

# The Political Economy of Corporate Governance

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## Abstract

The paper analyzes the political decision that determines the degree of investor protection. We show that entrepreneurs and workers can strike a political agreement by which low investor protection is exchanged for high employment protection. This “corporatist” agreement is feasible if the political system favors the formation of coalition governments. In contrast, “non-corporatist” countries will feature high investor protection and low employment protection. The model also shows that the more diffused is share ownership, the higher the chosen degree of shareholder protection. Finally, the model predicts the frequency of mergers and acquisitions to be negatively correlated with employment protection. These predictions are shown to be consistent with OECD evidence.

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## 1. Introduction

Recent contributions on corporate governance show that there are large differences in the degree of investor protection across countries and that these differences are correlated with both the development of capital markets and the ownership structure of firms.<sup>1</sup> These studies take the degree of investor protection as an exogenous variable. However, legal rules are established via the political process, which in turn responds to economic interests. In this sense, legal rules and economic outcomes are jointly determined, politics being the link between them.

In this paper, we apply this principle to the choice of the degree of investor protection. We investigate if a political theory of this choice can help explain the observed international differences in the degree of investor protection. The issue of legal reform is intimately related to this question. To study if and how investor protection legislation can be improved in a given country, we first need to understand what led to the existing degree of investor protection in that country.

We develop a stylized model of a country with three classes: entrepreneurs, rentiers, and workers. We assume that, after entrepreneurs set up their firms, a political decision can change the regime of investor protection and employee protection. Therefore, when signing financial and labor contracts, people have to take into account the expected outcome of such political decision. In particular, the amount of equity finance provided by external investors and its price are affected by the legal regime expected to prevail.

Political preferences are in turn shaped by economic motives. Rentiers want high investor protection in order to reduce the private benefits extracted by managers as much as possible. Workers may have the same preference, insofar as they also hold shares. Entrepreneurs, instead, being controlling shareholders, prefer low investor protection. As initial owners of their companies, entrepreneurs ultimately bear the agency cost of low investor protection, via a reduced availability of equity capital. However, this cost is sunk at the time of the political decision: once the company has raised external equity, entrepreneurs have the incentive to lower investor protection to increase their private benefits.

If the political debate were only about investor protection, high investor protection would be chosen, considering that entrepreneurs are a political minority. But the debate may involve

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<sup>1</sup> See La Porta, Lopez-de-Silanes, Shleifer and Vishny (1997), La Porta, Lopez-de-Silanes, Shleifer and Vishny (1998), and La Porta, Lopez-de-Silanes and Shleifer (1999).

also other issues, such as employment protection, and in particular, the employers' freedom to fire workers. Only one group, the employed workers, want high employee protection, in order to preserve their rents. With two issues on the political agenda, political alliances are in principle possible. In particular, entrepreneurs may try to strike a deal with workers in which high employment protection is exchanged for low investor protection. Such a "corporatist" arrangement would be mainly at the expense of rentiers, whose preferences would instead go to low employee protection and high shareholder protection.

The structure of the political system is important in determining whether this corporatist outcome can occur. In a setting where each social group is represented by a political party (none of which holds the majority of votes), this outcome will emerge if parties can vote jointly on the issues of shareholder and employee protection. Such a joint vote requires a coalition submitting a multidimensional political platform to a vote. So the model predicts that a combination of low investor protection and high employment protection should be associated with institutional settings where coalition governments are prevalent and the government is subject to a confidence vote. If instead parties vote on the two issues disjointly, high shareholder protection will obtain the votes of rentiers and workers, and low employee protection those of rentiers and entrepreneurs. Therefore, in this case one should expect the "non-corporatist" outcome of high investor protection and low employee protection, which is the rentiers' favorite regime.

These predictions are consistent with the empirical evidence for OECD countries, where one observes two distinct clusters. Continental European countries and Japan, whose governments are generally formed by coalitions and subject to a vote of confidence, have low investor and high employment protection. Conversely, Anglo-Saxon countries, whose political systems have the opposite features, have high investor and low employee protection.

We also analyze an alternative model of political competition, where parties do not coincide with specific social classes. Instead, two ("non-ideological") parties design their platforms to compete for the support of all voters, as in many traditional voting models. Under this assumption, we find that the "vote-weighted equity stake" of society is the key parameter in determining the political outcome. If equity ownership is very diffused among voters, both parties will converge on a platform that favors shareholder rights and grants low employment security. This parallels the result by Biais and Perotti (2000) that if median voters are allocated a sizeable stake in privatized companies, their preferences shift towards right-wing, market-oriented policies. If equity ownership is very concentrated, instead, parties

will converge on the same policy regime as in the corporatist outcome analyzed before. If the diffusion of equity ownership falls in an intermediate range, the political vote will support both high investor protection and high employee protection. The result that the diffusion of share ownership tilts the balance in favor of investor protection is actually a common feature of both political models. Also in the corporatist regime under three-party competition, the larger the fraction of equity in the portfolios of workers, the more reluctant they are to trade shareholder protection for job security. Although internationally comparable data about the diffusion of equity ownership are sparse, the existing evidence is broadly consistent with this prediction.

The model also yields interesting predictions about the relationship between employment protection and incidence of control changes. Employed workers earn a rent in the form of a severance payment, whose value depends on the company's ability to fire them. As in Shleifer and Summers (1988) and in Chemla (1998), takeovers may help breaking employment contracts that have become a burden to the firm. But even a new controlling shareholder may fire unwanted employees only if the law allows him to. So an ancillary prediction of the model is that the frequency of control changes is negatively related to the degree of employee protection. Also this prediction is consistent with OECD cross-country data.

The paper contributes to the growing literature on comparative corporate governance. As already mentioned, La Porta, Lopez-de-Silanes, Shleifer and Vishny (1997, 1998) consider the international differences in investor legal protection as a key determinant of financial development.<sup>2</sup> Why countries grant different degrees of protection to investors, however, is left unexplained.

Some suggest that these differences are driven by ideological factors rather than by economic forces. Roe (1999) argues that the differences between the corporate governance systems in the United States and in Continental Europe are due to the incompatibility of the American ideology with the kind of social democracy common in European countries. According to Roe, in Europe the state is entrusted with the task of sustaining a social pact between all classes, whereby greater equality is exchanged for reduced efficiency. Also La Porta, Lopez-de-Silanes, Shleifer and Vishny (2000) attribute the differences between the Anglo-Saxon countries and Continental Europe to the different role played by the State. They

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<sup>2</sup> Another strand of the literature on comparative corporate governance builds on the now familiar distinction between bank- and market-centered systems introduced by Mayer (1988). The approach by Rajan and Zingales (1999) is close to this line of research.

claim that the degree of investor protection (ultimately determined by the country's legal origin) is negatively related to what the degree of involvement of the state in the economy was when business law was first introduced. Rajan and Zingales (2000) raise a similar point, even though they question the importance of the legal protection and focus on the development of the capital markets directly. This paper departs from this view, since it regards the political decision to set legal rules as based on economic principles, not on ideology. The State is not considered as an independent player, but as an agent for the political forces that sustain it, and interventionism is presented as a result of a political agreement rather than as its cause.

Our results are also relevant to the ongoing debate on the evolution of corporate governance systems. Legal scholars are deeply divided about the degree of convergence that we are likely to see in business practices (functional convergence), in contractual behavior (convergence by contract) and in corporate law (formal convergence).<sup>3</sup> Coffee (1999) suggests that differences between corporate governance systems will persist, but they will feature a degree of functional convergence. In his view, efficient systems of governance are able to reward good managers and punish bad ones, and only systems that provide these functions will ultimately survive. Gilson (2000) takes an eclectic stance, arguing that one is likely to observe an interplay of functional convergence, convergence "by contract" and institutional persistence, with a range of different potential outcomes. Hansmann and Kraakman (2000) take a more extreme stance, arguing that shareholder pressure will ensure gradual convergence also in the corporate law, owing to shareholder pressure and to "the power of shareholder-oriented ideology" (p. 18). They conclude that "the triumph of the shareholder-oriented model of the corporation over its principal competitors is now assured" (p. 32). In contrast, Bebchuk and Roe (1999) question the idea of a smooth and rapid convergence towards an optimal and unified system of corporate governance. According to

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<sup>3</sup> An example of "convergence by contract" offered by both Coffee and Gilson is the stock exchange listing agreement by which a foreign issuer submits U.S. stock exchange governance rules and to some parts of U.S. security regulation. Indeed, the evidence supports the view that this specific form of convergence by contract is taking place. Reese and Weisbach (1999) report that firms from countries with weak minority shareholder protection list abroad more frequently than firms from other countries, and cross-list more often on organized exchanges such as NYSE or Nasdaq rather than on the Over the Counter (OTC) market. Similarly, Pagano, Randl, Röell and Zechner (2001) show that European companies tend to cross-list in exchanges with better shareholder protection standards than their home exchange. Finally, investors appear to favor convergence on the set of rules that affords them the highest degree of protection. Several studies surveyed in Karolyi (1998) show that the price reaction is significant for non-U.S. companies listing in the U.S., which has the tightest standards, whereas it is negligible otherwise.

them, political and economic forces condition the dynamics of corporate governance rules in different countries generating path dependence that can slow or prevent their convergence.

The results of our model agree with the latter hypothesis, in that our model is capable of generating multiple equilibria. Equilibrium requires the ownership structure and the legal regime to be mutually consistent. The ownership structure is chosen anticipating the legal regime that will prevail, and in turn contributes to determine the voting outcome that will validate that legal regime. But in some parameter regions there can be more than one such equilibrium. Expectations will then hold the key as to which equilibrium market participants will actually choose. If expectations about the future legal regime are formed extrapolating from the past, the model can generate path dependence. The legal regime would persist over time unless either some exogenous event were to change the expectations, for instance by increasing the diffusion of equity among the poorer strata of the population.

The paper is structured as follows. Section 2 introduces the model and describes the main assumptions. The analysis of the model is in Section 3. The empirical evidence is discussed in Section 4. Section 5 concludes, and discusses some potential implications for the evolution of corporate governance systems.

## **2. Structure of the model**

Consider an economy with three classes:  $R$  rentiers,  $W$  workers, and  $E$  entrepreneurs. Rentiers have only a wealth endowment,  $A_R$ . Workers have a unit endowment of labor time per period, and may have also an initial wealth endowment,  $A_W$ . Entrepreneurs have a wealth endowment  $A_E$  and their human capital is essential to set up a firm.

Figure 1 illustrates the time line of the model. In  $t = -1$  firms are set up by hiring labor and capital. Their founders can raise capital only by selling equity stakes. Firms have two production cycles, ending in period 1 and 3 respectively. They can hire workers at  $t = -1$  with a contract that can be renegotiated in period 2. In setting the price at which equity is initially sold and the terms of the labor contract, entrepreneurs, investors and workers take into account the legal rules expected to prevail in the future.

In  $t = 0$ , a vote is taken on two dimensions of the legal regime: the degree of investor protection and the degree of employment protection. The first affects the amount of corporate resources that the owner-managers of firms can appropriate at the expense of other

shareholders, that is, the amount of private benefits of control. The second political choice affects the freedom to fire existing employees.

In  $t = 1$ , initial output is produced and first-period wages are paid.

In  $t = 2$ , a technological innovation (e.g., the Internet) is introduced. With the new technology, some workers become more productive. Entrepreneurs can restructure their companies at a profit by replacing less productive workers with newly hired, more productive ones. The cost of doing so depends on the degree of legal protection of employed workers.

In  $t = 3$ , final wages are paid, the owner-manager extracts private benefits of control, and dividends are distributed to shareholders.

The rentiers' objective function  $U_R$  is simply the final value of their wealth. They can invest it either in the representative company's shares or in an alternative asset ("debt") yielding a fixed rate of return, for simplicity normalized to zero.

Workers maximize their utility  $U_W = c - u(l_1) - u(l_2) = c - \gamma(l_1 + l_2)$  subject to their budget constraint  $c = w_1 l_1 + w_2 l_2 + A_W$ , where  $c$  is consumption,  $l_i \in \{0,1\}$  and  $u(l_i)$  is the disutility of work in production cycle  $i$  (for  $i=1,2$ ), which we assume to be linear. Like rentiers, workers can invest in equity or debt.

Entrepreneurs maximize the value of the stake retained in their company (their percentage stake  $\beta_E$  multiplied by the value of the company,  $V$ ) plus the resources diverted from the company (their private benefits of control,  $D$ ). So their objective function is  $U_E = \beta_E V + D$ .

We now explain the assumptions of the model in greater detail.

## 2.1 Firm's setup

Firms have a fixed-coefficients production technology, with a constant capital-labor ratio. Production of  $Y_i$  units in the production cycle  $i$  requires  $N$  workers and  $K$  units of capital, with  $Y_i = y_i N$ , for  $i=1,2$  and  $N \geq 1$ . In the first production cycle, labor productivity is a constant  $y_1 = y$  for all workers; in the second production cycle, some workers become more productive, so that average labor productivity is  $y_2 > y$ .

The capital stock  $K$  can take one of two values: low ( $K_L$ ) or high ( $K_H = (1 + g)K_L$ , with  $g > 0$ ). Correspondingly, the number of employees will be low ( $N_L$ ) or high

( $N_H = (1+g)N_L$ ). The entrepreneur chooses once and for all the size of the company at  $t = -1$  so as to maximize his objective function. In either case, the capital stock exceeds the entrepreneur's initial wealth  $A_E$  and lasts for two production cycles. The first-cycle inputs are bought in period  $-1$ , with output being produced and factor incomes being distributed in period 1. The second cycle begins in period 2 and ends in period 3.

At  $t = -1$ , each company hires workers under a 2-period contract that it can terminate at  $t = 2$ . The law specifies that such termination can occur at most with probability  $f$ .<sup>4</sup> The salary to be paid at  $t = 2$  ( $w_2$ ) cannot fall short of the worker's reservation wage.<sup>5</sup> Fired employees are replaced at  $t = 2$  with workers hired under a short-term contract at the competitive wage. The terms of the initial contract are set by ex-ante competition among workers at  $t = -1$ : the total expected wage bill to be paid to each worker equals the sum of his expected disutility from work in the two production cycles, net of any rents deriving from the employment security guarantee. As we shall see below, the employment security conferred by the law generates a rent because the firm may want to replace workers in excess of those that can be legally fired. In this case, employees that are not fired can accept to quit voluntarily in exchange for a severance payment. The firm recovers the expected value of this severance payment via ex-ante competition.

In order to raise the external capital  $K - A_E$ , the entrepreneur needs to sell shares in the firm. We assume a perfectly elastic supply of capital. This rests on the assumption that there is excess supply of funds in the capital market: the total amount of equity supplied by rentiers and workers exceeds the total demand for equity funding by entrepreneurs,  $RA_R + WA_W > E(K - A_E)$ . The rate of return is normalized to zero, so that investors must break even in expectation. Let  $\beta_E$  be the share of the firm's equity left to the entrepreneur after the necessary resources are raised. This stake is determined by the external investors' participation constraint  $(1 - \beta_E)V = K - A_E$ , where  $V$  is the value of the cash flows paid by the company to its shareholders, net of the private benefits extracted by the owner-manager. The value of the company  $V$  is endogenous: once financial and labor contracts are signed,  $V$  is reduced by the amount of private benefits that the law allows the entrepreneur to extract. The

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<sup>4</sup> The law can determine the probability of being fired by affecting the chances that fired workers can call upon courts and force entrepreneurs to reinstate them in their jobs. In a sense,  $f$  is the parameter that determines the expected length of job tenure. For  $f=1$ , all workers are hired under 1-period contracts. For  $f=0$ , all workers are hired under 2-period contracts.



entrepreneur is assumed to control the company (and therefore extract the private benefits of control) irrespective of his stake  $\beta_E$ .

## 2.2 Political decision

The labor and financing contracts signed at  $t = -1$  shape the economic interests – and therefore the political objectives – of entrepreneurs, employed workers, and rentiers.<sup>6</sup> We model the political interaction between these three social groups in two alternative ways, depending on the importance of ideological factors in political competition. In the first setting, vote is ideological: each party has a well-identified political clientele (entrepreneurs, employed workers or rentiers) and does not try to capture votes from other parties. We assume that no party has the absolute majority, so that passing a law requires the support of at least two parties. In the second setting, instead, parties compete for votes, namely, set their agendas so as to capture the largest possible consensus. In this second setting, we shall assume that there are two competing parties, as usual in such analyses.

The two issues subjected to a vote at  $t = 0$  are the degree of flexibility in firing workers,  $f$ , and the degree of shareholder protection against managerial diversion,  $\lambda$ , where  $(\lambda, f) \in [0,1] \times [0,1]$ . The employers' freedom to replace existing employees affects the expected value of the rent that workers extract as severance payment. The degree of investor protection constrains the private benefits of control by setting a ceiling  $D(\lambda)$  to the resources that owner-managers can divert from the company at  $t = 3$ . The maximum diversion  $D(\lambda)$  is a decreasing function of  $\lambda$  (with derivative  $D' < 0$  everywhere) and is proportional to the size of the company. If the capital stock is  $K_L$ , the maximum sum diverted is  $D_L(\lambda)$ ; if the capital stock is  $K_H$ , the maximum diversion is  $D_H(\lambda) = (1 + g)D_L(\lambda)$ .

## 2.3 Reorganization

At  $t = 2$ , a technological innovation hits the economy. Under the new production technology, a fraction  $x$  of workers (whether employed or not) becomes more productive:

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<sup>5</sup> Setting the second-period salary below the worker's reservation utility would amount to firing the worker, since he would be forced to quit the firm.

<sup>6</sup> Taking into account unemployed workers as an additional group of voters does not alter the qualitative results of the model. They would vote in favor of low employment protection to increase their chances of getting a job, and – if they have any financial wealth invested in equity – for high shareholder protection. In this sense, their political preferences are rather similar to those of rentiers.

their productivity increases by  $\Delta$ .<sup>7</sup> If unconstrained by the law, the company would replace all its  $(1-x)N$  low-productivity employees with high-productivity new hires. Due to the employee protection afforded by the law, it can only replace  $f(1-x)N$  low-productivity workers. This creates the opportunity for renegotiation with the remaining low-productivity employees in order to induce them to resign. In this renegotiation, the bargaining power of incumbent employees determines the fraction  $\alpha \in (0,1)$  of the surplus that they appropriate.<sup>8</sup>

### 3. Equilibrium

In this section we derive the model's subgame perfect equilibria. Therefore, the model is solved backwards, from  $t = 3$  to  $t = -1$ . First, we determine the amount of managerial diversion  $D$  at  $t = 3$ . Second, we consider the restructuring and renegotiation phase at  $t = 2$ . Then, we derive the cash flows and the value of the firm at  $t = 1$ . Next, we characterize the political preferences of entrepreneurs, workers and rentiers, but stop short of solving for the equilibrium values of  $\lambda$  and  $f$  chosen in the political arena at  $t = 0$ . Instead, we derive the companies' ownership structure and equilibrium labor contracts set at  $t = -1$  as a function of the expected legal regime. We postpone the determination of the political equilibrium to Sections 4 and 5, where the political subgame is modeled in two alternative fashions.

#### 3.1 Private benefits of control

At  $t = 3$  the second production cycle of the company generates cash flow  $(y_2 - \bar{w}_2)N$ , where  $\bar{w}_2$  is the average wage paid and  $y_2$  is the average productivity in the second production period. Since  $D$  is diverted in the form of private benefits, final dividends are  $(y_2 - \bar{w}_2)N - D$ . The level of private benefits that maximizes the owner-manager's utility, conditional on his stake  $\beta_E$  and on the protection of shareholder rights  $\lambda$ , solves

$$\max_{D \leq D(\lambda)} \beta_E [(y_2 - \bar{w}_2)N - D] + D \quad (1)$$

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<sup>7</sup> Section 6.1 considers an extension in which only new entrepreneurs can identify the workers' second period productivity. As will be shown, this assumption implies an interesting prediction about the relationship between employment protection and transfers of corporate control.

<sup>8</sup> The value of  $\alpha$  in this range is immaterial for the results. It affects the value of the rent conferred by the law to workers, but this is entirely recovered by firms due to ex ante labor market competition.

It is easy to see that the amount diverted by the owner-manager is decreasing in the degree of investor protection. Since  $\beta_E \leq 1$ , the maximum is a corner solution: diversion is set at its upper bound  $D = D(\lambda)$ , which is a decreasing function of  $\lambda$  by assumption.

### 3.2 Restructuring and renegotiation of labor contracts

Due to labor market competition at  $t = 2$ , the competitive wage at which outside workers can be hired for the second production cycle equals the disutility from work,  $\gamma$ . Recall that by law the wage  $w_2$  paid to retained employees is at least equal to  $\gamma$ .

Suppose for the moment that  $w_2 = \gamma$ . Then, the entrepreneur fires the highest number of low-productivity workers he is allowed to, i.e.  $f(1-x)N$  workers, in order to replace them with more productive, newly hired workers who are paid the competitive wage  $\gamma$ . This increases the firm's profits by  $(1-x)N\Delta$ . The remaining  $(1-f)(1-x)N$  low-productivity employees can be bribed to leave via a severance payment  $\alpha\Delta$ . Therefore the firm's total surplus from restructuring is  $[1-\alpha(1-f)](1-x)N\Delta$ . Renegotiation ensures that the ex-post efficient employment decision is implemented and reorganization always happens, so that in the second production cycle the firm eventually employs only high-productivity workers and its revenue is  $N(y+\Delta)$ . Employment protection affects only the size of ex-post redistribution from shareholders to workers, and not whether reorganization takes place.

If instead  $w_2 > \gamma$ , the company has the incentive to replace its entire workforce, since even replacing a high-productivity worker generates a surplus  $w_2 - \gamma$ , while replacing a low-productivity worker earns a surplus  $w_2 - \gamma + \Delta$ . As we shall see below, the total cost per long-term employee is constant, but its distribution over time, i.e. the pair  $(w_1, w_2)$ , is indeterminate. This indeterminacy is immaterial to our results, since all the contracts with the same expected cost per employee are equivalent for both firms and employees. Moreover, the indeterminacy disappears with an infinitesimal hiring or firing cost: in that case,  $w_2 = \gamma$ .

### 3.3 Firm value

At  $t = 1$ , the value of the company is given by the cash flows generated in both its production cycles, net of wage payments, severance pay and managerial diversion. Formally,

**Lemma 1.** The company's value at  $t = 1$  is:

$$V = (2y + \Delta - w_1 - \gamma - s)N - D \quad (2)$$

where  $s$  is the expected severance payment:

$$s = \begin{cases} (1-f)(1-x)\alpha\Delta & \text{if } w_2 = \gamma, \\ (1-f)\alpha[(1-x)\Delta + (w_2 - \gamma)] & \text{if } w_2 > \gamma. \end{cases} \quad (3)$$

The effect of  $f$  on expected severance pay is negative, reflecting that a higher probability of being fired reduces the probability of receiving severance pay:

$$\frac{\partial s}{\partial f} = \begin{cases} -(1-x)\alpha\Delta < 0 & \text{if } w_2 = \gamma, \\ -\alpha[(1-x)\Delta + (w_2 - \gamma)] < 0 & \text{if } w_2 > \gamma. \end{cases} \quad (4)$$

Since the severance payment is a cost to the company, a higher  $f$  raises its value  $V$ :

$$\frac{\partial V}{\partial f} = -N \frac{\partial s}{\partial f} > 0. \quad (5)$$

The effect of the protection of external shareholders on the value of the company  $V$  has the same sign, since lower diversion by managers implies larger dividends:

$$\frac{\partial V}{\partial \lambda} = -D' > 0. \quad (6)$$

### 3.4 Political preferences

Since the ownership structure is set at  $t = -1$ , the political preferences underlying the votes expressed at  $t = 0$  take as given the fractions of the representative company's shares owned by entrepreneurs, rentiers and workers (respectively  $\beta_E$ ,  $\beta_R$  and  $\beta_W$ ) and the terms of the initial labor contract,  $w_1$  and  $w_2$ . Omitting terms unaffected by  $\lambda$  and  $f$ , the expected utility functions of the entrepreneur, rentiers and workers as of  $t = 0$  are respectively:

$$U_E = \beta_E V(\lambda, f) + D(\lambda), \quad (7)$$

$$U_R = \beta_R V(\lambda, f), \quad (8)$$

$$U_W^T = NU_W = Ns(f) + \beta_W V(\lambda, f), \quad (9)$$

where, exploiting the linearity of utility in income,  $U_W^T$  is defined as the total utility of the  $N$  employees of each firm and  $U_R$  as that of all the rentiers investing in each firm. Using these three expressions, we can characterize the political preferences of the three social groups when the political decision is taken.

**Lemma 2.** As of  $t = 0$  the preferences of each type of agent are as follows:

Type of agent:	Effect of $\lambda$ on utility:	Effect of $f$ on utility:
Entrepreneur	Negative	Positive
Rentier	Positive	Positive
Worker	Positive	Negative

Intuitively, the entrepreneur's expected utility increases in  $f$ , because this raises the value of the company, and decreases in  $\lambda$ , since this reduces his private benefits. Rentiers instead benefit from both high  $f$  and high  $\lambda$ , because both raise the value of the company. Workers benefit from a high  $\lambda$ , insofar as they have invested in shares, but are damaged by a high  $f$ , as this translates into a low expected severance payment.

We postpone a fully-fledged analysis of the political equilibrium to Sections 4 and 5, and now turn to the derivation of the initial labor contract and the ownership structure taking the political outcome  $(f, \lambda)$  as given.

### 3.5 Equilibrium labor contract

At  $t = -1$  firms offer long-term labor contracts, whose terms are set by ex-ante competition among workers. To pin down the equilibrium wages, consider that the expected utility of a worker employed at  $t = -1$  is:

$$U_W = \begin{cases} [w_1 + x\gamma + (1-f)(1-x)\alpha\Delta] - [\gamma(1+x)] & \text{if } w_2 = \gamma, \\ [w_1 + (1-f)\alpha((1-x)\Delta + (w_2 - \gamma))] - \gamma & \text{if } w_2 > \gamma, \end{cases} \quad (10)$$

where for expositional convenience we have temporarily set the worker's initial wealth to zero. The first term in each of the two lines of equation (10) is the expected value of the worker's consumption, which equals his expected wage plus severance payment, and the second term is his expected disutility of work (recall that  $u(1) = \gamma$ ). Competition ensures that

the utility of workers is driven down to its reservation level, which is normalized to zero. This yields the following expression for the first-period wage:

$$w_1 = \begin{cases} \gamma - (1-f)(1-x)\alpha\Delta & \text{if } w_2 = \gamma, \\ \gamma - (1-f)\alpha[(1-x)\Delta + (w_2 - \gamma)] & \text{if } w_2 > \gamma. \end{cases} \quad (11)$$

Using equation (3) it is immediate that the first-period wage in (11) can be rewritten as:

$$w_1 = \gamma - s, \quad (12)$$

so that the total expected labor cost of the company is:

$$N(w_1 + \gamma - s) = 2N\gamma. \quad (13)$$

This shows that all the wage schedules that satisfy the equilibrium condition (11) are equivalent as of  $t = -1$ : they all imply the same expected wage bill for companies and the same expected utility for workers. Owing to ex-ante competition in the labor market, the company recovers the expected cost of the future severance payment via a lower first-period wage. Being independent of the severance payment  $s$ , the firm's expected value as of  $t = -1$  is unaffected by the policy parameter  $f$ :

$$V = (2y + \Delta - 2\gamma)N - D \quad (14)$$

The wage schedule  $(w_1, w_2)$  is not determined by our equilibrium condition. Although this indeterminacy is immaterial to our results, an infinitesimal hiring or firing cost is sufficient to eliminate it: the company will not choose  $w_2 > \gamma$  because this would induce it to fire and replace even efficient employees, and thereby incur larger firing or hiring costs than by setting  $w_2 = \gamma$ . With this innocuous assumption, that we shall maintain from now onwards, the wage  $w_1$  is determined uniquely by the first line of equation (11). The first line of equation (3) gives the corresponding severance payment  $s$ .

### 3.6 Equilibrium ownership structure

Recall that the aggregate supply of equity capital is perfectly elastic at a zero required rate of return and that the demand for capital by the entrepreneur depends on his initial choice of the scale of investment,  $K_L$  or  $K_H$ . From the capital market equilibrium condition, the equity stake of the entrepreneur equals:

$$\beta_E = 1 - \frac{K - A_E}{V}. \quad (15)$$

The investment is not feasible if  $\beta_E$  defined by (15) is negative. This corresponds to the case where the entrepreneur is equity-rationed, that is, even if he were to sell all the cash flow rights generated by the company, he would not gather enough funds to pay for the investment.

Depending on the initial scale of the investment, the value of the company is low or high. It increases proportionately with the investment:  $V_H = (1 + g)V_L$ . This follows from equation (14) and from the assumption that in a large company  $N$  and  $D$  are  $1+g$  times larger than in a small one. Also the initial stake of the entrepreneur in the company differs according to the scale of the investment. The fraction  $\beta_E^H$  of the company's capital that he retains when investing in a large plant is lower than his fraction  $\beta_E^L$  when investing in a small plant:

$$\beta_E^H = 1 - \frac{K_H - A_E}{V_H} = 1 - \frac{K_L(1 + g) - A_E}{V_L(1 + g)} < 1 - \frac{K_L - A_E}{V_L} = \beta_E^L. \quad (16)$$

The choice of the company's scale is characterized as follows:

**Proposition 1.** The entrepreneur prefers to build a large plant, but he is rationed for values of investor protection  $\lambda$  lower than the threshold value:

$$\hat{\lambda} = D^{-1} \left( (2y + \Delta - 2\gamma)N_L - K_L + \frac{A_E}{1 + g} \right).$$

If low shareholder protection generates equity rationing, it creates ex-ante inefficiency. If entrepreneurs could commit to high shareholder protection, they would do so, because this would allow them to enjoy a higher utility. Workers and rentiers are not affected, since perfect competition in the labor and capital market ensures that they maintain their reservation level of utility. The feasibility of a high- $\lambda$  equilibrium hinges on the expectations of the outcome of the political process, which will be modeled in Sections 4 and 5. If the political process is expected to produce a low value of  $\lambda$ , investors are not willing to finance investment in large projects, and entrepreneurs have no choice but invest in the smaller ones.

As we shall see in subsequent sections, the political process is more likely to produce a high value of  $\lambda$  if equity ownership is widely held: the greater the stake  $\beta_R + \beta_W = 1 - \beta_E$  held by outside shareholders, the greater the political support for a high degree of shareholder

protection against managerial diversion. This suggests the potential for multiple equilibria. If a high  $\lambda$  is expected, entrepreneurs are not equity-constrained, so they choose a large scale of investment and increase outside equity participation and political support for a high  $\lambda$  at the voting stage. Conversely, if a low  $\lambda$  is expected, entrepreneurs can be equity-constrained and this will set the political stage for a low- $\lambda$  equilibrium.

While the model determines the joint stake of outside investors, it leaves its allocation among rentiers and workers indeterminate. Their respective stakes  $\beta_R$  and  $\beta_W$  may depend on differential transaction costs, taxation and other institutional arrangements that we do not model. In any event, if the total amount of capital demanded by the firms in the economy exceeds the combined wealth of rentiers and entrepreneurs, in equilibrium also workers will invest in equity, so that  $\beta_W > 0$ .

#### **4. Political equilibrium with ideological parties**

In this section we suppose that each of the three types of individuals in the economy – workers, entrepreneurs and rentiers – is represented by a political party that maximizes the utility of its members without competing directly for votes from the other two constituencies. This presupposes that ideology and/or strong internal discipline tie closely the party’s political representatives and their agenda to the constituency’s desiderata. None of the three parties has absolute majority, so that the votes of two parties are needed to pass any policy decision.

In principle, parties may express a disjoint vote on  $\lambda$  and  $f$  or vote jointly for a pair  $(\lambda, f)$ . We define a disjoint vote as a situation in which a party cannot cast a joint vote for a pair  $(\lambda, f)$  nor commit to do so. Their ability to express a joint vote on the two issues depends on the voting procedure (sequential versus simultaneous ballot) as well as on the availability of discipline or commitment devices (such as the ability of parties to punish each other’s deviations from the promised voting behavior).

##### **4.1 Disjoint vote on $\lambda$ and $f$**

The political preferences of different types of individuals expounded in Lemma 2 map directly into the preferences and voting behavior of the three parties. Characterizing the political equilibrium under joint voting on  $\lambda$  and  $f$  is immediate:



**Proposition 2.** If there is no joint vote on  $\lambda$  and  $f$ , the outcome of majority voting is the maximal value of these parameters ( $\lambda = 1, f = 1$ ).

## 4.2 Contract curves

Now let us turn to the scenario in which parties can express a joint vote on  $\lambda$  and  $f$ . By this, we mean that they can cast a ballot for a pair  $(\lambda, f)$ , although they still cannot commit ex ante to vote for any particular pair.

Before analyzing the voting game, it is useful to consider the contract curve in the space  $(\lambda, f)$  drawn in Figure 2 for each pair of parties, since a pair is enough to determine the political outcome.

**Lemma 3.** In the space  $(\lambda, f)$ , the contract curve of coalition between

- (i) entrepreneurs and rentiers (E-R) is the horizontal segment between  $(0,1)$  and  $(1,1)$ ;
- (ii) workers and rentiers (W-R) is the vertical segment between  $(1,0)$  and  $(1,1)$ ;
- (iii) entrepreneurs and workers (E-W) is the L-shaped line between  $(0,1)$  and  $(1,0)$ , passing through  $(0,0)$ .

The shapes of the E-R and W-R contract curves are immediate, because the parties in each of the two coalitions have non-conflicting tastes in one of the two policy dimensions. Both entrepreneurs and rentiers like low employment protection (high  $f$ ). Both workers and rentiers like high shareholder protection (high  $\lambda$ ).

This is not the case for the E-W coalition. Entrepreneurs and workers have conflicting tastes in both policy dimensions. But workers are less willing than entrepreneurs to trade off a reduction in the probability of being fired  $f$  for a given reduction in shareholder protection  $\lambda$ . As a result, starting from the entrepreneurs' bliss point  $(0,1)$ , the most efficient way for the E-W coalition to raise workers' utility is via reductions in  $f$ . Only once the origin  $(0,0)$  is reached, further increases in the workers' utility must happen by raising  $\lambda$  towards 1.

Intuitively, the shape of the E-W contract curve arises from the most efficient way of solving the conflict within the coalition. Increasing severance pay is a more efficient way to transfer resources from entrepreneurs to workers than reducing private benefits, because it

enlists rentiers as contributors rather than wasting resources in their favor. An increase in expected severance pay (a lower  $f$ ) benefits workers more than it costs to entrepreneurs, because rentiers pay a portion  $\beta_R$  of the cost in the form of lower profits. Instead, a reduction in managerial diversion (a higher  $\lambda$ ) costs entrepreneurs more than it benefits workers, since a portion  $\beta_R$  of the benefit accrues to rentiers. The argument applies also to transfers from workers to entrepreneurs, with the opposite sign. In this case, it is more efficient to effect the transfer via lower  $\lambda$  (since rentiers pay a fraction  $\beta_R$  of the extra private benefits) than via higher  $f$  (where they would capture part of the implied increase in profits).

The three contract curves indicate how political outcomes differ depending on the winning coalition. If the E-W coalition wins, it will choose a degree of investor protection  $\lambda$  below that chosen by the W-R coalition and a degree of firing flexibility  $f$  below that chosen by the E-R coalition. In particular, in contrast with the other two coalitions' contract curves, the E-W contract curve does not include the point (1,1), which corresponds to maximal shareholder protection and firing flexibility, and is also the political outcome under disjoint voting.

### 4.3 Joint vote

Now the stage is set to solve for the political equilibrium under joint voting on  $\lambda$  and  $f$ . We assume a bargaining procedure where a joint vote can take place only once a majority coalition has set up a political agenda to be voted upon. Otherwise, parties vote disjointly on the two issues. This setting is intended to capture the idea that a multidimensional political platform can only be proposed by a coalition that survives a vote of confidence. As in Diermeier and Feddersen (1998), “the vote of confidence procedure creates an incentive for ruling coalitions to vote together on policy issues that might otherwise split them” (p. 611). This assumption can also be seen as a realistic way to overcome a limit of agenda-setting models, where the outcome is heavily affected by arbitrary assumptions about the distribution of agenda-setting power among parties.

We assume that the political process is divided in four stages:

S1. Coalition formation: any two parties form a coalition to submit a proposal  $(\lambda, f)$  that will be designed and submitted to a vote in stage S2. Each party can participate to at most one coalition. If no coalition is formed, stage S4 follows.

S2. Proposal by the coalition: the coalition designs its proposal and submits it to a vote. The coalition can submit only one proposal. If no proposal is submitted to vote, stage S4 follows.

S3. Vote on proposal: parties take a “yes-no” vote on the proposal by majority rule. If the proposal fails, stage S4 follows. If it is approved, the proposed  $(\lambda, f)$  is laid down as law.

S4. Disjoint voting: the parties vote on  $f$  and  $\lambda$  separately.

The stage S1 has a crucial role in preventing “cycling” in voting behavior and the attending indeterminacy in the voting equilibrium. Intuitively, requiring coalitions to be formed once and for all before proposals are finalized prevents the party outside the coalition from luring one of the parties away from the coalition by offering it a more attractive proposal. Opening this possibility would generate bargaining between the three parties that does not converge to an equilibrium, as illustrated in the Appendix.

Stage S4 defines the default outcome of the game if no proposal by a coalition is approved. This is a natural way to determine the outside options of the players. Since by Proposition 2 this default outcome is that preferred by the rentiers, their party has strong bargaining power in any coalition that would include them.

Notice that we make no assumptions as to the commitment value of a coalition. The following proposition holds irrespective of whether the parties belonging to a coalition are bound to vote for its proposal at stage S3.

**Proposition 3.** If bargaining is structured in stages S1-S4 described above, entrepreneurs and workers vote jointly for an outcome  $(\lambda, f)$  on their contract curve that yields a higher utility than  $(1,1)$  to both.

In Figure 3, the equilibrium outcome is a point on the solid line between points A, B and C. The specific pair  $(\lambda, f)$  chosen within this locus depends on the bargaining power of workers and entrepreneurs within their coalition, and on their respective equity stakes. If entrepreneurs dominate the E-W coalition, the vote will bring about an intermediate freedom to fire  $f$  and a minimal degree of shareholder protection  $\lambda$ , as in point A. If the bargaining power of the two parties is more balanced, they will agree on a lower freedom to fire workers, as in point B. If workers dominate the coalition, they will impose a higher degree of shareholder protection, and a point such as C will be chosen. Aside from bargaining power,

the lower is the equity stake of the workers, the more willing they are to give up investor protection. Similarly, the lower is the equity stake of entrepreneurs, the more willing they are to give up their freedom to fire workers. We prove these results by modeling the outcome of the bargaining between entrepreneurs and workers in designing the proposal as the Nash bargaining solution:

**Corollary.** Suppose that there is Nash bargaining between entrepreneurs and workers at stage S2 of the political subgame, and denote the entrepreneurs' and workers' bargaining power by  $\phi$  and  $1-\phi$  respectively. Then, the outcome of the political subgame is  $(\lambda^*, f^*)$ , where  $\lambda^* = \lambda(\beta_E, \beta_W, \phi)$  is increasing in  $\beta_W$  and decreasing in  $\phi$ , and  $f^* = f(\beta_E, \beta_W, \phi)$  is increasing in  $\beta_E$  and  $\phi$ . The relationships between  $\lambda^*$  and  $\beta_E$ , and between  $f^*$  and  $\beta_W$  are both non-monotone.

For brevity, we label the outcome predicted by Proposition 3 as “corporatist”. This is to be contrasted with the “non-corporatist” outcome that obtains under disjoint voting, where both shareholder protection and the freedom to fire workers are set at their maximal levels (Proposition 2). So, the hallmark of the corporatist outcome is that both policy parameters  $\lambda$  and  $f$  are set at lower levels than in a non-corporatist outcome. If a corporatist equilibrium prevails in some countries and a non-corporatist one in other countries, the model predicts that  $\lambda$  and  $f$  will be lower in the first group than in the second. Equivalently, investor and employment protection should be negatively correlated across countries.

Propositions 2 and 3 suggest that the structure of the political decision is crucial in determining the outcome. To lead to the corporatist outcome, the political process must allow for a joint vote on distinct political issues and favor the formation of coalitions between parties with different ideological positions. Therefore, relatively low values of  $\lambda$  and  $f$  should be observed in countries where the political process favors such compromises. In section 7 we shall see to what extent these predictions are consistent with data for OECD countries.

## 5. Political equilibrium with two-party competition

An alternative approach that does not depend on the structure of the political process can be derived from Mueller (1989). In the previous section, the agenda of each party is set by one interest group and cannot be tweaked to suit also other constituencies and attract their votes. In this section we explore how the model's results change if instead parties are free to

compete for votes, namely, set their agendas so as to capture the largest possible consensus. As usual in such analyses, we suppose that there are two such competing parties. Since each party has no pre-set platform, political competition is not ideological.

In one-dimensional voting problems, two-party competition is known to produce the median voter result. But in our setting voters' preferences are expressed on two dimensions. In multi-dimensional voting problems the median voter result does not generally hold, and cycling problems emerge. As explained by Mueller (1989), cycling emerges because the probability that a generic voter  $i$  votes for party  $j$  is a discontinuous function of  $i$ 's utility under  $j$ 's agenda:  $i$  votes for party  $j$  if and only if his utility under party  $j$  is higher than his utility under another party. Cycling no longer arises, instead, under probabilistic voting, that is, if the party is uncertain about the preferences of each voter or the size of the corresponding interest group. Then, from the perspective of party  $j$ , the probability of receiving a vote from voter  $i$  becomes a continuous function of the utility that the party's platform offers to that voter, relative to that of its opponent.

Following Mueller, we assume that the two parties are labeled 1 and 2, and that the probability that group  $i$  votes for party 1 is

$$\pi_{1i} = g(U_{1i} - U_{2i}), \quad (17)$$

where  $g(\cdot)$  is increasing, concave and differentiable, and  $\pi_{2i} = 1 - \pi_{1i}$ . Using the utility functions of the three groups as defined in equations (7) - (9), we can write the utility of each group if party 1 wins the elections as:

$$U_{1E} = \beta_E V_1 + D_1, \quad (18)$$

$$U_{1R} = \beta_R V_1, \quad (19)$$

$$U_{1W} = \beta_W V_1 + Ns_1, \quad (20)$$

where  $V_1$ ,  $D_1$  and  $s_1$  are, respectively, the value of the representative company, the amount of private benefits and the severance payment, if party 1 win the elections. The expressions for  $U_{2E}$ ,  $U_{2R}$  and  $U_{2W}$  are symmetrical. Each party chooses its platform  $(f_1, \lambda_1)$  to maximize the probability of being elected, which for party 1 is the vote-weighted average of the probabilities:

$$\Pi_1 = a_E \pi_{1E} + a_R \pi_{1R} + a_W \pi_{1W}, \quad (21)$$

where  $a_i$  is the fraction of group  $i$  in the population:  $a_E = \frac{E}{E+R+W}$ ,  $a_W = \frac{NE}{E+R+W}$ , and  $a_R = 1 - a_E - a_W$ . Recall that  $N \geq 1$ . Hence,  $a_W \geq a_E$ .

The probability (21) depends on  $\lambda$  and  $f$ . The level of shareholder protection  $\lambda$  affects  $\Pi$  in two ways: positively through its impact on the value of shares, and negatively via the entrepreneurs' loss of private benefits. Also the firing flexibility parameter  $f$  affects  $\Pi$  in two ways: positively through its impact on share value and negatively via the workers' loss of job security. In each case, the two effects are weighted by the size of the relevant constituencies.

The political equilibrium is found to be a boundary solution:

**Proposition 4.** With two-party competition, the equilibrium outcome of the political game is:

$$(\lambda^*, f^*) = \begin{cases} (1,1) & \text{if } \bar{\beta} > a_W \\ (1,0) & \text{if } a_W > \bar{\beta} > a_E \\ (0,0) & \text{if } \bar{\beta} < a_E \end{cases}$$

where  $\bar{\beta} = a_E \beta_E + a_R \beta_R + a_W \beta_W$ .

The cases in the top and bottom lines correspond to the “non-corporatist” and “corporatist” outcomes respectively derived in Propositions 2 and 3. In the current setting, the first occurs when society has a high vote-weighted stake in companies,  $\bar{\beta}$ . The second occurs when  $\bar{\beta}$  is lowest. For intermediate values of  $\bar{\beta}$  there is also a case in which high investor protection coexists with low freedom to fire workers (that is, high job security). This equilibrium was not present in the model of Section 4, under either disjoint or joint voting.

The analysis in this section establishes an interesting relationship between stock market participation and legal rules. Proposition 4 suggests that countries where many people invest in the stock market (high- $\bar{\beta}$  countries) tend to have high shareholder and low employee protection. This political outcome will prevail when the fraction of shares held by workers,  $\beta_W$ , is high: since normally workers are the most numerous group in the population, the larger their equity stake, the larger the vote-weighted stake of society in its companies,  $\bar{\beta}$ . In section 7 we will check if this prediction is consistent with the limited amount of cross-

country data available on the stock market participation of different social groups. An additional prediction of the model is that an increase in stock market participation should induce legal reform in the direction of higher investor and lower employee protection. We shall not test this prediction, for lack of time-series data.

As mentioned in Section 3.6, the model can produce multiple equilibria. For instance, assume that at  $t = -1$  investors expect  $\lambda = 1$  and entrepreneurs can set up large firms. With large firms, share ownership must be dispersed: from equation (16), we know that if the scale of investment is large, equity ownership is diffused ( $\beta_E$  is small). Therefore, society's equity stake,  $\bar{\beta}$ , is large<sup>9</sup> and the political vote will favor high investor protection, fulfilling the initial expectation (as we can see from Proposition 4, a sufficiently large  $\bar{\beta}$  implies  $\lambda = 1$ ). So  $\lambda = 1$  is an equilibrium. However, an equilibrium with  $\lambda = 0$  may also exist. If at  $t = -1$  the investors expect  $\lambda = 0$ , entrepreneurs are forced to set up small firms, ownership structure must be concentrated and therefore  $\bar{\beta}$  is small. Since a sufficiently small  $\bar{\beta}$  implies a political vote against investor protection (again, from Proposition 4), the initial expectation  $\lambda = 0$  is again fulfilled. Shareholder protection will be poor as initially expected.

Intuitively, the reason for this multiplicity is that  $\bar{\beta}$  not only affects the policy parameters  $\lambda$  and  $f$  via politics, but is also affected by their expected values via financial markets and the attendant choice of the initial scale of companies. When multiple equilibria exist, the model does not pin down how agents form them, and therefore which equilibrium is selected. However, a reasonable assumption may be that expectations are based on the past history of the economy. If our model economy were replicated over time, the equilibrium outcome realized at each date could provide the basis to form expectations for the future. In this way, the model is capable of producing path-dependence in the degree of shareholder protection, of the type informally described by Bebchuk and Roe (1999).

## 6. Extensions

In this section, we consider some extensions of the model. The first connects the restructuring of the company with a change in corporate control, and produces an additional testable

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<sup>9</sup> We assume that  $d\bar{\beta}/d\beta_E < 0$ , that is, the vote-weighted equity stake of society is lower when equity ownership is more concentrated. A sufficient, but not necessary, condition for this to hold is that  $a_E < a_R$  (recall that by construction  $a_W \geq a_E$ ).

implication about the relationship between political equilibrium and the mobility of control. The other extensions are instead aimed at testing the robustness of the main results to various changes in the structure of the model. In Section 6.2 we introduce debt financing, as opposed to all-equity financing. In Section 6.3 we discuss how changing the timing of private contracting and political voting would affect the results.

## 6.1 Mergers and acquisitions

So far we assumed that, when a technological innovation occurs, entrepreneurs are able to restructure their own companies. But existing entrepreneurs may be unable to do so, either because they are unable to keep up with technological progress or because implicit contracts with their workers prevent them from firing technically obsolete workers (as in Shleifer and Summers, 1988). In either case, restructuring requires a switch in corporate control.

To capture this point, suppose that a new generation of entrepreneurs, who enter the economy at  $t=1$ , is aware of the new technology and can observe workers' individual productivity. This differential ability provides an incentive to the reallocation of control from old to new entrepreneurs. A new owner can produce a surplus by restructuring the company and therefore can pay a premium price for the controlling stake of the old owner-manager.

The productivity gain due to restructuring is divided between shareholders and incumbent employees, since, as discussed in Section 3.3, employees must receive a severance payment,  $s$ . Let  $G$  denote the total gain generated by the restructuring. From the analysis in section 3.3, it is easy to see that  $G = (1-x)(\Delta - s)N$ . We assume that the probability of the change in control is increasing in  $S$ : a takeover happens with probability  $\pi = p(G)$ , where  $\pi$  lies between 0 and 1 and is increasing in the surplus ( $p(0) = 0$ ,  $\lim_{S \rightarrow \infty} p(G) = 1$  and  $p'(G) > 0$ ).

This leads immediately to:

**Proposition 5.** The frequency of changes of control is inversely related to the degree of employment protection, *ceteris paribus*.

The rest of the analysis is unchanged. Results similar to Propositions 1 to 4 obtain also in this case.



## 6.2 Debt

In our model firms are entirely equity-financed, so that the availability of external equity determines directly the size of the representative company. In practice, firms have the choice between issuing debt or equity. Of course, debt-holders are also exposed to the danger of being damaged by the opportunistic behavior of the entrepreneur, to an extent that depends, among other things, on the protection that the legal and judicial system affords to creditors.

Our model could accommodate the presence of debt but, owing to the stylized modeling of the agency problem, external debt and equity would not be intrinsically different contracts, except for the possibly different degree of legal protection afforded to creditors and shareholders. In their capital structure decision, companies would rely on the financial instrument that induces less agency problems in order to minimize their cost of capital. This in turn depends on the legal regime that is expected to prevail. For instance, if they expect creditors to be more protected than shareholders, firms would issue debt rather than external equity, and the predictions of the model will refer to the protection of debt holders rather than shareholders against expropriation by companies' owner-managers. The political vote would determine which financial instrument companies will use to fund their investments.

With a richer model of the agency problem between investors and managers, debt and equity contracts would pay in different states of nature, and therefore be intrinsically different contracts (apart from the degree of legal protection of their respective claims). If companies issue both financial instruments, a conflict of economic interest between creditors and shareholders may arise, which could affect the political outcome itself. Perotti and von Thadden (2000) explore this line of research, and show that creditors tend to side with employees rather than with shareholders.

## 6.3 Timing of voting

The timing of our model is such that legal rules are chosen after firms are created. The rationale for this assumption is that in reality the legal rules that complete private contracts can be changed after these contracts are signed, and we want to address the issue of how rules are indeed changed. The results of the model would be very different if these rules were chosen before the firms' setup *and* they could not be changed afterwards.

This may happen, for instance, if shareholder and employee protection were embedded in constitutional law and could not be changed via the normal legislative process. If such "lock-

in” were possible, the political equilibrium would be trivial. Shareholder protection  $\lambda$  would be set so high as to avoid the inefficiency arising from equity rationing ( $\lambda > \hat{\lambda}$ ), and  $f$  would be indeterminate, since the severance payments grabbed by workers ex post are returned to investors via ex-ante competition in the labor market. But in practice the degree of shareholder protection is set by ordinary laws, so such a “lock-in” does not appear realistic. A more realistic form of “lock-in” exists to the extent that entrepreneurs and financiers may “contract out” of their national legal system, for instance listing the company in a foreign exchange or incorporating it in a foreign jurisdiction featuring better shareholder protection, as pointed out by Coffee (1999) and Gilson (2000). This possibility opens the potential for convergence “by contract” to the standards of the jurisdiction with the highest shareholder protection standards.

A second important issue related to the timing of the model is whether companies go back to the capital market after they are started. We assume that firms need capital only at  $t = -1$ . This implies that at  $t = 0$  entrepreneurs desire low investor protection in order to maximize their private benefits of control. If entrepreneurs need considerable external financing at a later stage of the firm’s life, then their preferences at  $t = 0$  may be different. They may prefer higher investor protection to reduce their future cost of capital rather than lower investor protection to maximize their private benefits. Our assumption is reasonable if firms need more external financing at initial rather than at later stages of their life cycle.

## 7. Empirical evidence

The theoretical model has four main empirical implications. First, according to Propositions 2 and 3, countries should cluster in two groups: “corporatist” countries with low shareholder protection and high employment protection, and “non-corporatist” countries with the opposite pattern. In an international cross-section, therefore, one should observe a negative correlation between shareholder and employee protection.

Second, these propositions also predict that corporatist countries feature political systems conducive to coalitions that vote together on policy issues on which their members’ interests are imperfectly aligned. Accordingly, one should observe coalition governments to be prevalent in corporatist countries and rare in non-corporatist countries. Insofar as the vote of confidence procedure promotes cohesion in legislatures (Diermeier and Feddersen, 1998), this constitutional feature should be more frequent in corporatist countries.

Third, under two-party competition Proposition 4 predicts a positive relationship between the diffusion of equity ownership, especially among workers, and the degree of investor protection, and a negative relationship between the diffusion of equity ownership and the degree of employee protection. The same predictions derive from the model with ideological joint vote, as shown in the Corollary of Proposition 3.

Fourth, the frequency of change in corporate control should be negatively correlated with the degree of employment protection, according to Proposition 5.

### 7.1 Shareholder protection and employee protection

In Table 1 we report data on the degree of employment protection and investor protection for a sample of 21 industrialized countries. The measure of employment protection is drawn from the OECD (1999). In columns 1 and 2, the indicator is the average of the degree of employment protection for regular and temporary contracts, as of 1990 and 1998. The figures reported in column 3 weigh the indicators for regular and temporary contracts by their frequencies. These measures are empirical counterparts of the parameter  $1 - f$  in our model, the probability that employees cannot be fired. Column 4 reproduces the indicator of shareholder protection compiled by La Porta, Lopez-de-Silanes, Shleifer and Vishny (1998).

Figure 4 plots the indicator of employment protection from column 3 against the measure of the shareholder protection. The two variables are inversely correlated with a coefficient of correlation of -0.53, statistically significant at the 1- percent level. The OLS regression line, whose fitted values are shown in the figure, is:

$$\text{Shareholder Protection} = 4.73 - 0.81 \text{ Employee Protection}, \quad R^2 = 0.283$$

(0.54)      (0.26)

where robust standard errors are shown in parenthesis. The figure also shows that countries cluster in two distinct groups, as predicted by the model: countries of Continental Europe and Japan, which all feature the corporatist outcome to varying extents, and Anglo-Saxon countries, which feature the non-corporatist one.

Interestingly, historical evidence indicates that both in Japan and in some Continental European countries, the high degree of employee protection resulted from a political agreement struck in the immediate postwar period and reinforced by later legislation. This political agreement also tended to give employees a limited involvement in the direction of companies – the hallmark of a “corporatist” regime. In Japan, according to Gilson and Roe (1999), lifetime employment grew out of a post-World War II political deal aimed at reducing

labor influence and unrest and restore entrepreneurs' control over factories. This deal had far-reaching implications, including employee representation on firms' boards: "Lifetime employment for core workers is said to be at the center of Japanese corporate governance and labor relations, [...] and is said to be central enough to be supported by other Japanese governance institutions, such as cross-shareholdings, inside boards of directors, and the main bank system" (p. 509). Similarly, in various European countries, the postwar period witnessed both increases in employment protection and various experiments with employee participation in corporate governance. Hansmann and Kraakman (2000) tell that "the results of this experimentation are most conspicuous in Germany where, under legislation initially adopted for the coal and steel industry in 1951 and extended by stages to the rest of German industry between 1952 and 1976, employees are entitled to elect half of the members of the (upper-tier) board of directors in all large German firms. [...] A number of other European countries have experimented in more modest ways, giving employees some form of a mandatory minority representation on the boards of large corporations" (p. 5).

These different political outcomes are also reflected in international differences in the objectives of company managers, as documented by a survey of major corporations in the U.S., U.K., Germany, France and Japan (Allen and Gale, 2000). For the large majority of Japanese, German and France respondents, companies are to be managed in the interest of all stakeholders, whereas for most U.S. and British executives, companies should give top priority to shareholders' interests. Similarly, when asked whether they should give priority to dividend payments or to employment protection, most Japanese, French and German executives answered that employment should be kept stable, even at cost of reducing dividends. In the U.S. and U.K., the pattern of replies was the opposite.

## **7.2 Coalition governments and corporatist outcomes**

As explained above, our model predicts that the corporatist outcome should be associated with the frequency of coalition governments and the existence of a confidence vote procedure.

Using the World Bank Database of Political Institutions described by Beck, Clarke, Groff, Keefer, and Walsh, (1999), we define a variable equal to one for governments where at least two parties are present in the government<sup>10</sup> and compute the frequency of such governments

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<sup>10</sup> As indicated by the availability of a name for the second largest party in the government (variable 2GOVME in the database). The time interval over which the variable is computed starts in 1975 (with

in each country of our sample. The resulting figures are shown in column 1 of Table 2. Next, we construct a Confidence Vote dummy variable, that equals one in countries where the government must resign if it loses a confidence vote, and 0 otherwise.<sup>11</sup>

To see if these political indicators are positively correlated with a corporatist outcome as predicted by the model, we construct a Corporatist Country dummy variable, reported in column 3 of Panel A. This variable classifies the countries of our sample in the two clusters identified in Figure 4. Corporatist countries are those for which Weighted Employment Protection exceeds 1.5 and Shareholder Protection is not larger than 4, and non-corporatist countries are the complement of this set.

From Panel B of Table 2, a corporatist outcome appears indeed associated with coalition governments and with the presence of a confidence vote procedure (column 1). If countries with coalition governments are defined as those where coalitions rule for more than 50 percent of the time, 92 percent of the countries with coalition governments are corporatist, against 44 percent of the countries without coalition governments. Moreover, 87 percent of the countries where the government can be brought down by a vote of confidence have corporatist outcomes, against 33 percent for the group that has no such constitutional feature. In all three cases, the difference of the means is statistically significant at the 1-percent level.

In columns 2 and 3 of panel B we report the mean values of the shareholder and employee protection in these subsamples. In countries that normally do not have coalition governments (according to either definition) and that do not feature a confidence vote in their constitution, shareholders appear to receive greater protection and employees less security than elsewhere. In most cases, the difference is large and significant at the 1-percent level – the only exception being employee protection when the frequency of coalitions is used.

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the following exceptions due to data availability: Australia and Finland, 1976; Germany and Portugal, 1977; Spain, 1978) and ends in 1997.

<sup>11</sup> The only two dubious cases here are Canada and New Zealand, where in principle a minority government could be forced to resign upon losing a confidence vote. However, in both countries a minority government has been a historically rare occurrence, and moreover the issue is not clear-cut in constitutional law. In Canada, “even the question of what constitutes an issue of confidence is not entirely clear cut, as the prime minister is entitled to make this determination in situations that leave room for doubt.” (Kurian, p. 127). In New Zealand, there is no formal written constitution, but “for all practical purposes, once elected under the first-past-the-post electoral system, a majority party had virtually unlimited power for its three-year term, provided it acted within the basic limitations of manner and form prescribed for law making. Between 1928 and 1996 no government was defeated on a vote of confidence, and, even more remarkably, until recently governments have only rarely been defeated on any vote in the House” (Kurian, p. 496).

### 7.3 Share ownership diffusion, shareholder protection and employee protection

Internationally comparable and accurate data on share ownership are hard to come by. Table 3 reports statistics based on household-level data for Germany, Italy, Netherlands, the United Kingdom and the United States, drawn from Guiso, Haliassos and Jappelli (forthcoming). Panel A of the table shows that stock market participation is much higher in the United States, the United Kingdom and the Netherlands than in Germany and in Italy. This difference actually used to be higher in the 1980s than at the end of the 1990s. Although any inference is impossible due to the small size of the sample, these data appear broadly consistent with the prediction of our model that low stock market participation correlates with low shareholder protection and high employment protection. Germany and Italy are among the countries with the lowest shareholder protection and the highest level of job security.

Panel B displays the proportion of households that own stocks, either directly or indirectly, grouped by wealth quartiles. Here we are particularly interested in the stock market participation of the lowest wealth quartiles, which presumably are mainly formed by employees. While there is not much international variation in the participation of the lowest wealth quartile (except for a higher figure for Germany), the figures are quite different for the second quartile. In this quartile, a striking fraction of U.S. households – 38 percent – hold stocks, while in all four European countries (including the U.K.) the corresponding fraction ranges between 11 and 18 percent, with Italian households at the bottom of the range. At least for the extreme cases of the U.S. and Italy, therefore, the difference in stock market participation noted in the aggregate figures of Panel A reach well into the poorer – though not the poorest – strata of the population.

Stock market participation *per se* may not affect much voting behavior if one's fraction of wealth invested in stocks is very small. One may suspect this to apply to low-wealth households. But data on conditional asset shares (not reported) dispel this suspicion. Households that participate to the stock market invest in stocks roughly the same share of their gross financial wealth, irrespective of their wealth quartile, except for the richest quartile in the Netherlands and the U.S., who invest more. On average, participating households invest more than half of their financial wealth in stocks in the U.S., Netherlands and Italy, and over a fifth in Germany. It is reasonable to suppose that entrusting such a high proportion of their wealth to the stock market may affect the voting behavior of these households.

## 7.4 Mobility of control and employee protection

Recall that an implication of our model is that the mobility of corporate control should be higher in countries where employment protection is lower. We measure mobility of control by the number of Mergers and Acquisitions (M&A) normalized by the population (in millions), averaged over the years 1990-1997. Figure 5 plots this indicator of the M&A activity (reported in Table 4, Panel A) against the measure of employment protection from column 3 of Table 1. The correlation is clearly negative, as confirmed by the regression results in column 1 of Panel B.

A possible objection is that the relationship between M&A activity and employment protection may be spurious. We have seen in Figure 4 that shareholder and employment protection are negatively correlated: M&A activity may depend on shareholder protection and stock market development, rather than on the flexibility of labor market arrangements.<sup>12</sup> To check for such spurious correlation, the regression in column 2 of Panel B includes both shareholder protection and employment protection as regressors. The coefficient of employment protection continues to be negative and significant, while that of shareholder protection is no longer statistically different from zero. Accordingly, the explanatory power of the regression is not increased.<sup>13</sup> This supports the idea that it is really the degree of employment protection that affects the activity of the market for corporate control, in agreement with our model, as well as with Shleifer and Summers (1988).

## 8. Conclusion

This paper proposes a model of the political determinants of the degree of investor protection. The model suggests that, if the political system favors the formation of party coalitions, entrepreneurs and workers will strike a political agreement whereby workers trade low shareholder protection for high job security. This agreement enables both to preserve their rents. Low shareholder protection increases the entrepreneurs' private benefits of control, while high employee protection enables low-productivity workers to extract rents from restructuring companies in the form of severance pay. If instead the political system

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<sup>12</sup> This would be consistent with the evidence in La Porta et al. (1997) that the equity market is broader in countries with better shareholder legal protection.

<sup>13</sup> In regressions that are not reported, we use a different indicator of M&A activity, normalizing for GDP in million dollars instead of population, and the results are qualitatively unaffected.

does not favor the formation of coalitions, legislation will feature high shareholder protection and low employee protection.

The model also shows that the political outcome is sensitive to the degree of share ownership diffusion, especially among employed workers. The more diffused is share ownership, the higher the degree of shareholder protection that will be supported politically. This result is present irrespective of whether political parties coincide with social classes or instead design their platform to maximize the probability of winning the elections.

The predictions of the model are consistent with the evidence for OECD countries. It is then interesting to ask what the model predicts for the future evolution of the corporate governance systems, especially for countries in Continental Europe, that are characterized by low investor protection and high employment protection. As discussed, to the extent that expectations about future corporate governance are formed on the basis of the past, the model leads us to expect no change relative to the status quo. However, if the political systems of these countries change so as to prevent the formation of coalitions, expectations will change in the direction of a higher degree of investor protection. Insofar as the corporatist deal breaks down, this should be accompanied by a reduction in the degree of job security.

Expectations about the future legal regime may also be affected by exogenous increases in the diffusion of share ownership. These can muster political support for improved shareholder protection, in turn enhancing more widespread share ownership. Examples of such exogenous shocks are privatization programs (as argued by Biais and Perotti, 2000), the introduction of private pension funds, employee-stock ownership funds, or simply the spread of “equity culture”. Since to varying extents these factors are currently at work in most countries, they can contribute to explain the increasing attention that corporate governance issues are receiving all over the world, as well as the growing pressures to improve shareholder protection towards best-practice standards.



## References

- Allen, F., and D. Gale, 2000, *Comparing Financial Systems*, MIT Press, Cambridge, MA.
- Aumann, R., 1959, "Acceptable Point in General Cooperative n-Person Games," in *Contributions to the Theory of Games IV*, Princeton University Press.
- Bebchuk, L., 1998, "A Theory of the Choice between Concentrated and Dispersed Ownership of Corporate Shares and Votes," 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, 127-170.
- Beck, T., G. Clarke, A. Groff, P. Keefer, and P. Walsh, 1999, "New Tools and Tests in Comparative Political Economy: The Database of Political Institutions", Working Paper, The World Bank Development Research Group, July.
- Biais, B., and E. Perotti, 2000, "Machiavellian Privatization," Working Paper, forthcoming in the *American Economic Review*.
- Burkart, M., D. Gromb, and F. Panunzi, 1997, "Large Shareholders, Monitoring, and the Value of the Firm," *Quarterly Journal of Economics*, 112, 693-728.
- Chemla, G., 1998, "Hold-up, Industrial Relations and Takeover Threats," Working Paper, University of British Columbia.
- Coffee, J., 1999, "The Future as History: The Prospects for Global Convergence in Corporate Governance and Its Implications," *Northwestern University Law Review*, 93, 641-708.
- Diermeier, D., and T. Feddersen, 1998, "Cohesion in Legislatures and the Vote of Confidence Procedure," *American Political Science Review*, 92, 611-17.
- Gilson R. J., 2000, "Globalizing Corporate Governance: Convergence of Form or Function," Working Paper No. 192, Stanford Law School.
- Gilson R. J., and M. J. Roe (1999), "Lifetime Employment: Labor Peace and the Evolution of Japanese Corporate Governance," *Columbia Law Review*, 99, 508-540.
- Guiso, L., M. Haliassos and T. Jappelli (forthcoming), "Introduction" in *Household Portfolios*. Cambridge: MIT Press.
- Hansmann, H., and R. Kraakman, 2000, "The End of History for Corporate Law," Working Paper, NYU School of Law.
- Karolyi, G.A., 1998. "Why Do Companies List Shares Abroad? A Survey of the Evidence and its Managerial Implications," *Financial Markets, Institutions & Instruments* 7, New York University Salomon Center.

- Kurian, G. T., 1998, *World Encyclopaedia of Parliament and Legislatures*, Congressional Quarterly Inc., Washington, D.C.
- La Porta, R., F. Lopez-de-Silanes, A. Shleifer, and R. Vishny, 1997, "Legal Determinants of External Finance," *Journal of Finance*, 52, 1131-1150.
- 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, and A. Shleifer, 1999, "Corporate Ownership Around the World", *Journal of Finance*, 54, 471-517.
- La Porta, R., F. Lopez-de-Silanes, A. Shleifer, and R. Vishny, 2000, "Investor Protection and Corporate Governance," *Journal of Financial Economics*, 58, 3-27.
- Laver, M., and N. Schofield, 1998, *Multiparty Government - The Politics of Coalition in Europe*, Ann Arbor, The University of Michigan Press.
- Mayer, C., 1988, "New Issues in Corporate Finance," *European Economic Review*, 88, 1167-1188.
- OECD, 1999, *Perspectives de l'Emploi*. Paris.
- Pagano, M., O. Randl, A. A. Röell, and J. Zechner, 2001, "What Makes Stock Exchanges Succeed? Evidence from Cross-Listing Decisions," *European Economic Review*, 45, 770-782.
- Perotti, E., and E.-L. von Thadden, 2000, "The Political Economy of Bank- and Market Dominance," work in progress.
- Rajan, R., and L. Zingales, 1999, "Which Capitalism? Lessons from the East Asian Crisis," *Journal of Applied Corporate Finance*.
- Rajan, R., and L. Zingales, 2000, "The Politics of Financial Development," Working Paper, University of Chicago.
- Reese, William A., Jr. and Michael S. Weisbach, 1999. "Protection of Minority Shareholder Interests, Cross-listing in the United States, and Subsequent Equity Offerings," unpublished manuscript, University of Illinois.
- Roe, M., 1999, "Political Preconditions to Separating Ownership from Control: The Incompatibility of the American Public Firm with Social Democracy," Working Paper, Columbia Law School.
- Shleifer, A., and L. Summers, 1988, "Breach of Trust in Hostile Takeovers," in *Corporate Takeovers: Causes and Consequences*, edited by A. Auerbach, 33-56, University of Chicago Press.

## Appendix

**Proof of Lemma 1.** The revenues of the company are  $yN$  and  $(y + \Delta)N$  in the first and second production cycle respectively. Its labor cost is  $w_1N$  in the first production cycle. The labor cost in the second production cycle is  $\bar{w}_2N = [\gamma + s(f; w_2)]N$ , where  $s$  depends on the wage  $w_2$  set in the initial contract and on the companies' freedom to fire workers. To show this, consider two cases.

If  $w_2 = \gamma$ , a long-term employee costs  $x\gamma + s = x\gamma + (1-x)(1-f)\alpha\Delta$  in expected value. The first term is the probability  $x$  that the worker is retained due to his high productivity, multiplied by the wage. The second term,  $s$ , is the probability of voluntary resignation multiplied by the severance payment. Since a new worker is hired with probability  $1-x$  and receives a salary  $\gamma$ , the total labor cost in the second production cycle is  $(\gamma + s)N$ .

If  $w_2 > \gamma$ , all incumbent workers are replaced, either by firing or renegotiation, and the expected cost of a long-term employee is simply the expected severance payment, which in this case is the new expression  $s = (1-f)\alpha[(1-x)\Delta + (w_2 - \gamma)]$ . Since a new worker is hired with certainty, the total second-period labor cost is again  $(\gamma + s)N$ . ■

**Proof of Lemma 2.** From expressions (5) to (9) we obtain the following partial derivatives:

$$\frac{\partial U_E}{\partial \lambda} = (1 - \beta_E)D' < 0,$$

$$\frac{\partial U_E}{\partial f} = \beta_E \frac{\partial V(\lambda, f)}{\partial f} = -\beta_E N \frac{\partial s}{\partial f} > 0,$$

$$\frac{\partial U_R}{\partial \lambda} = \beta_R \frac{\partial V(\lambda, f)}{\partial \lambda} = -\beta_R D' > 0,$$

$$\frac{\partial U_R}{\partial f} = \beta_R \frac{\partial V(\lambda, f)}{\partial f} = -\beta_R N \frac{\partial s}{\partial f} > 0.$$

$$\frac{\partial U_W^T}{\partial \lambda} = \beta_W \frac{\partial V(\lambda, f)}{\partial \lambda} = -\beta_W D' > 0,$$

$$\frac{\partial U_W^T}{\partial f} = N \frac{\partial s}{\partial f} + \beta_W \frac{\partial V(\lambda, f)}{\partial f} = (1 - \beta_W)N \frac{\partial s}{\partial f} < 0. \quad \blacksquare$$

**Proof of Proposition 1.** To show that the entrepreneur prefers to build a large plant, consider that in this case his expected utility is:

$$U_E^H = \beta_E^H(V_H - D_H) + D_H = V_L(1+g) - K_L(1+g) + A_E + D_L(1+g),$$

which exceeds his expected utility with a small plant:

$$U_E^L = \beta_E^L(V_L - D_L) + D_L = V_L - K_L + A_E + D_L.$$

The entrepreneur is prevented from investing in a large plant if he is equity-constrained, that is, if  $\beta_E^H < 0$ . This case arises when  $\lambda$  is expected to be low, since that depresses the value of the company and therefore lowers  $\beta_E^H$ , from equation (6). Equity rationing occurs if  $\beta_E^H < 0$ . From (16), this is equivalent to  $D > D(\hat{\lambda}) = (2y + \Delta - 2\gamma)N_L - K_L + A_E / (1+g)$ . Proposition 1 follows because  $D(\lambda)$  is monotonically decreasing in  $\lambda$ . ■

**Proof of Proposition 2.** From Lemma 2,  $\lambda = 1$  is preferred by rentiers and workers, and  $f = 1$  is preferred by entrepreneurs and rentiers. If parties cannot vote jointly on  $f$  and  $\lambda$ , these values will obtain the majority of the votes. ■

**Proof of Lemma 3.** The shapes of the E-R and W-R contract curves are immediate, because the parties in each of the two coalitions have non-conflicting tastes in one of the two policy dimensions. Entrepreneurs and rentiers both like low employment protection (high  $f$ ). Both workers and rentiers like high shareholder protection (high  $\lambda$ ).

In contrast, in the coalition between entrepreneurs and workers (E-W) the two parties have opposite tastes on both parameters. Maximizing the utility of the  $N$  workers per firm for given utility of the entrepreneurs:

$$\max_{(\lambda, f)} U_W^T = N[w_1 + (1-x)(1-f)\alpha\Delta - \gamma] + \beta_W V \quad \text{s.t.} \quad \beta_E V + D \geq \bar{U}_E$$

yields corner solutions because the indifference curve of entrepreneurs is steeper than that of workers for all values of  $\lambda$  and  $f$ . The slopes of the entrepreneurs' and the workers' indifference curves are respectively

$$\left. \frac{df}{d\lambda} \right|_{\bar{U}_E} = - \frac{\frac{\partial U_E}{\partial \lambda}}{\frac{\partial U_E}{\partial f}} = - \frac{1 - \beta_E}{-\beta_E} \frac{D'}{N \frac{\partial s}{\partial f}} > 0,$$

$$\left. \frac{df}{d\lambda} \right|_{\bar{U}_W} = - \frac{\frac{\partial U_W^T}{\partial \lambda}}{\frac{\partial U_W^T}{\partial f}} = - \frac{-\beta_W}{1-\beta_W} \frac{D'}{N \frac{\partial s}{\partial f}} > 0.$$

The first expression exceeds the second one, because  $\beta_W + \beta_R < 1$  and therefore  $-(1-\beta_E)/\beta_E > -\beta_W/(1-\beta_W)$ . This implies that the contract curve of the E-W coalition coincides with the L-shaped line between points (0,1), (0,0) and (1,0) in Figure 2. ■

**Indeterminacy of equilibrium under joint voting.** Here we illustrate the effect of merging stages S1 and S2 in the model of section 4.3, so that the proposals of each possible coalition are defined when the coalition is formed. Then, each party can leave the bargaining table to listen to alternative offers for an indefinite number of times. Cooperative game theory suggests that under this assumption one can consider only “reasonable” equilibrium outcomes.

One definition of such an outcome is drawn from Aumann (1959): a “strong political outcome” is a set of rules  $(\lambda, f)$  that cannot be improved upon by any pair of parties. For instance, suppose that parties W and E have reached an agreement, denoted by  $A_{WE}$ . If R can offer to W an agreement  $A_{WR}$  yielding a greater utility to both of them, W will want to deviate and R will want to offer such alternative contract. In equilibrium both parties to the initial agreement, W and E, should be free from this temptation. This concept is strong because it assumes that the third party (the one excluded from the new agreement) cannot in turn make a new offer. In the previous example, when R offers the new agreement  $A_{WR}$  to W, it is assumed that E cannot make yet another offer to either R or W. If he could, the new agreement  $A_{WR}$  itself could be reneged. If so, the parties involved in  $A_{WR}$  would not believe that their deviation is successful. This would generate a cycle.

In our model, there is no equilibrium according to Aumann’s criterion. To prove this, we first show that no outcome other than (1,1) can be a strong political outcome and then that also the outcome (1,1) is not a strong political outcome.

Consider any outcome  $(\lambda, f) \neq (1,1)$ . Rentiers and entrepreneurs can both gain by a higher  $f$ . Rentiers and workers can both gain from a higher  $\lambda$ . Hence, the outcome  $(\lambda, f) \neq (1,1)$  cannot be a strong political outcome.

Now consider the outcome (1,1). It is the rentiers’ bliss point, so that they will not join any coalition yielding another outcome. Hence, only a coalition between entrepreneurs and workers can break the equilibrium. This will happen since the E-W contract curve does not include point (1,1), by Lemma 3.

**Proof of Proposition 3.** The structure of the game requires backward induction to solve for the equilibrium. We restrict our attention to equilibrium outcomes rather than equilibrium strategies. As a tie-breaking rule, we assume that parties randomize with strictly positive probabilities when indifferent between two actions.

At stage S4, the political outcome is (1,1), by Proposition 1.

At stage S3, rentiers vote against any proposal other than their bliss point (1,1), since this is the default outcome if joint voting fails. Entrepreneurs and workers will vote only for proposals that give them a greater utility than (1,1), that is, for any pair  $(\lambda, f)$  in the area P of Figure 3 between the two indifference curves passing through (1,1). Therefore only proposals within this area can be approved at this stage.

At stage S2, the coalition E-W proposes a pair  $(\lambda, f)$  located on the portion of their contract curve included between points A and C. (Points outside P will not be proposed since they have no chance of being approved in S3. Points that are not on the E-W contract curve are not proposed because they yield lower utility to the coalition.) Coalitions W-R, E-R and E-W-R will only be able to propose the pair (1,1), since this is the outside option of the rentiers if no proposal is agreed upon.

At stage S1, four coalitions may be formed: E-W, W-R, E-R and E-W-R. Any coalition that includes the rentiers will lead to the pair (1,1). The same outcome results if no coalition is formed. Hence, entrepreneurs and workers prefer to form the coalition E-W, since this leads a pair  $(\lambda, f)$  preferable to (1,1) for both of them.

In this proof, we have assumed that at S2 the parties agreeing to form a coalition do not commit to vote for its proposal at stage S3. Proposition 3 is valid even if this is not the case, since there is no dynamic inconsistency between the proposal design stage S2 and the voting stage S3. ■

**Proof of Corollary to Proposition 3.** With Nash bargaining the chosen proposal  $(\lambda^*, f^*)$  solves the following maximization problem:

$$\max_{\lambda, f} B = \phi \log(U_E - \bar{U}_E) + (1 - \phi) \log(U_W^T - \bar{U}_W^T) \quad (\text{A1})$$

where  $\bar{U}_E$  and  $\bar{U}_W^T$  are the utility levels of entrepreneurs and workers at the threat point, that is, their utility if  $(\lambda, f) = (1,1)$  (recall that this is the outcome if the two parties reach no agreement). After substituting for  $U_E$  and  $U_W^T$  from (7) and (9), the first derivatives of (A1) with respect to  $\lambda$  and  $f$  are:

$$\frac{\partial B}{\partial \lambda} = \left[ \frac{\phi}{U_E - \bar{U}_E} (1 - \beta_E) - \beta_W \frac{1 - \phi}{U_W^T - \bar{U}_W^T} \right] D'(\lambda) \quad (\text{A2})$$

$$\frac{\partial B}{\partial f} = \left[ -\frac{\phi}{U_E - \bar{U}_E} \beta_E + (1 - \beta_W) \frac{1 - \phi}{U_W^T - \bar{U}_W^T} \right] Ns'(f) \quad (\text{A3})$$

It is easy to show that the solution is at the boundary, with either  $\lambda$  or  $f$  equal to 0. If  $\partial B / \partial \lambda = 0$ , then  $\partial B / \partial f < 0$ , since  $\beta_E + \beta_W < 1$ . In this case, the solution is  $f = 0$  and  $\lambda = \hat{\lambda}$  such that  $\partial B / \partial \lambda = 0$ . Alternatively, if  $\partial B / \partial f = 0$ , then  $\partial B / \partial \lambda < 0$ . In this case,  $\lambda = 0$  and  $f = \hat{f}$  such that  $\partial B / \partial f = 0$ . Graphically, the Nash bargaining solution lies along the interval of the L-shaped line in Figure 3 included between points A and C. The values of  $\lambda$  and  $f$  corresponding to these two points make the two players indifferent between the bargaining solution and the threat point. Hence, both  $\lambda$  and  $f$  have a lower and an upper bound: they must be both non-negative,  $\lambda$  cannot exceed the level corresponding to point C in Figure 3, and  $f$  the level corresponding to point A.

Expression (A2) is strictly decreasing in  $\lambda$  in a neighborhood of  $\hat{\lambda}$ , and expression (A3) is strictly decreasing in  $f$  in a neighborhood of  $\hat{f}$ :

$$\begin{aligned} \left. \frac{\partial^2 B}{\partial \lambda^2} \right|_{\lambda=\hat{\lambda}} &= -\frac{\phi(1-\beta_E)^2 (D')^2}{(U_E - \bar{U}_E)^2} - \frac{(1-\phi)(\beta_W)^2 (D')^2}{(U_W^T - \bar{U}_W^T)^2} < 0, \\ \left. \frac{\partial^2 B}{\partial f^2} \right|_{f=\hat{f}} &= -\frac{\phi(\beta_E)^2 N^2 (s')^2}{(U_E - \bar{U}_E)^2} - \frac{(1-\phi)(1-\beta_W)^2 N^2 (s')^2}{(U_W^T - \bar{U}_W^T)^2} < 0. \end{aligned}$$

Hence, the implicit function theorem can be used to determine the relationship between  $\hat{\lambda}$  (and  $\hat{f}$ ) and the parameters  $\beta_E$ ,  $\beta_W$ , and  $\phi$ .

Expression (A2) is decreasing in  $\phi$  and increasing in  $\beta_W$ :

$$\begin{aligned} \left. \frac{\partial^2 B}{\partial \lambda \partial \phi} \right|_{\lambda=\hat{\lambda}} &= \left( \frac{1 - \beta_E}{U_E - \bar{U}_E} + \frac{\beta_W}{U_W^T - \bar{U}_W^T} \right) D' < 0, \\ \left. \frac{\partial^2 B}{\partial \lambda \partial \beta_W} \right|_{\lambda=\hat{\lambda}} &= -\frac{(1-\phi)D'}{U_W^T - \bar{U}_W^T} + \frac{(1-\phi)\beta_W D'(V - \bar{V})}{U_W^T - \bar{U}_W^T} < 0, \end{aligned}$$

since  $V < \bar{V}$ , where  $\bar{V}$  is the value of the firm at the threat point. Hence, by the implicit function theorem,  $\hat{\lambda}$  too decreases with  $\phi$  and increases with  $\beta_W$ .

Instead, the derivative of (A2) with respect to  $\beta_E$  is non-monotonic:

$$\left. \frac{\partial^2 B}{\partial \lambda \partial \beta_E} \right|_{\lambda=\hat{\lambda}} = -\frac{\phi D'}{U_E - \bar{U}_E} - \frac{\phi(1-\beta_E)D'(V-\bar{V})}{(U_E - \bar{U}_E)^2},$$

the first term being positive and the second negative, since  $V < \bar{V}$ . A higher  $\beta_E$  has two opposite effects on the marginal value of  $\lambda$ , via  $U_E$  and  $\bar{U}_E$  respectively.

Symmetrically, expression (A3) increases with  $\phi$  and  $\beta_E$ :

$$\left. \frac{\partial^2 B}{\partial \lambda \partial \phi} \right|_{f=\hat{f}} = \left( \frac{1-\beta_E}{U_E - \bar{U}_E} + \frac{\beta_W}{U_W^T - \bar{U}_W^T} \right) D' < 0,$$

$$\left. \frac{\partial^2 B}{\partial \lambda \partial \beta_W} \right|_{f=\hat{f}} = -\frac{(1-\phi)D'}{U_W^T - \bar{U}_W^T} + \frac{(1-\phi)\beta_W D'(V-\bar{V})}{U_W^T - \bar{U}_W^T} < 0.$$

Hence, by the implicit function theorem,  $\hat{f}$  increases with  $\phi$  and increases with  $\beta_E$ .

Instead, the derivative of (A3) with respect to  $\beta_W$  is non-monotonic:

$$\left. \frac{\partial^2 B}{\partial \lambda \partial \beta_W} \right|_{f=\hat{f}} = -\frac{(1-\phi)Ns'}{U_W^T - \bar{U}_W^T} - \frac{(1-\phi)(1-\beta_W)Ns'(V-\bar{V})}{(U_W^T - \bar{U}_W^T)^2},$$

the first term being positive and the second negative. A higher  $\beta_W$  has two opposite effects on the marginal value of  $\lambda$ , via  $U_W^T$  and  $\bar{U}_W^T$  respectively. ■

**Proof of Proposition 4.** To solve this maximization problem, we write the derivative of  $\Pi_1$  with respect to the two policy variables ( $f_1, \lambda_1$ ). Since in equilibrium the two parties choose the same values for these two variables, we forgo the subscripts 1 and 2. By the same token, in equilibrium the two parties will offer the same utility to each group, and therefore  $g'(U_{1i} - U_{2i}) = g'(0)$  for all  $i$ . The effect of  $f$  on the probability of winning the elections is

$$\frac{\partial \Pi}{\partial f} = \frac{\partial \Pi}{\partial V} \left( -N \frac{\partial s}{\partial f} \right) + a_w g'(0) \left( N \frac{\partial s}{\partial f} \right), \quad (\text{A4})$$

Similarly, the effect of an increase in  $\lambda$  is

$$\frac{\partial \Pi}{\partial \lambda} = \frac{\partial \Pi}{\partial V} (-D') + a_E g'(0) D'. \quad (\text{A5})$$

An increase in  $V$  raises the probability of winning the elections by



$$\frac{\partial \Pi}{\partial V} = g'(0)(a_E \beta_E + a_R \beta_R + a_W \beta_W) = g'(0) \bar{\beta}, \quad (\text{A6})$$

A \$1 increase in the company's value translates into  $\bar{\beta}$  vote-weighted dollars, and the  $g'(0)$  function translates these vote-weighted dollars into probability units. Substituting from (A6) into (A4) and (A5), we obtain:

$$\frac{\partial \Pi}{\partial f} = g'(0) \left( -N \frac{\partial s}{\partial f} \right) (\bar{\beta} - a_W),$$

$$\frac{\partial \Pi}{\partial \lambda} = g'(0) (-D') (\bar{\beta} - a_E).$$

These two expressions are generally different from zero, except for a set of parameters of measure zero. So the optimal values of  $\lambda$  and  $f$  are corner solutions (either 0 or 1). ■

**Proof of Proposition 5.** Recall that the probability of a change in control  $\pi$  is increasing in  $G$ . Since  $G = (1-x)(\Delta-s)N$  and  $s$  is decreasing in  $f$  because of (4), the probability  $\pi$  is increasing in  $f$ , the fraction of workers that can be fired, for given  $N$  and  $\Delta$ . ■

**Table 1. Employee and Shareholder Protection**

Employment Protection is the average of indicators on regular contracts (procedural inconveniences, notice and severance pay for no-fault individual dismissals, difficulty of dismissal) and short term contract (fixed-term and temporary). Weighted Employment Protection is the weighted average of indicators on regular contracts, short-term contract and collective dismissals. Values increase with the strictness of protection. Source: OECD, 1999. Shareholder Protection is the antidirector rights indicator in Table 2 of La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998). It is the sum of six dummy variables, indicating if proxy by mail is allowed, shares are not blocked before a shareholder meeting, cumulative voting for directors is allowed, oppressed minorities are protected, the percentage of share capital required to call an extraordinary shareholder meeting is less than 10 percent, and existing shareholders have preemptive rights at new equity offerings.

Country	Employment Protection, 1990	Employment Protection, 1998	Weighted Employment Protection, 1998	Shareholder Protection
	(1)	(2)	(3)	(4)
Australia	0.90	0.90	1.20	4
Austria	2.20	2.20	2.30	2
Belgium	3.10	2.10	2.50	0
Canada	0.60	0.60	1.10	5
Denmark	2.10	1.20	1.50	2
Finland	2.30	2.00	2.10	3
France	2.70	3.00	2.80	3
Germany	3.20	2.50	2.60	1
Greece	3.60	3.60	3.50	2
Ireland	0.90	0.90	1.10	4
Italy	4.10	3.30	3.40	1
Japan	n.a.	2.40	2.30	4
Netherlands	2.70	2.10	2.20	2
New Zealand	n.a.	1.00	0.90	4
Norway	3.00	2.60	2.60	4
Portugal	4.10	3.70	3.70	3
Spain	3.70	3.10	3.10	4
Sweden	3.50	2.20	2.60	3
Switzerland	1.00	1.00	1.50	2
United Kingdom	0.50	0.50	0.90	5
United States	0.20	0.20	0.70	5

**Table 2. Coalition Government and Corporatism****Panel A. Data**

Coalition Government is the fraction of years in which a given country had coalition governments in the period from 1975 (with the following exceptions due to data availability: Australia and Finland, 1976; Germany and Portugal, 1977; Spain, 1978) to 1997. Source: World Bank Database of Political Institutions (version 2.0) described by Beck, Clarke, Groff, Keefer, and Walsh (1999). Confidence Vote is a dummy variable that takes value 1 in countries where the government must resign if it loses a confidence vote, and 0 otherwise. For Canada and New Zealand, it is set equal to 0 because their government could be forced to resign upon losing a confidence vote only if it is a minority government, a historically rare occurrence in both countries. Source: Laver and Schofield (1998), Table 4.1, p. 64, for European countries; and Kurian (1998), for non-European countries. Corporatist Country equals 1 if Employment Protection is not smaller than 1.5 and Shareholder Protection is not larger than 4, and 0 if Employment Protection is larger than 1.5 and Shareholder Protection is not smaller than 4. Employment Protection and Shareholder Protection are the variables in columns 3 and 4 of Table 1.

Country	Coalition Government (1)	Confidence Vote (2)	Corporatist Country (3)
Australia	0.41	1	0
Austria	0.61	1	1
Belgium	1	1	1
Canada	0	0	0
Denmark	0.74	1	1
Finland	1	0	1
France	1	1	1
Germany	1	1	1
Greece	0.13	1	1
Ireland	0.74	1	0
Italy	0.74	1	1
Japan	0.26	1	1
Netherlands	1	1	1
New Zealand	0.13	0	0
Norway	0.83	1	1
Portugal	0.14	1	1
Spain	0.05	1	1
Sweden	0.70	1	1
Switzerland	1	0	1
United Kingdom	0.04	0	0
United States	0	0	0

Table 2 continues overleaf.

**Table 2 (continued)****Panel B. Differences of means**

Means for the corresponding groups of observations, and t-statistics for the difference of means are reported by rows.

Variable	Group	Corporatist Country (1)	Shareholder Protection (2)	Employment Protection (3)	Number of Observations
Coalition Government	Above 50%	0.92	2.25	2.27	12
	Below 50%	0.44	4.00	1.93	9
	T-test ( <i>p</i> -value)	-2.63 (0.02)	3.51 (0.00)	-0.81 (0.42)	
Confidence Vote	Yes	0.87	2.60	2.50	15
	No	0.33	4.00	1.20	6
	T-test ( <i>p</i> -value)	-2.75 (0.01)	2.25 (0.03)	-3.71 (0.00)	

**Table 3. Stock Market Participation**

Panels A and B report the proportion of households with direct or indirect stockholdings, over time and by wealth quartiles respectively. The figures in panels B refer to 1995 for Germany and to 1998 for other countries. Data are drawn from Guiso, Haliassos and Jappelli (forthcoming), Tables 3, 4 and 7.

**Panel A. Proportion of Households, Selected Years**

Country	1989	1995	1998
Germany	12.4	15.6	n.a.
Italy	10.5	14.0	18.7
Netherlands	n.a.	29.4	35.1
United Kingdom	n.a.	n.a.	31.4
United States	31.6	40.4	48.9

**Panel B. Proportion of Households, by Wealth Quartiles**

Country	Quartile 1	Quartile 2	Quartile 3	Quartile 4	Average
Germany	6.6	17.6	22.1	29.3	18.9
Italy	3.4	10.8	19.6	38.9	18.9
Netherlands	4.4	16.9	36.8	75.9	35.5
United Kingdom	4.9	11.9	37.8	71.1	31.5
United States	4.4	38.3	66.0	86.7	48.9

**Table 4. Mergers and Acquisitions**

M&A Activity is the ratio of the number of deals from *The Merger Yearbook*, Securities Data, and population (in millions) from *International Financial Statistics*, IMF, averaged over 1990-97. Weighted Employment Protection is repeated from Table 1, column 3. The regressions in Panel B are estimated with OLS on 21 observations. T-statistics are shown in parenthesis.

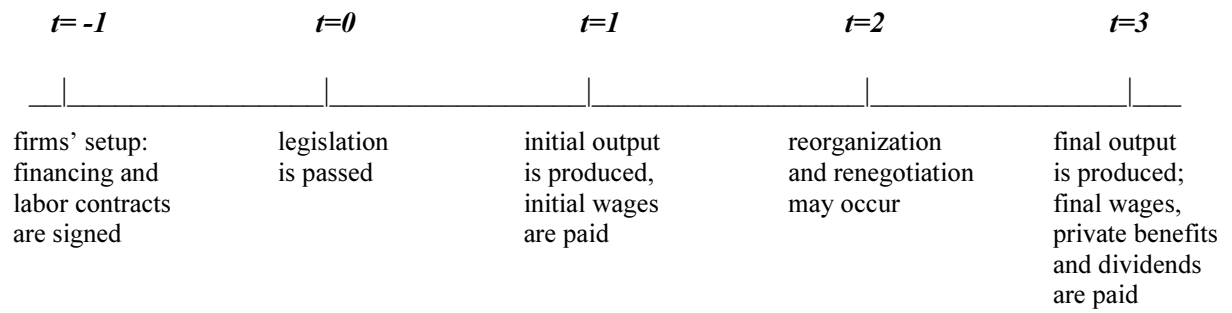
**Panel A. Data**

Country	M&A Activity	Weighted Employment Protection
Australia	23.87	1.20
Austria	7.46	2.30
Belgium	8.89	2.50
Canada	23.99	1.10
Denmark	16.78	1.50
Finland	25.39	2.10
France	10.11	2.80
Germany	9.03	2.60
Greece	2.06	3.50
Ireland	17.75	1.10
Italy	4.08	3.40
Japan	0.48	2.30
Netherlands	17.78	2.20
New Zealand	29.65	0.90
Norway	24.71	2.60
Portugal	4.13	3.70
Spain	4.13	3.10
Sweden	22.93	2.60
Switzerland	18.82	1.50
United Kingdom	32.52	0.90
United States	23.73	0.70

**Panel B. Regression Analysis**

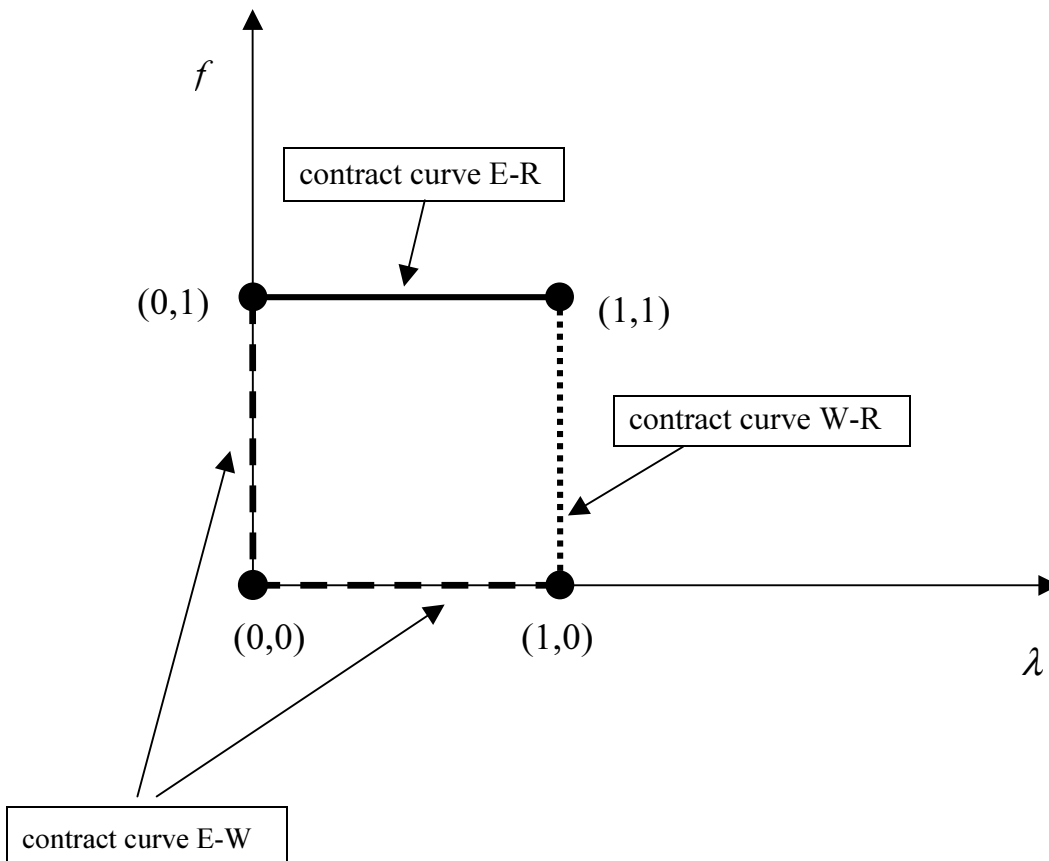
	(1)	(2)
Constant	32.9 (9.07)	27.7 (3.29)
Employment Protection	-8.15 (-5.18)	-6.93 (-2.92)
Shareholder Protection		1.11 (0.69)
$\bar{R}^2$	0.563	0.551

**Figure 1. Time line**



**Figure 2. Contract curves**

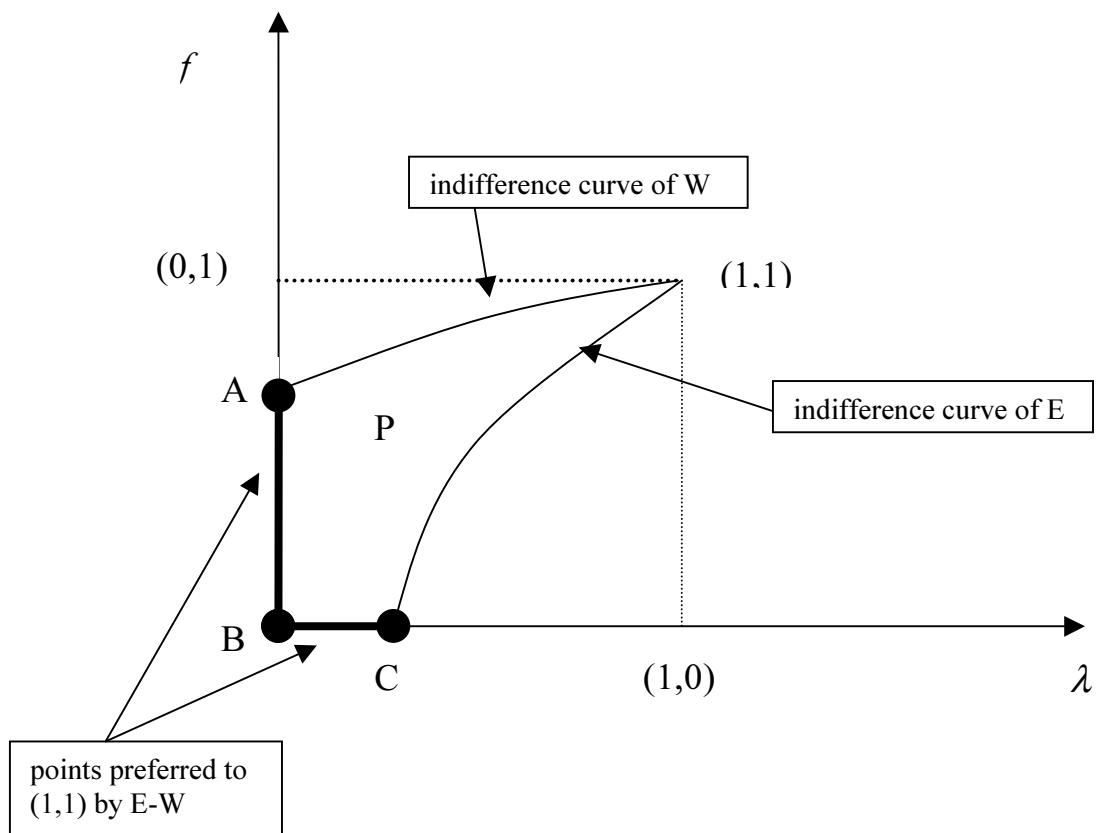
On the vertical axis, the figure shows the degree to which companies may legally fire workers ( $f$ ). On the horizontal axis, it measures the degree of shareholder protection ( $\lambda$ ). The lines in the figure illustrate the contract curve of the coalition of entrepreneurs and rentiers (E-R), that of workers and rentiers (W-R), and that of entrepreneurs and workers (E-W).





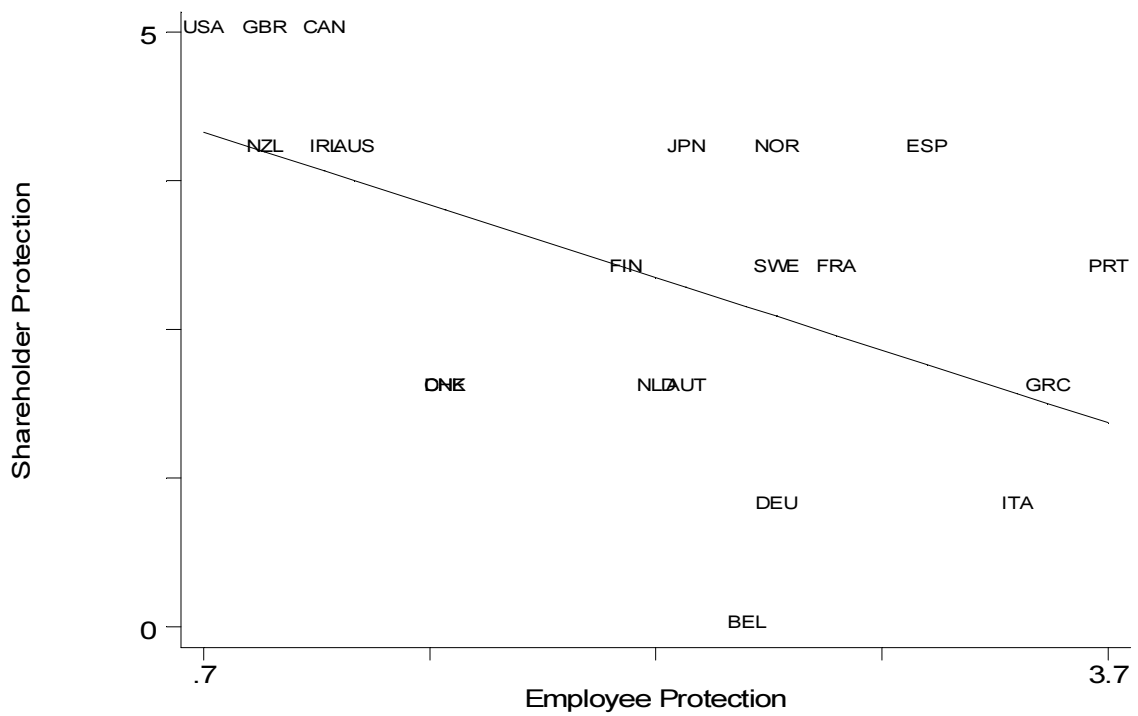
**Figure 3. Points chosen by the coalition of entrepreneurs and workers**

The figure shows the indifference curves of workers (W) and entrepreneurs (E) passing through point (1,1), which is the outcome preferred by rentiers. All the points between these two curves are combinations of the freedom to fire workers ( $f$ ) and the shareholder protection ( $\lambda$ ) that entrepreneurs and workers prefer to the outcome (1,1). The L-shaped locus ABC is the portion of their contract curve lying between these two indifference curves, and represent the most preferred points for the coalition of entrepreneurs and workers.



**Figure 4. Employee and Shareholder Protection**

Employment Protection is the weighted average of indicators on regular contracts (procedural inconveniences, notice and severance pay for no-fault individual dismissals, difficulty of dismissal), short term contract (fixed-term and temporary), and collective dismissals. Values increase with the strictness of protection. Source: OECD, 1999. Shareholder Rights is the antidirector rights indicator from Table 2 of La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998).



**Figure 5. Mergers and Acquisitions**

Employment Protection is the weighted average of indicators on regular contracts (procedural inconveniences, notice and severance pay for no-fault individual dismissals, difficulty of dismissal), short term contract (fixed-term and temporary), and collective dismissals. Values increase with the strictness of protection. Source: OECD, 1999. M&A Activity is the ratio of the number of deals and population (in millions), averaged over 1990-97. Sources: *The Merger Yearbook*, Securities Data, and *International Financial Statistics*, IMF, various issues.

