stakeholders will raise b_{ST} until politicians are indifferent between choosing x^* and choosing x^M , that means:

$$\omega C_{ST}(x^*, b_{ST}) + \omega C_M(x^*) + W(x^*) = \omega C_M(x^M) + W(x^M)$$

We have:

$$C_{ST}(x^*, b_{ST}) = \frac{1}{\alpha}(U_M(x^M) - U_M(x^*)) + \frac{1}{\omega}(W(x^M) - W(x^*))$$

Q.E.D.

A.2 Proof of Lemma 1

The program writes:

$$\begin{aligned} & \max_x U_M(x) \\ & \text{s.t. } 0 \leq x \leq 1 \end{aligned}$$

The lagrangian is $\mathcal{L} = U_M(x) + \mu_1(1 - x) + \mu_2 x$ where μ_1 and μ_2 are the multipliers. The FOCs give:

1. $x_M = -\frac{\alpha}{2(1-\alpha)} + \frac{1}{2(1-\lambda)}$ and $\mu_1 = \mu_2 = 0$
2. $x_M = 0$ and $\mu_1 = 0$ and $\mu_2 = -(1 - \alpha(2 - \lambda))\Pi$
3. $x_M = 1$ and $\mu_2 = 0$ and $\mu_1 = -(1 - (2 - \alpha)\lambda)\Pi$

The solutions 2. and 3. are relevant iff the multipliers are positive, which is satisfied if $\alpha \geq \frac{1}{2-\lambda}$ for 2. and $\alpha \leq 2 - \frac{1}{\lambda}$ for 3. Note that we have $2 - \frac{1}{\lambda} \leq \frac{1}{2-\lambda}$. For $\lambda < 1/2$ we have $2 - \frac{1}{\lambda} < 0$. *Q.E.D.*

A.3 Proof of Proposition 1

First, let us determine the equilibrium level of stakeholder protection given by solving the following program of politicians:

$$\begin{aligned} & \max_x W(x) + \omega \left(U_{ST}(x) + \frac{U_M(x)}{\alpha} \right) \\ & \text{s.t. } 0 \leq x \leq 1 \end{aligned}$$

The lagrangian is $\mathcal{L} = W(x) + \omega \left(U_{ST}(x) + \frac{U_M(x)}{\alpha} \right) + \mu_1(1 - x) + \mu_2 x$ where μ_1 and μ_2 are the multipliers. The FOCs give:

1. $x^* = \frac{\alpha(1+\omega)}{2\omega(1-\alpha)} \left(\frac{B}{\Pi} - 1 \right) + \frac{1}{2(1-\lambda)}$ and $\mu_1 = \mu_2 = 0$
2. $x^* = 0$ and $\mu_1 = 0$ and $\mu_2 = (1 - \lambda)(1 + \omega)B + \left(\frac{\omega}{\alpha} - 1 + \lambda - (2 - \lambda)\omega \right) \Pi$
3. $x^* = 1$ and $\mu_2 = 0$ and $\mu_1 = (1 - \lambda)(1 + \omega)B + \left(1 + \lambda(1 - \omega) + \frac{2\lambda\omega - \omega}{\alpha} \right) \Pi$

The solutions 2. and 3. are relevant iff the multipliers are positive, which is satisfied if $B \leq \left(1 - \frac{\omega}{1+\omega} \frac{1-\alpha}{\alpha} \frac{1}{1-\lambda} \right) \Pi$ for 2. and $B \geq \left(1 - \frac{\omega}{1+\omega} \frac{1-\alpha}{\alpha} \frac{2\lambda-1}{1-\lambda} \right) \Pi$ for 3, hence we obtain the solution is the proposition.

The level of shareholder protection is inefficiently low when $\Pi > B$ and $x^* > 0$ while we should have $x = 0$, that is socially optimal. This is the case when $B > \left(1 - \frac{\omega}{1+\omega} \frac{1-\alpha}{\alpha} \frac{1}{1-\lambda} \right) \Pi$ that is satisfied when B is close to Π and/or $\frac{\omega}{1+\omega} \frac{1-\alpha}{\alpha} \frac{1}{1-\lambda}$ high enough. In more details, high $\frac{\omega}{1+\omega} \frac{1-\alpha}{\alpha} \frac{1}{1-\lambda}$ is implied by high λ , low α and high ω .

The level of shareholder protection is inefficiently high when $\Pi < B$ and $x^* < 1$ while we should have $x = 1$, that is socially optimal. Note that if $\lambda \geq 1/2$ we have always $B > \Pi \geq \left(1 - \frac{\omega}{1+\omega} \frac{1-\alpha}{\alpha} \frac{2\lambda-1}{1-\lambda}\right) \Pi$ and so, $x^* = 1$. If $\lambda < 1/2$ then $x^* < 1$ is satisfied when Π is close to B and/or high $\left(1 - \frac{\omega}{1+\omega} \frac{1-\alpha}{\alpha} \frac{2\lambda-1}{1-\lambda}\right)$. In more details, high $\left(1 - \frac{\omega}{1+\omega} \frac{1-\alpha}{\alpha} \frac{2\lambda-1}{1-\lambda}\right)$ is implied by low λ , high α and high ω . *Q.E.D.*

A.4 Proof of Proposition 2

When $x^* \in (0, 1)$, its derivative w.r.t. λ gives:

$$\frac{dx^*}{d\lambda} = \frac{1}{2(1-\lambda)^2} > 0.$$

Q.E.D.

A.5 Proof of Proposition 3

The derivative of x^* w.r.t. ω gives:

$$\frac{dx^*}{d\omega} = \frac{\alpha(1-\lambda)(B-\Pi)}{[\alpha(2-\lambda)-1]\Pi - \alpha(1-\lambda)B}.$$

We have 4 cases to study:

1. $\frac{dx^*}{d\omega} > 0$ if

a- $B > \Pi$ and $B < \left(1 - \frac{1-\alpha}{\alpha(1-\lambda)}\right) \Pi$

b- $B < \Pi$ and $B > \left(1 - \frac{1-\alpha}{\alpha(1-\lambda)}\right) \Pi$

2. $\frac{dx^*}{d\omega} < 0$ if

a- $B > \Pi$ and $B > \left(1 - \frac{1-\alpha}{\alpha(1-\lambda)}\right) \Pi$

b- $B < \Pi$ and $B < \left(1 - \frac{1-\alpha}{\alpha(1-\lambda)}\right) \Pi$

Since $\left(1 - \frac{1-\alpha}{\alpha(1-\lambda)}\right) \Pi < \Pi$, case a) is not possible; case c) holds only if $B > \Pi$; case d) is incompatible with the condition to have an interior solution $B > B^l = \left(1 - \frac{\omega(1-\alpha)}{\alpha(1-\lambda)(1+\omega)}\right) \Pi$ since $B^l > \left(1 - \frac{1-\alpha}{\alpha(1-\lambda)}\right) \Pi$; case b) holds only if $B < \Pi$ since $B > \left(1 - \frac{1-\alpha}{\alpha(1-\lambda)}\right) \Pi$ is ensured to have an interior solution.

Hence, we have:

a- $\frac{dx^*}{d\omega} < 0$ if $B > \Pi$

b- $\frac{dx^*}{d\omega} > 0$ if $B < \Pi$

Deregulation of lobbying implies more stakeholder (shareholder) protection if $B < \Pi$ ($B > \Pi$), while the optimal level should be full protection of shareholders (stakeholders), i.e. $x = 0$ ($x = 1$). *Q.E.D.*

A.6 Proof of Proposition 4

When $x^* \in (0, 1)$, its derivative w.r.t. α gives:

$$\frac{dx^*}{d\alpha} = \frac{(B - \Pi)(1 + \omega)}{2\omega(1 - \alpha)^2\Pi}.$$

Ownership concentration implies more stakeholder (shareholder) protection if $B > \Pi$ ($B < \Pi$), which is closer to the optimal level in this case, i.e. $x = 1$ ($x = 0$). *Q.E.D.*

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Christian At
University of Franche-Comte, CRESE
Avenue de l’Observatoire, 25000 BESANCON
France
christian.at@univ-fcomte.fr