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The Political Economy of Dominant Investors

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The Political Economy of Dominant Investors*

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Abstract

We allow the preference of a political majority to determine both the corporate governance structure and the division of profits between human and financial capital. In a democratic society where financial wealth is concentrated, a political majority may prefer to restrain governance by dispersed equity investors even if this reduces profits. The reason is that labor claims are exposed to undiversifiable risk, so voters with small financial stakes may prefer lender (or large shareholder) dominance, as they choose lower risk strategies. The model may explain the "great reversal" phenomenon in the first half of the 20th century (Rajan and Zingales, 2003), when some financially very developed countries moved towards bank or state control as a financially weakened middle class became concerned about income risk. We offer evidence using post WW1 inflationary shocks as the source of identifying exogenous variation.

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1 Introduction

A long running normative question in corporate governance concerns the relative merits of intermediated versus market influence over corporate decision making. In the popular debate, banks are accused of being conservative and opaque, while markets are seen as exerting excessive pressure on managerial decisions and being ruthless to stakeholders.

This paper is concerned with the positive question of how different governance systems come to exist. In recent years, a new empirical literature has interpreted the differences in governance across countries in terms of their legal origin (LaPorta, Lopez-de-Silanes, Shleifer and Vishny, 1997, 1998). Yet, as Rajan and Zingales (2003a) have shown, the relative importance of capital markets and intermediaries has evolved over time. While in 1913 financial systems were relatively similar across developed countries, in subsequent decades many European countries moved to suppress equity market governance and shifted towards bank, family or state control, while others encouraged further market development, by improving regulation and strengthening control rights of dispersed equityholders.

Such large reversals in governance structure have been linked to major political shifts (Roe, 1994). In this paper we model legislative choices affecting governance as political decisions, and offer predictions on how external shocks may induce major institutional changes in the financial and labor market. In the tradition of classical political economy, we take a broad approach, in which politics influences the return to both human and financial capital. In particular, corporate governance affects voters because it affects corporate decisions, which have distributional effects. We accordingly predict a clustering of governance and labor laws, and analyze their implications for corporate behavior.

The starting insight for our analysis is that most risks associated with firm-specific human capital cannot be diversified, in contrast to most financial risks, for which markets are well suited.[1] This market incompleteness gives voters an incentive to influence politically not just stakeholder claims, but also their riskiness. Because a comprehensive economy-wide redistribution of income is unfeasible or very costly in terms of efficiency, controlling labor income risk requires some influence on decentralized corporate strategies.[2]

[1] For comprehensive discussions of risk-sharing mechanisms with missing markets, see Shiller (1993) and Allen and Gale (2000).

[2] At the corporate level, Aoki (1988) argues that in a consensual corporate governance

Voters cannot influence corporate choices directly (outside the state-owned sector), but they may delegate control rights to those parties in the financial system whose interests are best aligned with their own. In our basic model, we focus on the two most important investor groups in corporate governance, equityholders and banks.

We show that the corporate strategy choice affects individual utility differentially depending on the composition of their individual wealth. Equity control naturally chooses higher risk, higher return investments, and therefore represents best the interests of agents for whom returns to financial capital are more important than those to human capital. On the other hand, banks hold claims which are concave in profitability, and therefore are natural allies of stakeholders who want to limit corporate risk-taking.

Yet this argument is incomplete, as preferences depend on the size and form of the returns to human capital. We therefore endogenize the political determination of the return to human capital, which we term labor rents as they include various types of compensation above marginal productivity pay.[3] While voters could choose to limit labor claims, and allow financial markets to diversify corporate risk, voters with a limited financial stake will not find this in their interest. Hence we predict a tendency of poorer individuals to vote for high labor rents and bank control, and of richer individuals to vote for low labor rents and equity control.

We show that in a democratic voting process, when financial wealth is concentrated among richer voters, a political majority has more at stake in the form of firm-specific human capital, and therefore supports dominance by banks. If instead the median voter has a sufficient financial stake, she supports equity dominance, which results in riskier investment strategies (and possibly higher innovation), at the cost of greater individual risk-bearing.

The model has a number of empirical implications for the clustering of market development, governance and labor legislation. Perhaps the most interesting application, however, concerns its implications for the dynamics of legislation. As shareholdings by the median voters increase, for instance because of the economic success of the middle class or the emergence of capital-

structure, labor risk may be reduced by deliberate actions such as corporate diversification. This may reduce the required compensation for employees investing in firm specific human capital (Hermalin and Katz, 2000).

[3] Our approach here is related to the work by Saint-Paul (2002) who studies the relationship between firm-specific human capital, labor rents, and employment protection in a growth model with political decision making.

ized pension systems, political support should move towards favoring equity markets with riskier corporate strategies and weaker labor laws. Conversely, we argue that an exogenous shock that reduced the stake of the median class in financial returns may explain the "great reversal" phenomenon around the Great Depression (Rajan and Zingales, 2003a).

We first illustrate a large difference across countries in terms of their inflationary experience following the First World War, after a long period of price stability. The set of countries that maintained low inflation coincides with those described today as "outsider systems" or "market oriented" (e.g. according to the classification given by LaPorta et al., 1998). In contrast, a second set of countries experienced a sudden spurt of inflation, as the price level rose at least four to five times over less than ten years; Austria and Germany suffered dramatic hyperinflations. In these countries, the financial holdings of the middle class were devastated. This group of countries coincides with those which moved subsequently to suppress market governance and towards bank, family or state control, in particular in response to the greater uncertainty associated with free markets during the Great Depression. To the extend that these shocks may be seen as exogenous identifying variation, this evidence is highly suggestive.

Our approach is consistent with the modern theory of ownership, where private control rights are residual to contractual and legal obligations (Hart, 1995), which thus shape the contents of control and stakeholder rights. Examples of legislative influence on the governance of private firms are legislation on the supervisory board, bankruptcy rules, the creation of legal liability for intervening creditors, the right of banks to vote shares held in trust, or restrictions on the ability of large shareholders to act in concert.[4]

A political economy approach to the determination of labor rents as a political decision is different from the conventional view that workers bargain over their compensation with firms. In practice firms do negotiate with workers, but there are major components of this bargaining process which depend on legislation (such as pension plans, minimum wage and employee benefits, statutory working conditions, labor union laws, or mandatory centralized wage bargaining). These features, very important in practice, determine the degree of "corporatism" in the economy, a major difference between

[4] Additionally, influence arises from financial regulation (for the U.S. case, see Kroszner and Strahan (2000)), from trade and labor regulations, and from politically-determined choices on the degree of regulatory enforcement (Perotti-Volpin, 2004).

Europe and the US.[5] Similarly, in practice firms choose their own financing and governance structure. Yet these choices are influenced by the regulatory framework. For instance, even if firms seek to avoid bank borrowing to retain equity control, legislaton may grant such market power to banks so as to force firms to negotiate with them to access investment financing. We discuss various such mechanisms in Section 4.4 below.

The formal literature on the political determinants of financial structure is still fairly novel.[6] Pagano and Volpin (2000) show how poor minority investor protection may be the result of 'corporatist' alliance between stakeholders and large investors, who seek to protecting their labor and control rents against minority investors. Bolton and Rosenthal (2002) analyze the incentives of interest groups to alter financial contracts through debt moratoria or write-offs. Perotti and Volpin (2004) model the political lobbying by established firms to retard financial developent, in order to limit entry. Biais and Perotti (2002) propose a political theory of privatization policy, arguing that the diffusion of financial shareholdings may be designed to ensure re-election.

The remainder of this paper is organized as follows. Section 2 presents the basic model, which is then studied in Section 3. Section 4 surveys some of the empirical evidence available to evaluate our theory. Section 5 offers extensions that endogenize the form of labor rents assumed in the base model, discuss taxation and social insurance, study labor co-determination, and family ownership. Section 6 concludes. A discussion of the Median-Voter Theorem in our context and a longer proof are in an appendix.

2 The Basic Model

In our base model, we assume that there is a continuum of individuals and firms, both indexed by $i \in [0, 1]$. Each individual i is endowed with an equal amount of human capital and works in firm i. (for ease of exposition we assume that each firm employs just one employee). The individual's human capital is invested in skills specific to the firm. Its return is a function of the individual firm return R_i and is denoted by $h(R_i)$. Hence, the residual return of a firm i, net of returns to human capital, is $R_i - h(R_i)$. The value $h(R_i)$

[5] Such structures may be inefficient as unemployment may arise if labor costs are set too high by law. Yet this need not affect the median voter, if she is a "labor insider".

[6] See Pagano and Volpin (2001) for an early survey.

represents all returns from firm-specific human capital, and its functional form is influenced by politics. Thus we neglect the role of wages as factor pay, and interpret h broadly as pay above marginal productivity, rents from seniority and promotion arrangements, economy-wide pension arrangements, the quality of working conditions, firing restrictions, etc., and call it labor rents for simplicity.

Total financial returns in the economy are given by $F = \int_i R_i - h(R_i)di$. Next to his human capital, each individual is endowed with a claim F_i on the financial wealth in the economy. The agents in the economy maximize the expected utility of total individual wealth $W_i = F_i + h(R_i)$. Utility functions are identical across agents and given by

$$U = E(W_i) - \frac{1}{2}A\text{var}(W_i) \tag{1}$$

where A is a measure of risk aversion.[7]

Individual firm profitability is uncertain and also depends on the firm's choice of strategy. The dominant investor may choose between a riskier strategy or a safer strategy in more conventional activities. We interpret the risky strategy as producing more growth opportunities. An investment strategy generate returns described by a cumulative distribution function $G_\sigma(R)$ on $[0, \infty)$. The safer strategy is given by G_s, the riskier by G_r. We assume that there exists a unique $R_0 \in (0, \infty)$ such that (i) $G_r(R_0) - G_s(R_0) = 0$ and (ii) $G_r(R) - G_s(R) > 0$ if and only if $0 < R < R_0$. This means that the distribution G_r has more mass in the tails than G_s, but does not make assumptions about specific moments of the distributions. In order to describe the main tradeoff in our mean-variance framework in a simple form, we assume

$$\overline{R}_s < \overline{R}_r \text{ and var } (R_s) < \text{var } (R_r) \tag{2}$$

where $\overline{R}_\sigma$ denotes the expected value of returns under strategy σ. Hence, the safe strategy has a lower mean but also a lower variance.

We assume away aggregate risk by assuming that the random variables $\{R_i; i \in [0, 1]\}$ satisfy the Law of Large Numbers.[8] If all firms choose the

[7] Note the slight abuse of notation in (1), where W_i denotes the distribution of individual wealth. For brevity, we use CAPM-type utilities and do not define utility over wealth levels.

[8] The assumption is much stronger than we need. Its role is to highlight the difference in risk-bearing capacity between diversified financial holdings and firm-specific, dedicated human capital.

same investment strategy σ, aggregate corporate returns in the economy are therefore $\overline{R}_\sigma$, and aggregate financial returns $F = \overline{R}_\sigma - \int h(R)dG_\sigma(R)$ are non-stochastic.[9]

Financial markets are efficient and satisfy the CAPM assumptions, so we can ignore the individual portfolio problem. This allows us to describe an individual i's financial wealth by a single number, $\alpha_i \geq 0$, which is his share in total financial wealth F. Note that α_i can be greater than one, as F is average total financial wealth. By construction, $E\alpha_i = 1$. where the expectation is taken over $i \in [0, 1]$. Individuals are ordered by their financial wealth, i.e. α_i is non-decreasing in i. In contrast to the fully diversifiable risk from financial assets, individual firm-related human capital risks cannot be insured.

We adopt a very simple view of corporate finance, which is sufficient for our purposes. Capital structure is exogenous and, for expositional simplicity, identical across firms.[10] Firms are funded with a mixture of debt and equity. Each firm has a bank loan with face value equal to B and bonds outstanding with face value D. Equity holds the claim to residual profits. We assume that bank debt is not so high as to make banks prefer risk taking by their borrowers. While this assumption may be violated in practice in some special cases (where banks may have incentives to encourage their borrowers' risk taking), it is certainly consistent with generally observed commercial banking practices, which are typically conservative.[11] The following assumption is stronger than needed, but makes the exposition simple:

$$B \leq R_0 \tag{3}$$

The political process determines two key variables that affect corporate decision making. First, voters decide about labor rents h, which we specify further below. Second, voters determine the overall corporate governance structure for all firms. Specifically, legislation determines which financial

[9] Note that financial wealth include also bank loans and bank equity.

[10] We endogenize capital structure in a model of corporate risk taking in Perotti and von Thadden (2004).

[11] Spectacular cases of bank failures, such as the S&L debacle in the U.S. or Crédit Lyonnais in France, usually are not due to structural risk-taking incentives for commercial banks, but to external shocks (interest rate shocks in the S&L case) or mismanagement (Crédit Lyonnais). Furthermore, banks are heavily regulated to ensure their safety and soundness, which is not the case for firms in general.

investor class is dominant, equity holders or banks.[12]

To summarize, the time sequence of the model is as follows:

1. A political majority chooses the amount of labor rents and what type of investor will dominate corporate decisions.

2. The firm's investment strategy ($\sigma \in \{s, r\}$) is chosen by the dominant investor.

3. Production takes place, and payoffs are distributed to creditors, shareholders, and employees.

So far we have not specified labor rents. In the basic model, we simply assume that they are senior to all other claims:

$$h(R_i) = \min(H, R_i), \tag{4}$$

where H is a constant. Because all agents are identical, their ex ante labor rents are equal (ex post they depend on R_i). This claim is concave in overall returns, which is all we need for our argument. The functional form (4) is actually efficient in our context (we endonegenize it in Section 5). The reason is that for any given level of $E(h(R))$, all voters would prefer to minimize the risk born from human capital, since financial risk is fully diversifiable. Therefore, granting the maximum level of insurance to employees for a given level of expected compensation (i.e. granting them the highest seniority) minimizes costs.

In order to define the incentives of banks, we also need to specify the priority of bank loans over bonds. In line with the empirical evidence virtually everywhere,[13] we simply posit that banks have priority over bond investors.Hence, a bank loan of face value B gives the bank a claim of

$$b(R) = \min\left(B, \text{Max}\left(0, R - H\right)\right) = \begin{cases} B & \text{if } L + H \leq R \\ R - H & \text{if } H \leq R \leq B + H \\ 0 & \text{if } R \leq H \end{cases}$$

While internally consistent, assumption (4) is a simplification. In practice, while earned wages have priority over debt in bankruptcy, many labor

[12] In Section 5 we show in an extension how one can incorporate an other important stakeholder, labor, into the analysis.

[13] See, e.g., Welch (1997) and the evidence cited there.

rents, such as some pension claims, are lost in default. It is therefore important to point out that the exact division of claims among debt and labor is not essential for our argument. All that counts is that both tend to be more interested in the downside than the upside of profits.

3 Analysis

3.1 Corporate strategy

Given the political decision about stakeholder dominance and the level of labor rents H, the dominant investor in each firm chooses the firm's strategy $\sigma \in \{s, r\}$. This choice can easily be characterized as follows.

Lemma 1 *If equity is dominant, it chooses the riskier strategy $\sigma = r$ regardless of H. If banks are dominant, there is a $H_0 > 0$ such that the following holds. If $H > H_0$, the dominant bank prefers $\sigma = r$ over s, and if $H < H_0$, it prefers $\sigma = s$.*

Proof: Equity has a convex claim and prefers higher returns even if associated with higher risk, because risk is diversifiable. For banks, the choice depends on H (how much of the downside of returns they must cede) and B (how much of the upside they capture). Bank returns are

$$\int_H^{H+B} (R - H)dG(R) + (1 - G(H + B))B.$$

Hence, banks favor the safe strategy if and only if

$$\Delta(B, H) := \int_H^{H+B} (R - H)d(G_s(R) - G_r(R)) + (G_r(H + B) - G_s(H + B))B$$

is positive. By partial integration,

$$\Delta = \int_H^{H+B} (G_r(R) - G_s(R))dR. \tag{5}$$

If $H \geq R_0$, the integrand in (5) is negative by assumption. On the other hand, if $H = 0$, the integrand is positive if B is not too large (which is

implied by (3)). Since Δ is continuous in H, this proves the existence of the intermediate value H_0.

In summary, equity prefers the higher-risk-higher return strategy, because it captures the upside of profits, while banks favor safer investments as long as H is not too large, because the upside potential of their claims is capped. If H is large ($H \geq H_0$), any debt claim has no downside gains but mostly upside gains, and debt holders will act like equity holders.

3.2 The political determination of stakeholder rents

Given the form of h, (4), the expected level of labor rents is (for any strategy choice G of firm i)

$$E(h(R_i)) = \int_0^H R_i dG(R_i) + H[1 - G(H)].$$

Total financial wealth equals the sum of individual firm returns minus total labor compensation. From Lemma 1 we know that, if dominance and H are decided economy-wide, all firms choose the same strategy. Thus we have

$$\begin{aligned} F &= \overline{R} - E(h(R)) \\ &= \int_0^\infty \max(R - H, 0) dG(R). \end{aligned} \tag{6}$$

Because aggregate financial wealth in the economy is riskless, we can now rewrite the expected utility for individual i (for a given risk strategy) as a function of her share in aggregate financial wealth α_i, her labor rent H, and the corporate strategy σ:

$$\begin{aligned} U(\alpha_i, H, \sigma) &= E[\alpha_i F + h(R_i)] - \frac{1}{2} A \text{ var}(\alpha_i F + h(R_i)) \\ &= \alpha_i \overline{R}_\sigma + (1 - \alpha_i) E_R[\min(H, R)] - \frac{1}{2} A \text{ var}_R(\min(H, R)) \end{aligned} \tag{7}$$

Although the political decisions about labor rents and investor dominance are taken simultaneously, it is easier to first study the choice of H for a given investment policy σ (i.e. a c.d.f. G), and then study the trade-offs underlying the choice of stakeholder dominance (which will determine σ by Lemma 1).

The simple structure of voter preferences (7), which are linear in α, allows us to work with the Median-Voter Theorem (for details, see the Appendix). As the density α_i is non-decreasing in i, the median voter is simply agent $m = 0.5$. The median voter's decision trades off the return to human capital and to her stake α_m in financial returns. Her decision is as follows.

Proposition 2 *Suppose the firms' investment policy σ can be determined by the median voter directly and is identical across firms. Then, if $\alpha_m > 1$, the amount of labor rents chosen by the median voter is $H^*_\sigma = 0$. Otherwise, the median voter's utility is single-peaked in H and the optimal amount of labor rents is given by*

$$\int_0^{H^*_\sigma} G_\sigma(R)dR = \frac{1-\alpha_m}{A}. \tag{8}$$

Proof: We have

$$\begin{aligned} & \text{var}(\min(H,R)) \\ = \; & E[(\min(H,R))^2] - E[\min(H,R)]^2 \qquad (9) \\ = \; & \int_0^H R^2 dG(R) - \left(\int_0^H RdG(R)\right)^2 - 2H(1-G(H))\int_0^H RdG(R) \\ & +H^2G(H)(1-G(H)) \end{aligned}$$

Hence, voter α's expected utility is, after inserting (9) into (7), partially integrating, and rearranging,

$$\begin{aligned} U(\alpha,H,\sigma) \;=\; & \alpha\overline{R}_\sigma + (1-\alpha)(H - \int_0^H G_\sigma(R)dR) \qquad (10) \\ & -A\left[H\int_0^H G_\sigma(R)dR - \frac{1}{2}(\int_0^H G_\sigma(R)dR)^2 - \int_0^H RG_\sigma(R)dR\right] \end{aligned}$$

Differentiating this yields

$$\frac{\partial}{\partial H}U = (1-G_\sigma(H))\left[1-\alpha - A\int_0^H G_\sigma(R)dR\right]. \tag{11}$$

Hence, utility is single-peaked in H (for σ fixed), and if $\alpha > 1$ the maximum is at $H = 0$. If $\alpha \leq 1$, the second order conditions are satisfied and the maximum is given by (8).

The value H_σ^* is the median voter's preferred choice of H given σ, i.e. the chosen value of labor rents if the choice did not affect the dominant stakeholder's choice of strategy σ. This choice has some interesting features. If the median voter has a financial stake α_m less than the average financial holdings (which equal 1), then there is an interior solution. In this case, which is the relevant case empirically, the optimal choice H_σ^* will trade off a higher but riskier stakeholder rent against a safer but lower financial return.[14]

As long as $\alpha_m > 0$, very high choices of H are suboptimal, because there are risk sharing gains from receiving income as a financial return rather than in the form of undiversifiable labor rents.

In the less realistic case that the median financial wealth is higher than the average ($\alpha_m \geq 1$), the optimal choice of H is $H_\sigma^* = 0$. The reason is that the median voter has more wealth at stake as an investor than as a supplier of human capital. Since it is more efficient to diversify, the median voter prefers to receive all her income in financial form rather than as labor rent.

Given the monotonicity of condition (8), comparative statics results are quite simple. For a fixed corporate strategy σ, the preferred level of labor rents is decreasing in the median voter's financial wealth and in her risk aversion. The reason for the former is what could be termed a simple "Thatcher effect": by making the median voter more interested in capital returns, she is led to discount labor rents.[15] In other words, the opportunity cost of labor income increases if individuals have a higher financial stake. In general, the more skewed is the distribution of financial wealth, i.e. the more concentrated are financial holdings, the lower will be the median wealth holding relative to the average shareholdings, and the higher will be the desired labor rents.

Furthermore, increasing risk-aversion in the economy tends to reduce labor rents. This may seem paradoxical, as more risk-averse agents should be more interested in protecting the risky returns to their firm-specific human capital, but is reasonable as soon as one realizes that higher risk-aversion lets the agents put more emphasis on riskless (diversified) financial capital. Finally, it is interesting to note that if poorer agents vote less than richer agents, labor rents tend to be lower than under full voter participation. Indeed, this voter behavior effectively shifts the median voter to the right, i.e. to higher financial holdings. As a result, ideal labor rents in the economy are

[14] Note that the ideal value of H is finite even if the median voter has no financial wealth ($\alpha = 0$). This feature is due to the mean-variance structure of individual preferences. In fact, for quadratic utilities with coefficient $A/2$, a wealth level of $1/A$ represents bliss.

[15] For a model which endogenize this political strategy, see Biais and Perotti (2002).

reduced.

3.3 Determination of the dominant investor regime

We now can examine which of the investor groups in the economy, equity-holders or banks, will be granted a dominant position through legislation in political equilibrium. This decision is taken together with that about the level of labor rents analyzed in Proposition 2.

Formally, voters' utility is determined by the decision about (H, c), where $c \in \{E, B\}$ denotes either equity control or bank control. Because the decision space is two-dimensional, this framework is not the usual one of the Median-Voter Theorem. Yet, it is easy to see that because voters' objectives are linear in α_i, the median voter will be pivotal and the Median-Voter Theorem holds in our case (see appendix).

When choosing H, the median voter recognizes that the expected level of rents will depend on the riskiness of corporate profits, which she cannot control directly. Hence, when choosing stakeholder dominance, the median voter will prefer the party whose interests in corporate strategy are best aligned with her own.

Proposition 3 *The median voter chooses bank dominance if*

$$U(\alpha_m, \min(H_0, H_s^*), s) > U(\alpha_m, H_r^*, r) \tag{12}$$

and equity dominance otherwise. If (12) holds and $H_s^* < H_0$, she chooses $H = H_s^*$. If (12) holds and $H_s^* \geq H_0$, she chooses $H = H_0(-\varepsilon)$. If (12) does not hold, she chooses $H = H_r^*$.

Proof: From Proposition 2 we know that the median voter's preferences over H, given investment strategy σ, are single-peaked. From Lemma 1 we know that investment strategy $\sigma = s$ can be implemented through bank dominance, if and only if $H < H_0$.

If $H_s^* < H_0$, (12) therefore implies bank dominance. If $H_s^* \geq H_0$, the median voter's maximum utility with $\sigma = s$ is $U(\alpha_m, H_0, s)$, and thus (12) again provides the criterion for the median voter's choice.

The median voter's choice in Proposition 3 reflects a trade-off between labor rents and corporate riskiness that is resolved according to the median

voter's financial stake. If $U(\alpha_m, H_r^*, r) > U(\alpha_m, H_s^*, s)$, the decision is unambiguously in favor of higher financial returns, hence the riskier corporate strategy. If on the other hand, $U(\alpha_m, H_r^*, r) < U(\alpha_m, H_s^*, r)$ and $H_s^* < H_0$, the decision is clearly in favor of less risk, at the expense of higher financial profits.

An interesting case occurs when $U(\alpha_m, H_r^*, r) < U(\alpha_m, H_s^*, s)$ and $H_s^* \geq H_0$. In this case, the median voter's ideal choice would be the less risky strategy together with rents H_s^*. Yet, this choice is politically not feasible, because at this level of stakeholder rents no dominant investor would implement the desired corporate risk choice (since also banks prefer more risk). Hence, the median voter must trade off a reduction in nominal labor rents (to provide banks incentives) against a decrease in their riskiness.

To what extent does the median voter's optimal choice differ from being "first-best" ?. If it were possible to redistribute corporate returns perfectly in the economy, everybody would clearly favor equity dominance, because all risk would be diversified away. This full insurance is incompatible with our assumption that markets are incomplete.[16] A more reasonable benchmark is the classical Rawlsian decision behind the "veil of ignorance", i.e. the voters' decision if they did not know their place in the wealth distribution. In such an ex-ante choice people would take the expectation over α of the expected utility $U(\alpha, H, \sigma)$ in (7). Given that $U(\alpha, H, \sigma)$ is linear in α and that $E\alpha = 1$ by construction, adapting Proposition 2 shows that the optimal Rawlsian decision is to choose $H = 0$ and equity dominance. Hence, in expectation - or at an ideal legislative stage - people would prefer to minimize labor rents and distribute all returns through financial transfers. Yet, in practice - once the α's are drawn - voters will choose positive labor rents, inefficient risk-sharing, and possibly bank dominance, because they prefer more income over less even if it is risky.

We now turn to the main comparative statics analysis of interest and study the effect of the distribution of financial wealth on the choice of investor influence and labor rents. Formally, this requires studying how a voter´s α influences her preferences over (H, c), where $c \in \{B, E\}$ denotes either creditor control or equity control. To make this dependence explicit, we re-write the voter´s preferred level of labor rents for a given risk choice as

[16] A similar approach would be perfect redistribution through government ("efficient socialism"). In an extension we show how this would fall victim to incentive problems.

$H_\sigma^*(\alpha)$. Remember from Proposition 2 that $H_\sigma^*(\alpha)$ is uniquely determined by

$$\int_0^{H_\sigma^*(\alpha)} G_\sigma(h)dh = \max(0, \frac{1-\alpha}{A}). \tag{13}$$

Proposition 4 *The preferences of voters with respect to the allocation of dominance in the financial system depend on α as follows.*

1. *If*
$$\int_0^{H_r^*(0)} RG_r(R)dR > \int_0^{H_s^*(0)} RG_s(R)dR \tag{14}$$
all voters prefer equity dominance.

2. *If*
$$\int_0^{H_r^*(0)} RG_r(R)dR < \int_0^{\min(R_0, H_s^*(0))} RG_s(R)dR \tag{15}$$
there is an $\overline{\alpha} \in (0,1)$ such that individuals with $\alpha > \overline{\alpha}$ prefer equity dominance, and individuals with $\alpha < \overline{\alpha}$ prefer bank dominance.

3. *If neither (14) nor (15) hold, then there are critical values $\underline{\alpha} < \overline{\alpha} < 1$ such that individuals prefer equity dominance if $\alpha > \overline{\alpha}$ or if $\alpha < \underline{\alpha}$, and bank dominance if $\alpha \in (\underline{\alpha}, \overline{\alpha})$. Depending on parameter values, it is possible that $\underline{\alpha} < 0$ in which case this last case never occurs.*

The proof is in the appendix. Proposition 4 provides a strong characterization of voting outcomes. In particular, there are at most three possible regimes for α, and for a broad range of parameters (cases 1 and 2), there are only two. Furthermore, despite their appearance, the conditions (14) and (15) are simple to evaluate: the integration bounds $H_\sigma^*(0)$ are straightforward to calculate from (13), and the integrals involve only the c.d.f.s G_σ.

In the first case (condition (14)), the risky strategy $\sigma = r$ is so attractive that all voters will favor it. In this case, the risk-return trade-off is trivial, because for all voters the higher risk is more than outweighed by the superior return.

In the second case, (condition (15)), the risky strategy is less attractive. Now individuals will choose equity dominance only if they have sufficient financial wealth. Note that the cut-off value $\overline{\alpha}$ is smaller than 1, which implies that individuals with average wealth ($\alpha = 1$) will favour equity dominance.

In fact, as Proposition 2 shows, the ideal rents for $\alpha = 1$ under both risk strategies are $H = 0$. Hence, a voter with average financial wealth disregards labor income in his choice of corporate governance. However, individuals with little financial wealth ($\alpha < \overline{\alpha}$) prefer the safer strategy, because they do not gain much from high financial returns, but stand to loose their undiversified labor rents from greater risk-taking.

The remaining case ($0 < \underline{\alpha} < \overline{\alpha} < 1$) highlights the complication that arises from the fact that households cannot directly control corporate strategy. In this case, individuals with lower financial wealth would ideally favor bank control. However, bank control comes at a cost as labor rents are bounded by H_0, in order to give banks a sufficient interest in the downside of corporate risks. If the preferred upside for labor under the risky strategy is sufficiently high ($H_r^* \gg H_0$), individuals with very low financial wealth ($\alpha < \underline{\alpha}$) may therefore prefer high promised rents even if they are riskier. In this case, the very poor and the rich will both favor equity control. This case only arises for particular parameter constellations, for instance it can be shown that it never arises when risk aversion is sufficiently high.[17]

4 Empirical and Historical Evidence

4.1 Cross-country comparisons

The model generates empirical implications for corporate governance and the extent of stakeholder rents under the assumption of a fully democratic process; thus it applies to political choices in North American and Western European countries since the expansion of suffrage at the beginnig of the 20th century.

The political equilibrium relates the form of governance to the distribution of financial capital. A society with more diffused financial wealth should exhibit equity dominance, strong minority protection, weak employee protection, low minimum wages, developed equity markets, arrangements for ensuring congruence of interests between management and shareholders (such as a permissive takeover code), weak control rights of creditors in bankruptcy, more volatile corporative earnings, and higher bankruptcy rates (holding leverage constant). In an economy with more concentrated financial

[17] This may be viewed as the case of a "frontier economy". The appendix shows that the exact necessary condition for this case is $A \int_0^{H_0} G_s(R)dR < 1$.

wealth we predict bank or family dominance, active intervention by lenders in cases of financial distress, less developed equity markets, a weak market for corporate control, possibly some employee representation in corporate decision making, high labor costs and less volatile earnings.[18]

Only limited data is available on the distribution of financial wealth, and only for some countries. As far as total financial asset holdings per GDP across countries are concerned, it is well known that these are highest in the U.S. and the U.K., and far lower in France and Germany, with Japan being closer to the U.S. and the U.K. (Miles, 1996).

More importantly, the compositions of portfolios are very different. Table 1 shows that households in the U.S. and the U.K. hold around 50 percent of their wealth in shares, while in Germany, France, and Japan only around 15 percent do. Households in the U.K. and the U.S. should therefore be much more concerned with equity returns.

Table 1: Portfolio allocation of households' financial wealth

	Cash and Deposits	Bonds	Loans and Mortgages	Equity	% Held by Pension Funds
Germany	36	36	4	13	4
France	38	33	2	16	2
Japan	52	13	6	12	10
U.K.	24	12	1	52	24
U.S.	19	28	3	45	17

Note: Aggregated direct and indirect holdings (%), end of 1994
Source: Miles (1996), cited in Allen and Gale (2000)

In our theoretical argument, the critical variable is the financial wealth held by the median class. For the few countries where data on the distribution of financial wealth are available, Table 2 shows that in 1998, direct and indirect stock market participation by the median income class was around 20 % in Italy and Germany, while 2/3 of US households in the median income class owned shares, and slightly below 40 percent in the Netherlands and the

[18] Additional features of equity dominance analyzed elsewhere (Perotti and von Thadden, 2004) are a higher level of competition, corporate transparency, and more informative stock prices.

U.K.[19] Once again, the US and the UK appear to be at one extreme, and France, Italy and Germany at another, with the Netherlands close to the U.S. and the U.K.[20]

Table 2: Proportion of households owning shares, wealth quartiles (1998)

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	18.7
Netherlands	4.4	16.9	36.8	75.9	35.1
U.K.	4.9	11.9	37.8	71.1	31.4
U.S.	4.4	38.3	66.0	86.7	48.9

Source: Guiso, Haliassos and Jappelli (2002)

The most important source of most households' lifetime wealth are pension claims, especially for medium income households. It is therefore interesting to note that the U.S., the U.K., Australia, Canada, the Netherlands, and Switzerland all have a predominantly capital-based (funded) pension system, whereas Austria, Belgium, France, Germany, and Italy have a (almost) pure pay-as-you-go pension system. Table 3 makes this difference very clear. It shows that the stock of pension assets is very small (below 10 % of GNP) in Austria, Belgium, France, Germany, and Italy, and high (above 40 % of GNP) in Canada, Ireland, the Netherlands, the U.K., and the U.S.A. Since funded pension systems rely on market returns for their performance, whereas pay-as-you-go systems rely on redistributional taxation, this has a considerable impact on households' appreciation of financial market returns.

[19] In most democracies, lower-income groups vote less than higher-income groups. The average figure for the third quartile may thus be the best measure for the pivotal voter.

[20] See Guiso, Japelli and Halassios (2002) and Babeau and Sbano (2002) for more information. Given the available information, it seems that Japan, Austria, and Belgium are close to Germany and France, while Canada, Australia, and Switzerland are closer to the US and the UK.

Table 3: Stocks of pension assets in selected countries
Value in percent of GDP, end-1996

Country	AU	BE	CA	DE	FR	GE	IRE	IT	JP	NE	SWE	UK	US
%	1	4	45	22	5	6	43	3	22	89	33	76	62

Source: Miles and Timmermann (1999)

We argue that differences in the distribution of wealth should be reflected in the structure of capital markets. Table 4 presents two of the most obvious indicators for this latter point for a sample of 13 OECD countries. In 1970, stock market capitalization as a percentage of GDP was highest in Australia, Britain, Canada, and the U.S., and lowest in Austria, France, Germany, Italy, and Sweden, closely followed by Belgium. Exactly the same grouping obtains for the relative size of the banking sector, as measured by total deposits relative to stock market capitalization: it is smallest in the former group of countries and biggest in the latter. The Netherlands and Japan are in between, with the Netherlands closer to the Anglo-Saxon group and Japan closer to the continental European one.[21]

Table 4 shows a clear congruence with our limited data on the distribution of financial wealth: countries in which the median class holds significant financial wealth tend to be market-oriented, while the other countries tend to be bank-oriented. This is consistent with the comprehensive classification in Demirguc-Kunt and Levine (1999), which uses a larger number of indicators to classify countries either as market-oriented (M) or bank-oriented (B) (see Table 4).

[21] Market size may understate the differences in governance. Although Japan has a very large stock market, until recently corporate control for most companies was kept within a web of bank-centered relationships (e.g., Prowse, 1995).

Table 4: Market capitalization and banking assets, 1913 and 1970

	SMC/GDP 1970	Dep/SMC 1970	DKL Classification	SMC/GDP 1913	Dep/SMC 1913
Australia	**0.76**	**50**	M	0.39	95
Austria	0.09	344	B	**0.76**	147
Belgium	0.23	174	B	**0.99**	69
Canada	**1.75**	**21**	M	0.74	**30**
France	0.16	206	B	**0.78**	53
Germany	0.16	181	B	0.44	120
Italy	0.14	386	B	0.17	135
Japan	0.23	144	B	0.49	**27**
Netherlands	0.42	62	M	0.56	**39**
Sweden	0.14	357	M	0.47	147
Switzerland	0.50	138	M	0.58	160
UK	**1.63**	**14**	M	**1.09**	**9**
USA	**0.66**	**38**	M	0.39	85

Notes: SMC = Stock market capitalization, Dep = Total bank deposits. DKL Classification: Dummy variable constructed by Demirguc-Kunt and Levine (1999), M = market-oriented, B = bank-oriented. In boldface: the 4 most strongly equity-oriented countries (highest SMC/GDP, lowest Dep/SMC)
Source: Rajan and Zingales (2003) and Demirguc-Kunt and Levine (1999)

However, the direction of causation in this relationship is not immediate. The legal-origin approach distinguishes "outsider" or arm's length systems from "insider" or bank- and family-centered systems (La Porta et al. (1998), Mayer (1998)), a classification which corresponds closely to the grouping we identified.[22] LaPorta et al. (1998) document that on average common-law countries nowadays have structurally better minority investor protection than countries with other legal origins. It is thus plausible that markets should be more developed and financial asset holdings more diffused in those countries. Banking then may be more developed in civil-law countries to compensate

[22]The four countries identified in Table 4 as market-oriented in 1970 are all in the tradition of Common Law, while those on the other side of the spectrum have French, German or Scandinavian legal origins. Only the Netherlands do not quite fit this pattern.

for the lack of external equity. To make the case for the causation implied by our model, we therefore need evidence on exogenous variation across time and countries.

4.2 Great reversals

Such evidence exists. Rajan and Zingales (2003a) show that the pattern of international capital market development established after the Second World War is fairly recent and that civil law countries such as France and Belgium appear to have been markedly more financially developed than the US before World War 1. In fact, as documented in Table 4, in 1913 neither the U.S. nor Australia were particularly financially developed or market-oriented, and Canada was among the top 4 in only one category. Only Britain emerges consistently as strongly equity-market oriented. Yet, even in this seemingly clear-cut case, Franks, Mayer, and Rossi (2003) have recently shown that until the mid 20th century Britain had bad legal investor protection, when investor protection is measured along the widely accepted scale developed by LaPorta et al. (1998). On the other hand, the study of the history of incorporation laws in France by Lamoreaux and Rosenthal (2001) suggests that the protection of passive partners (i.e. investors not involved in management) was better in France than in the US in the 19th century (although rules for entry of new incorporated firms was more restrictive). Lamoreux and Rosenthal (2001) argue that this may reflect the interests of the richer (and voting) *rentier* part of the population.

These and other data show that during the first half of the 20th century some countries (such as Britain and Switzerland) experienced relatively little change in the absolute and relative importance of their capital markets, while in others (such as Australia and the U.S.) financial markets continuously expanded, and again other countries (such as Belgium and France) experienced "great reversals" (Rajan and Zingales, 2003a). Our political economy approach can shed light on these developments.

Our model suggests that a majority may shift its political support away from free markets and towards a more corporatist governance system in response to a loss of financial wealth and increased personal uncertainty. We argue that the major political changes in the first half of the 20th century affected the voting populations in different countries differentially.

A structural political change that took place in almost all developed countries around World War I was a major expansion of the electoral fran-

chise, so that a much broader fraction of the (male) population was able to vote. Until then, the tax paying class of property owners had the political power and tended to support financial market development. Belgium, Britain, France, and the Netherlands, all with strong entrepreneurial activity and well-developed financial mechanisms to support them, are probably the most important cases in point. The political change made what is now called the middle class pivotal in elections. Our key observation now is that the two world wars and the Great Depression seem to have had different redistributive effects for the middle class accross countries, which shaped the perception of risks associated with free markets. While war damage hurt all income classes, a sudden post war acceleration in inflation tended to hurt most those holding financial savings. As the poor had hardly any savings at the time, and the rich held more real assets, high inflation had a devastating effect disproportionately on the financial holdings of the middle class.

This was clearly perceived at the time, most strongly in hyperinflation countries (Austria and Germany). A prominent German economist wrote in 1924: "there has been an appropriation of property in few but strong hands. The financial property of the middle class .. has been destroyed. This appropriation refers mainly to big business. Small and medium-size entrepreneurs have not been expropriated, but have been brought more strongly under the influence of big business. Because of this, the distribution of wealth has become much more unequal" (Eulenburg, 1924).[23]

The inflationary consequences of the First World War, often compounded by those of world War II, therefore constitute an important exogenous source of variation across countries for our analysis. Table 5 shows that the national inflationary experiences during the first half of the century differed indeed drastically across countries.

[23] Our translation from the original German. This quote is taken from Wehler (2003, p. 248), which provides a broader discussion of the issue and more references.

Table 5: Evolution of consumer prices 1914 - 1949

	1914	1919	1924	1929	1934	1939	1944	1949
Australia	100	133	149	161	128	144	177	222
Austria	100	2,492	HYP	-	-	-	-	-
Belgium	100		469	805	639	748		2,785
Canada	100	166	149	155	121	129	151	203
France	100	268	395	621	491	763	2.013	12,830
Germany	100	403	HYP	-	-	-	-	-
Italy	100	331	481	503	370	516	4.292	23.665
Japan	100	213	207	192	171	231	688	HYP
Netherlands	100	176	145	138	115	115	172	246
Sweden	100	257	174	170	155	172	243	267
Switzerland	100	222	169	161	129	138	208	222
UK	100	219	176	167	143	162	224	281
USA	100	193	168	165	129	134	169	229

Notes: HYP indicates hyperflation; subsequent price indices are no longer comparable and are omitted. Countries in bold face experienced a price level increase over 25-fold during the period.
Source: Maddison (1982), based on the Statistical Yearbooks of the League of Nations

In our sample of 13 OECD countries the price levels either less than tripled (which corresponds to an average inflation rate of less than 3 percent) or they increased more than 27-fold (an annual rate of more than 10 percent). There is no middle ground. Moreover, all the high-inflation countries experienced at least one sharp spurt of inflation, with hyperinflations in Austria (1922), Germany (1923), and Japan (1946). After the first world war, Belgium, France, and Italy suffered a historically sharp acceleration in inflation, which seriously weakened the financial position of the middle class. A similar financial disaster hit the Japanese population with the hyperinflation of 1946. Consistent with our theory, the classification of countries in groups with low and high inflationary experiences in the first half of the century coincides exactly with that in market- and bank-oriented economies in the second half.

The UK, the Netherlands, Switzerland, Australia, Canada, and the US experienced no inflation, and had a more market-friendly response to the Great Depression. In the US, the good postwar financial performance of the U.S. Liberty Bonds, which had largely been placed among small investors, actually stimulated the interest of a wide part of the population in financial markets.[24] In these countries, the 1929 crisis led to a tighter regulation of the financial system, but they generally maintained market governance relative to the state and financial institutions. Improved legislation on minority protection and laws such as the Glass Steagall Act weakened institutional influences on corporate decisions.

In contrast, an economically and financially enfeebled middle class in the countries previously ravaged by inflation, such as Austria, Belgium, Germany, France, and Italy, responded to the Great Depression by seeking more stabilizing governance structures and greater social insurance.[25] The result was a greater politicization of control, the restriction of markets (and often political freedom), and the emergence of other features of corporatist economies.

4.3 Risk orientation

We review briefly the evidence on the corporate orientation to risk and return across financial systems. Prowse (1995) finds that even when main banks in Germany and Japan hold equity in their borrowers, their behavior appears to be dominated by their role as lenders. There is evidence both for Germany and Japan, that bank dominance may bias the borrowers' investment decision towards low-risk projects (Gorton and Schmidt (2000), Morck and Nakamura (2000)). Claessens and Klapper (2002) find that bankruptcy rates are higher in market-oriented countries than in insider systems, after controlling for leverage, firm size and business cycles. This suggests more corporate risk-taking in economies dominated by diffused equity.

To the extent that less risky corporate strategy reflect less aggressive competition, we expect bank dominance to be associated with less entry,

[24] When the US entered the war in 1917, the government had only a modest public debt, and funded the rapid war build up via a massive door-to-door bond sale program.We thank Luigi Zingales for this reference.

[25] These countries were also the ones with the largest physical war damage. Austria and Switzerland on the one hand, and Belgium and the Netherlands on the other - two pairs of similar countries - differ not only sharply in their inflationary experience after World War 1, but also in their destruction in the war.

exit and more stability in product markets.[26] Interesting evidence in He, Morck and Yeung (2003) suggests indeed that high stability countries (i.e. with lower turnover in the ranking of the largest companies) tend to have more state intervention, higher taxes, less developed equity markets and more debt financing. Corporatist societies appear to discourage what they consider excessive competition, and favor the interests of producers (and thus stakeholder rents) over those of consumers, or potential entrants.[27] This is consistent with the prediction that corporatist systems limit risk in corporate strategies to protect labor rents.

4.4 The allocation of governance rights

The assumption that the structure of corporate governance is a political decision imposed on all firms is simplistic. More realistically, a political majority will make legislative choices which affect the control over decision making at the firm level. But how can legislation induce specific corporate choices, if also private investors struggle to make managers act in their own interests?

Government intervention may give banks influence at the expense of equityholders, without necessarily improving investor control over managers. In fact, political demands require only that bank influence be mainly directed at suppressing risk, which in our setting reduces profitability. Our argument is that it is probably harder to force managers to choose value-maximizing strategies than to simply limit their risk, a much cruder task, arguably easier to verify. A relevant question which remains is: how can government policies increase bank influence at the expense of firm owners?

First, there are legislative decisions which directly affect the exercise of private control rights. Examples include mandated supervisory boards with labor representation, the right of banks to vote shares held in trust, or the assignment of joint governance rights by labor and firms over pension funds invested in shares (common in Europe). On the other hand, legislative constraints on lender influence include restrictions on shareholdings by banks or the threat of loss of seniority status by intervening creditors. Yet, most mechanisms may well be indirect. Regulations and fiscal rules may direct savings towards banks. Poor regulatory enforcement of minority protection

[26] For a formal model, see Perotti and von Thadden (2004).

[27] Hellwig (2000) argues that bank control can simply be a collusive device that protects management from outside pressure in the financial or product markets.

or transparency rules may undermine arms' length capital market activity. On the important issue of start-up finance and the funding of smaller firms, access to equity may be more difficult if the financial system is bank-centered, thus forcing new firms to accept bank influence.

The use of venture capital is illustrative. Venture capital funding in the 1990s was between 0.43 and 0.67 percent of GDP in the Netherlands, Ireland, the U.K. and the U.S., but only between 0.17 and 0.26 percent of GDP in Germany, Italy, France, and Belgium (Baygan and Freudenberg, 2000). A related example is the frequency of IPOs, the classical channel for a firm to emancipate from bank dominance. Franzke, Grobs, and Laux (2004) document that between 1988 and 1995 there were only 151 IPOs in Germany, compared to more than 1000 in the U.K. They argue that this was due partly to legal impediments,[28] and partly to the resistance of banks, who had significant influence on stock exchange committees regulating the listing process.

5 Extensions

In this section we study several extensions of our basic model to put some of our simplifying assumptions in perspective and test the robustness of our results.

5.1 Endogenous claims

In the basic model, we have assumed that the human-capital specific claim by individuals had full priority over other claims, in particular over debt:

$$h(R_i) = \min(H, R_i).$$

In this subsection, we show that this form can in fact be derived as the optimal choice in a more general optimization problem in some parameter cases. In other cases, however, the more realistic choice of partial priority is optimal, in which labor and lenders share firm returns in case of bad performance.

Suppose that the median voter is free to design the form of the function $h(R_i)$. Because of risk aversion, it would clearly be optimal to choose the

[28] The rigid requirement until the 1990s that only joint stock companies (Aktiengesellschaften) were allowed a stock market listing was widely viewed as unsuited for smaller firms.

form (4) if the corporate strategy were fixed: this functional form minimizes the variance for any expected value of $h(R_i)$. However, if a form different from (4) allows to realize higher average rents or a less risky strategy, there is a potential trade-off: an increase in risk from individual rents against higher average rents or a decrease in risk from a change in corporate strategy. This trade-off is relevant when optimal labor rents are less than H_s^* under bank control or when equity is dominant in the basic model. However, if a labor rent of H_s^* is compatible with bank control and if this is optimal, then trivially there is no such trade-off.

Proposition 5 *Suppose that*

$$U(\alpha_m, H_s^*, s) > U(\alpha_m, H_r^*, r) \tag{16}$$

and that $H_s^* < H_0$. Then the median voter optimally chooses the form (4) for labor rents among all possible functions $h(R_i)$.

If (16) does not hold or if $H_s^* > H_0$, the median voter can find it optimal to give partial priority to banks. This allows to give banks a larger share in the downside of corporate profits and thus increase their incentives to intervene conservatively. This can either make it possible to implement the less risky strategy without ceding a higher expected return to the banks (if (16) does not hold), or allow labor to get a larger expected share of corporate profits under the safer strategy (if H_0 is small), which can more than outweigh the increased risk of these rents. In both these cases, our main argument continues to hold that imperfect risk-sharing opportunities affect labor rents and corporate control.

5.2 Redistributive taxation

If a perfect insurance market for human-capital risk existed, then there would be no need to suppress risk at the corporate level, so that the optimal political choice would be $\sigma = r$ and equity control. Our principal assumption has been that such a market does not exist (or does not function well).[29] In this subsection we argue that substitute interventions, which are essentially equivalent to redistributive taxations, generate efficiency losses, and that the

[29] This assumption is explicitly or implicitly made in much of the labor and public economics literature. For an example, see Glaeser and Scheinkman (1998).

overall trade-off analyzed in the basic model is robust, once these inefficiencies are taken into account.

For rents to be riskless, in a world of idiosyncratic corporate risk, they must be based on diversification. In other words, revenues in the economy must be taxed, and the aggregate proceeds redistributed to individuals. In this sense, taxation achieves risk-sharing very much like the financial market in our model. Yet, unlike exchanges on financial markets, taxation typically creates deadweight losses, through distortions in effort provision and factor allocation. We model these losses very simply by assuming that if corporate returns R are taxed at a rate t, then they decrease even before tax. Formally, we assume that under a tax rate t, corporate returns are $R(t) = c(t)R$, where R has the distribution studied in the basic model (i.e., a c.d.f. G_s or G_r) and c is a decreasing function with $c(0) = 1$. We choose this simple formulation, because we have normalized productivity wages to zero, which means that a tax on corporate returns is the best way to describe more general taxation (such as labor income taxes) in our model.

In this extension, after-tax firm returns then are $(1-t)R(t)$ and total tax receipts available for redistribution $b = tR(t)$. We leave all the other features of the basic model unchanged, in particular, we continue to assume that labor rents are constant, have priority over bank debt (but of course not over taxes) and are therefore given by

$$h(R(t)) = \min(H, (1-t)R(t)).$$

Aggregate (individual) financial wealth in the economy is then, mirroring (6),

$$F = (1-t)c(t)\overline{R} - E_R h(c(t)R),$$

public financial wealth available for redistribution

$$b = tc(t)\overline{R} \tag{17}$$

and individual expected utility, mirroring (7),

$$\begin{aligned}
\widehat{U}(\alpha, H, t, G_\sigma) &= E_R[\alpha F + b + h(c(t)R)] - \frac{1}{2}A \operatorname{var}(\alpha F + b + h(c(t)R)) \\
&= b + \alpha(1-t)c(t)\overline{R}_\sigma + (1-\alpha)E_R[\min(H, (1-t)c(t)R)] \qquad (18) \\
&\quad -\frac{1}{2}A \operatorname{var}_R(\min(H, (1-t)c(t)R)). \qquad (19)
\end{aligned}$$

The problem of the median voter is to choose H, t and the governance structure such as to maximize $\widehat{U}$ subject to the budget constraint (17). Two extreme cases are obvious. If the tax distortion c is nil (i.e. if $c(t) = 1$ for all t), the median voter prefers to obtain rents through taxation rather than through firm-specific compensation. Hence, in this case, $H = 0$, equity becomes dominant, chooses $\sigma = r$, and, as long as $\alpha_m < 1$, all corporate returns are taxed away and redistributed.[30] At the other extreme, if tax distortions are devastating (i.e. $c(t) = 0$ for all $t > 0$), the analysis of Section 3 applies unchanged. For a more realistic, intermediate setting we have an outcome between these two extremes. There will be some taxation and a greater propensity by voters to accept corporate risk. However, the allocational inefficiencies of taxation put limits on this propensity to accept risk. Therefore, although the thresholds identified in Proposition 4 will shift, the qualitative results remain unchanged.

Proposition 6 *In the extended model with redistributive taxation, there are critical values $\underline{\eta} < \overline{\eta} < 1$ such that*

- *the voter prefers equity dominance if $\alpha > \overline{\eta}$,*
- *the voter prefers lender dominance if $\alpha \in (\underline{\eta}, \overline{\eta})$,*
- *the voter prefers equity dominance if $\alpha < \underline{\eta}$.*

Compared to the base model, we have $\overline{\eta} < \overline{\alpha}$ and $\underline{\eta} < \underline{\alpha}$. In particular, $\overline{\eta}$ and $\underline{\eta}$ can be negative.

5.3 Labor co-determination

Although employees' interests have played an important role in the analysis of the main model, we have not allowed for the possibility of direct labor control, and rather focused on equityholders and banks as the two main potential dominant stakeholders. Yet, in practice employees are a third group of stakeholders that can have considerable weight, and its explicit or implicit influence on corporate governance is strong in many countries.[31] In this

[30] Formally, for $H = 0$, utility becomes $b + \alpha_m(1-t)\overline{R}_\sigma = \alpha_m \overline{R}_\sigma + (1-\alpha_m)t\overline{R}_\sigma$.

[31] See Allen and Gale (2000, chapter 4) for an excellent discussion of labor influence and co-determination in an international context.

extension, we show that our framework allows to also study labor dominance in a simple and natural way.

To this end, we generalize the model to allow for labor as the third possible choice of dominant stakeholder in the political decision process. This means that the voters at the political decision stage determine (H, c) where H is the level of labor rents and $c \in \{E, B, L\}$ denotes the choice of dominant stakeholder between equity, banks, and labor. To make the model more realistic we assume that labor control over corporate decision making tends to be inefficient. As has been widely discussed in the literature on employee co-determination,[32] labor control suffers from at least two main difficulties, the lack of expertise and the free-rider problem in collective decision making.

To formalize these inefficiencies in a simple way, we assume that labor, when in control of corporate strategy, is unable to make its preferred decision with some probability. In this case, management goes along with equity or banks with some probability each, so that overall labor can impose its favorite strategy only with probability p. We refer to p as labor's effective control capacity.

In this framework, the choice of strategy at the firm level is given by the following immediate generalization of Lemma 1.

Lemma 1 (bis): *If equity is dominant in a given firm, it chooses the riskier strategy $\sigma = r$ regardless of H. If labor is dominant, it prefers the safe strategy $\sigma = s$ if H is not too high. If banks are dominant, there is a $H_0 > 0$ such that the following holds. If $H > H_0$, the dominant bank prefers $\sigma = r$ over s, and if $H < H_0$, it prefers $\sigma = s$.*

For the choice of the dominant stakeholder, voters now have a priori two possibilities to implement the safe strategy. Labor control has the downside that the implementation is imperfect, and bank control has the downside that it only yields the desired result if labor rents are restricted to values $H \leq H_0$. The following generalization of Proposition 3 describes this trade-off.

Proposition 2 (bis): *If $H_s^* \leq H_0$, the median voter chooses bank dominance if*

$$U(\alpha_m, H_s^*, G_s) > U(\alpha_m, H_r^*, G_r)$$

[32] For some interesting recent contributions, see Gorton and Schmid (2000) or Pistor (1998) and the references therein.

and equity dominance otherwise. If $H_s^* > H_0$, there is a $\overline{p} < 1$ such that for $p > \overline{p}$ (high effective labor control), the median voter chooses labor dominance if

$$pU(\alpha_m, H_s^*, G_s) + (1-p)U(\alpha_m, H_s^*, G_r) > U(\alpha_m, H_r^*, G_r)$$

and equity control otherwise. If $H_s^* > H_0$ and $p < \overline{p}$ (low effective labor control), the median voter chooses bank dominance if

$$U(\alpha_m, H_0, G_s) > U(\alpha_m, H_r^*, G_r$$

and equity control otherwise.

It is interesting to note that the medium voter would always choose the safe strategy in his own firm (Lemma 1 bis), but may prefer equity control in the political choice for the system as a whole. Ideally, an individual with sufficient financial wealth would want everybody to adopt the high-risk-high-return strategy, because the risk is fully diversified in the aggregate, but to protect his human capital through a less risky strategy in his own firm. As this is not possible, he renounces his possible direct influence through labor control and commits to the risky strategy by making equity dominant. Proposition 2 (bis) provides a very rough taxonomy of stakeholder influence. If ideal labor rents are not too high (i.e., if the median voter is sufficiently rich financially and sufficiently risk averse), then bank dominance is a better tool to curtail corporate risk taking than direct labor control, because the banks' incentives are perfectly aligned with those of labor and banks are better at corporate governance than labor (or the state). However, if ideal labor rents are high and labor can control corporate decision making effectively, the median voter may make labor dominant at the expense of banks and equity.

This simple extension has compared labor and bank interests explicitly. In particular, when in control, both labor and banks share the objective of reducing risk. Note that in this case, banks' and employees' incentives are not fully congruent because banks are less conservative than labor. One of the model's shortcomings is that it treats labor control and bank control as substitutes, whereas in practice these may be complements.

5.4 Large shareholders

The comparison of bank and equity market control in our base model ignores a common third mode of corporate control, namely family ownership.[33] Concentrated ownership will emerge naturally when investor protection is weak, so that private control benefits are large. But if legislation indeed reflects political choices, when would weak minority investor protection emerge in equilibrium?

In this subsection we show that concentrated owners may be an alternative to bank governance, tolerated by a political majority because it may support low risk strategies. Large shareholders are undiversified, so they have an interest in limiting risk exposure. Moreover, solvency is a condition for maintaining their (endogenous) control rents, which reinforces their aversion to risk. Our approach resembles Pagano and Volpin (2000), although here the allocation of control and its benefits are majoritarian decisions.

As in the main model, assume that there is a continuum of firms $i \in [0, 1]$ (to rule out aggregate risk), but assume that there is continuum of households $j \in [0, M]$, where $M > 2$, and each of the first $i \in [0, 1]$ households holds a control stake θ in firm i. (The stake does not need to be in excess of 50%, as long as it is the only large individual stake in the firm.) We assume for simplicity that such rich agents have no wealth outside the firm and no stakeholder claim. The other households $j \in (1, M]$ are employed (such that each firm has on average $M - 1$ employees) and hold diversified financial claims in the.firms.

Risk averse agents would choose to diversify, unless they receive some benefit from holding a large stake. Suppose therefore that a political majority allows large shareholders the ability to extract some control benefits C, subtracted from profits before general distribution. The control benefit is lost in case of default.

The wealth of a typical controlling shareholder (who are all equal) then is

$$W_C = \begin{cases} \theta(R - H - B) + (1 - \theta)C & \text{if } R - H - B - C \geq 0 \\ \max(R - H - B, 0) & \text{if } R - H - B - C < 0 \end{cases}$$

[33] After the First World War, the emergence of corporatism was associated with increased ownership concentration in several countries, particularly in Sweden and Italy (Hogfeldt, 2003; Aganin and Volpin, 2003). Roe (2000) explains this evidence by arguing that strong owners were needed to control the demands on private companies by the state and labor. Yet such an increased concentration of control must have been deemed politically acceptable.

where R is the return of the firm controlled by the shareholder, and H and B the employee and debt claims in the firm as in the main model. The financial return of such a firm (going to debt holders or equity holders) then is

$$\begin{cases} R-H-C & \text{if } R \geq H+B+C \\ B & \text{if } H+B \leq R \leq H+B+C \\ R-H & H \leq R \leq H+B \\ 0 & R \leq H \end{cases}$$

Hence, if all firms adopt the same strategy $\sigma \in \{s, r\}$, total financial wealth in the economy accruing to the non-controlling households $\in (1, M]$ is

$$\begin{aligned} F &= \int_{H}^{H+B} (R-H)dG_\sigma(R) + B[G_\sigma(H+B+C) - G_\sigma(H+B)] \quad (20) \\ &+(1-\theta) \int_{H+B+C}^{\infty} (R-H-C)dG_\sigma(R) \end{aligned}$$

This value takes into account that the overall financial payout of firms is reduced by the private benefit of controlling owners.

A controlling shareholder will choose the safer strategy if and only if

$$E[W_C \,|\sigma = r] - \frac{A}{2}var(W_C \,|\sigma = r) \leq E[W_C \,|\sigma = s] - \frac{A}{2}var(W_C \,|\sigma = s) \quad (21)$$

The median voter now chooses the level of labor rents H and of private control benefits C to maximize his utility from financial and human capital wealth. The tradeoff behind the choice of H is as is the main model. The choice of C, however, introduces a new element. On the one hand, a higher C reduces residual financial wealth directly (as is clear from (20)), on the other hand, if C is too small, condition (21) will typically not hold (depending on the risk aversion A).

If the median voter does not own much financial wealth, the first effect will be less important and he will increase C such as to make (21) hold with equality. This makes the large shareholders risk averse and induces the safer strategy. If the median voter holds sufficient financial wealth, he will decrease C to zero, foster equity market dominance, and thus encourage corporate risk taking.

Note that large shareholders in such systems will have a particularly strong incentive to diversify by investing in control stakes in different firms, while selling the rest of the shares on the markets. In fact, there is a tendency for such large family firms to form business groups, which for control reasons will be organized as equity pyramids.

6 Conclusions

This paper suggests that in democracies, financial and labor legislation, as well as the form of corporate governance, are endogenous to the evolving political majority view. The preference of the median class is shown to depend on the distribution of financial wealth relative to human capital. This may explain large differences in corporate governance across countries as a systemic choice, reflecting the distribution of financial wealth.

The combination of high stakeholder rent protection, weak rights for shareholders, a strong role for institutions, and a relatively conservative approach to investment resembles the structure of so called corporatist economic systems, such as continental Europe or Japan.[34] Perhaps more interestingly, the theory suggests that corporate governance systems can change as a function of the distribution of financial wealth, because a political majority will demand it. A more general conclusion is that the existence of a financially solid median class may be essential for democratic support for a market environment.[35]

The theory proposed here also offers an explanation for the correlation of current market development with legal origin, documented by LaPorta et al. (1998). In our interpretation, the inflationary shocks following WW1 occurred mostly as a result of fiscal crises in either defeated nations, or in Continental European countries where war damage was extensive. The Anglo-Saxon countries were allies in the war and because of geography, they escaped direct war damage (although the costs of WW1 were huge even for the UK, which run down much of its considerable financial strength). This

[34] This argument is structurally similar to the one by Rodrik (1998), who presents evidence that developed countries with large exposure to trade have larger public sectors, and interprets it as a political choice for greater social insurance in the face of uncertainty induced by more competition.

[35] Rajan and Zingales (2003b) discuss some of the historical difficulties in the emergence (or creation) of such a group.

helps to explain the degree of market development in civil law countries that stayed out of the war, such as the Netherlands and Switzerland. Accordingly, the emergence of insider-outsider financial systems as described in the literature on legal origin may be the result of political choices following historical events, and not exclusively of historical legal origin.[36] As an additional corroborating evidence, the political economy approach can explain the correlation of strong financial development and weaker labor laws in developed democracies better than legal origin, which has no explicit prediction.

Our approach can help to explain what seems to be the UK-puzzle in corporate governance theory: "The United Kingdom presents an interesting contrast to the United States. It has a similar separation of ownership and control in corporations but very different financial institutions. In particular, the banking system is concentrated and ... there are few if any explicit restrictions on the activities that banks may undertake ... Nevertheless, banks have chosen not to become involved in corporate governance... This comparison is difficult to reconcile with the idea that it is politics and legal and regulatory constraints that is the sole determinant of differences in corporate governance across countries" (Allen and Gale (2000), pp. 110-111). The data we present suggest that the median voters in the UK and the US are very similar in their orientation to financial returns, and it is therefore not surprising that a political majority in the UK would like to restrict banks' influence. The fact that this is not mainly achieved through formal laws, as in the U.S., but rather through informal (gentlemens') agreements between the City, the Bank of England, and the government is perhaps a distinct British feature.[37]

A potential challenge to our theory could be the objection that capital structure, which we have taken as exogenous, will adjust to the political framework, with the potential to undo its corporate control implications. Yet, our argument is not really tied to the formal capital structure of firms, but rather to the distribution of influence in the economy, set by the median voter. In other words, for banks to have influence in our model it not not necessary that they finance a large share of corporate balance sheets. Equityholders, of course, may try to emancipate from bank dominance by taking on less bank debt, reducing bank equity participation in their capital structure, etc.

[36] We concur that common law has distinctive features restraining state influence which has a favorable impact on private sector autonomy and market development.

[37] See Franks, Mayer and Rossi (2003) for an exploration of this issue.

However, as discussed in Section 4.4, if political interest (represented by the median voter) opposes this trend, there are many direct and indirect legal means that can grant banks critical influence on firm decisions.

A challenge for future research is to explore further the dynamics of institutional change inplicit in the analysis. In principle, the approach has implications for major institutional changes as the relative endowment and distribution of human and financial capital evolves over time. This evolution may be the result of technological change (which may alter the relative attractiveness of risky investment), demography (which may affect the evolution of pension financing), or by economic and financial integration (which may induce more competition among institutional forms). It may also be affected by political choices that influence the allocation of individual portfolios, such as pension reform towards capitalized pension funds. The model therefore has implications for the evolution of corporate governance towards a more market-oriented financial structure that seems to be currently under way in Continental Europe.

7 Appendix

7.1 The Median-Voter Theorem:

In this appendix we show that the Median-Voter Theorem holds in our two-dimensional decision problem. The argument is trivial (but it may be useful to see it developed).

Consider two alternative propositions (H^A, c^A) and (H^B, c^B) put before the electorate. Let σ^A and σ^B be the strategy choices by the dominant investors under the two alternatives (which are uniquely defined by Lemma 1). Then, using the explicit utility function derived in (10), voter α prefers A over B if and only if

$$\alpha(\overline{R}_{\sigma^A} - H^A + \int_0^{H^A} G_{\sigma^A}(R)dR) + T(\sigma^A, H^A) \tag{22}$$

$$> \alpha(\overline{R}_{\sigma^B} - H^B + \int_0^{H^B} G_{\sigma^B}(R)dR) + T(\sigma^B, H^B), \tag{23}$$

where $T(\sigma, H)$ is a term not involving α. Because of the linearity of (22) in α, the choice of the median voter is the unique Condorcet winner of the vote (supported either by all $\alpha < \alpha_m$ or all $\alpha > \alpha_m$).

7.2 Proof of Proposition 4:

To simplify notation, denote the integral of G_σ by

$$\Gamma_\sigma(R) = \int_0^R G_\sigma(r)dr.$$

Then (13) becomes $\Gamma_\sigma(H_\sigma^*(\alpha)) = \max(0, \frac{1-\alpha}{A})$.
Define $\alpha_0 < 1$ by

$$\alpha_0 = \max(0, 1 - A\Gamma_s(H_0)).$$

By (13), the voter's preferred choice of H under the safe strategy satisfies $H_s^*(\alpha) < H_0$ if and only if $\alpha > \alpha_0$. On the other hand, by Proposition 3, if $\alpha \leq \alpha_0$ and the voter wants to implement bank control, she chooses $H = H_0$

In order to evaluate the voter´s preferences over bank versus equity control, we first compare the ideal levels of utility under the safe and the risky strategy. By inserting (13) into (10), these utility levels are

$$\begin{aligned} u_\sigma(\alpha) &= U(\alpha, H_\sigma^*(\alpha), \sigma) \\ &= \begin{cases} \alpha\overline{R}_\sigma & \text{if } \alpha \geq 1 \\ \alpha\overline{R}_\sigma - \frac{(1-\alpha)^2}{2A} + A\int_0^{H_\sigma^*(\alpha)} RG_\sigma(R)dR & \text{if } \alpha \leq 1 \end{cases} \end{aligned} \tag{24}$$

for $\sigma = s, r$. The u_σ are continuously differentiable, and the Envelope Theorem implies

$$\begin{aligned} u_\sigma'(\alpha) &= U_\alpha(\alpha, H_\sigma^*(\alpha), \sigma) \\ &= \int_{H_\sigma^*(\alpha)}^\infty (R - H_\sigma^*(\alpha))dG(R) \\ &> 0 \end{aligned} \tag{25}$$

Furthermore, for $\alpha < 1$,

$$u_\sigma''(\alpha) = \frac{dH_\sigma^*(\alpha)}{d\alpha}\left(-\int_{H_\sigma^*(\alpha)}^\infty dG(R)\right) > 0$$

Hence, the u_σ are strictly increasing and are strictly convex for $\alpha < 1$. The final property of u of interest is a single-crossing property. By the definition of R_0 (as the intersection of G_s and G_r), we have $\Gamma_r(R) > \Gamma_s(R)$ for all $R \leq R_0$. Therefore and because $H_0 < R_0$, if $H_s^*(\alpha) \leq H_0$, then

$H_r^*(\alpha) < H_s^*(\alpha)$. As argued above, $H_s^*(\alpha) \leq H_0$ iff $\alpha \geq \alpha_0$. Combining this with (25) shows that for $\alpha \geq \alpha_0$,

$$u_r'(\alpha) > u_s'(\alpha). \tag{26}$$

Hence, for $\alpha \geq \alpha_0$ the graphs of u_s and u_r can intersect at most once.

As argued in Proposition 3, if an individual wants the risky strategy to be implemented, she chooses equity control and $H = H_r^*(\alpha)$. However, if she wants the safe strategy, she chooses lender control and $H = H_s^*(\alpha)$ if $\alpha \geq \alpha_0$ or $H = H_0$ if $\alpha < \alpha_0$. Hence, the optimal utility from the safe strategy is, using (10),

$$v_s(\alpha) = \begin{cases} u_s(\alpha) & \text{if } \alpha \geq \alpha_0 \\ \alpha(\overline{R}_s - H_0 + \Gamma_s(H_0)) + T & \text{if } \alpha < \alpha_0 \end{cases}$$

where

$$T = \frac{A}{2}\Gamma_s(H_0)^2 - (1 + AH_0)\Gamma_s(H_0) + H_0 + A\int_0^{H_0} RG_s(R)dR. \tag{27}$$

One easily verifies that v_s is continuous and differentiable. Clearly, $v_s < u_s$ for $\alpha < \alpha_0$ (the individual has to make a concession to the lender to have her preferred strategy implemented).

Individual α´s choice therefore is between $u_r(\alpha)$ and $v_s(\alpha)$.

As $\alpha_0 < 1$, we have $u_r(1) > v_s(1)$, which proves that $\overline{\alpha} < 1$: for $\alpha \geq 1$ risky investment and equity dominance are preferred. Furthermore, by the single-crossing property (26), the strict convexity of u_r and because v_s is linear for $\alpha < \alpha_0$, the graphs of u_r and v_s can intersect at most twice. They intersect not at all if $u_r(0) > u_s(0)$ (by (24) this is (14)); in this case, the graph of u_r lies above that of u_s for the whole of $[0, 1]$. If they intersect twice, $v_s < u_r$ to the left of the left intersection ($\underline{\alpha}$) and to the right of the right intersection ($\overline{\alpha}$), while $v_s > u_r$ for $\alpha \in (\underline{\alpha}, \overline{\alpha})$.

The two graphs intersect exactly once iff $v_s(0) > u_r(0)$. If $\alpha_0 = 0$ this condition is simply $u_s(0) > u_r(0)$, which is equivalent to

$$\int_0^{H_s^*(0)} RG_s(R)dR > \int_0^{H_r^*(0)} RG_r(R)dR.$$

As $\alpha_0 = 0$ implies $H_s^*(0) \leq H_0$, this yields one part of condition (15).

If $\alpha_0 > 0$, note that by the definition of α_0, $\Gamma_s(H_0) < 1/A$ and that $v_s(0) = T$, given by (27). Using the fact that the real-valued function $y(x) = Ax^2 - 2(1 + AH_0)x$ is strictly decreasing for $x < 1/A$, we can, therefore, replace $\Gamma_s(H_0)$ in (27) by $1/A$ to obtain

$$\begin{aligned} v_s(0) &> \frac{A}{2}(\frac{1}{A})^2 - (1 + AH_0)\frac{1}{A} + H_0 + A\int_0^{H_0} RG_s(R)dR \\ &= -\frac{1}{2A} + A\int_0^{H_0} RG_s(R)dR. \end{aligned}$$

As $\alpha_0 > 0$ implies $H_s^*(0) > H_0$ and as $u_r(0) = -\frac{1}{2A} + A\int_0^{H_r^*} RG_r(R)dR$, this shows that condition (15) is indeed sufficient for $v_s(0) > u_r(0)$ also in this case.

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